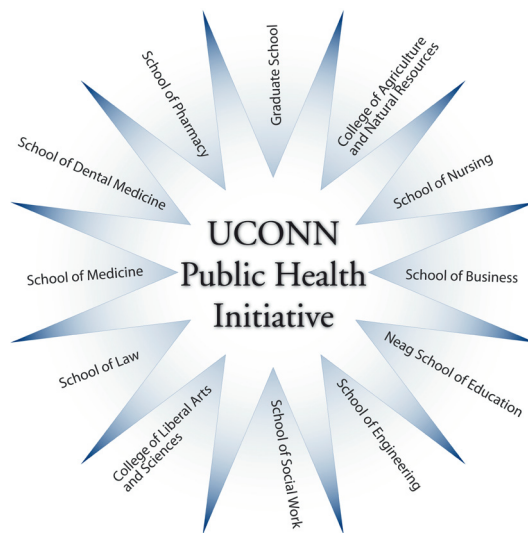


**Connecticut Mandated  
Health Insurance Benefits  
Reviews  
2010  
Volume II**



University of Connecticut

Center for Public Health and Health Policy



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# Connecticut Mandated Health Insurance Benefit Reviews

## Volume II. Introduction

Volume II contains eleven of the forty-five comprehensive reviews of existing health insurance required benefits (mandates) completed by the University of Connecticut Center for Public Health and Health Policy pursuant to Public Act 09-179. (P.A. 09-179 is attached to this report as Appendix I.)

The mandates in Volume II are found in Title 38a of the Connecticut General Statutes Annotated and apply to certain individual and group health insurance policies delivered, issued for delivery, renewed or continued in this state after the effective date of the respective statute. The types of policies to which health insurance mandates may apply as described in CGSA § 38a-469 include:

- Basic hospital expense coverage (Subsection 1)
- Basic medical-surgical expense coverage (Subsection 2)
- Hospital confinement indemnity coverage (Subsection 3)
- Major medical expense coverage (Subsection 4)
- Disability income protection coverage (Subsection 5)
- Accident only coverage (Subsection 6)
- Long term care coverage (Subsection 7)
- Specified accident coverage (Subsection 8)
- Medicare supplement coverage (Subsection 9)
- Limited benefit health coverage (Subsection 10)
- Hospital or medical service plan contract (Subsection 11)
- Hospital and medical coverage provided to subscribers of a health care center (Subsection 12)
- Specified disease coverage (Subsection 13).

Volume II is intended to be read in conjunction with the General Overview and the actuarial report for these mandates prepared by Ingenix Consulting. The Ingenix Consulting report for this set of mandates is attached to this Volume as Appendix II.

The following table lists the mandates covered in this volume and the chapter in which each is reviewed; their statutory references (from CGSA Title 38a); and the applicable policy types. The order in which they are listed coincides with the order in which they are reviewed in the Ingenix Consulting report.

<b>Index of Mandates: Volume II</b>				
Chapter	Description	Individual policy statute	Group plan statute	Policy Types Applicable (Subsection)
1	Mammography and Breast Ultrasound	§ 503	§ 530	1,2,4,11,12
2	Maternity Minimum Stay	§ 503c	§ 530c	1,2,4,11,12
3	Mastectomy or Lymph Node Dissection Minimum Stay	§ 503d	§ 530d	1,2,4,6,10,11,12
4	Prescription Contraceptives	§ 503e	§ 530e	1,2,4,11,12
5	Infertility Diagnosis and Treatment	§ 509	§ 536	1,2,4,11,12
6	Autism Spectrum Disorder Therapies	§ 488b	§ 514b	1,2,4,11,12
7	Coverage for Newborn Infants	§ 490	§ 516	1,2,4,6,11,12
8	Blood Lead Screening and Risk Assessment	§ 490d	N/A	1,2,4,11,12
9	Preventive Pediatric Care and Blood Lead Screening	N/A	§ 535	1,2,4,6,11,12
10	Low Protein Modified Food Products, Amino Acid Modified Preparations and Specialized Formulas	§ 492c	§ 518c	1,2,4,6,11,12
11	Neuropsychological Testing for Children Diagnosed with Cancer	§ 492l	§ 516d	1,2,4,11,12

Each chapter reviews a single mandate and includes five sections: Overview, Background, Methods, Social Impact, and Financial Impact. The Overview includes the statutory references and the language of the mandate, the effective date, the premium impact, and the extent to which the mandated benefit is included in self-funded plans. The Background describes the disease, condition, treatment or provider to which the mandate applies, provides information on the current research and other pertinent information for each mandate. The Methods section documents the research methods followed by the mandate review team. The Social Impact section addresses the sixteen criteria contained in section 1(d)(1) of P.A. 09-179. The Financial Impact section addresses the nine criteria contained in section 1(d)(2) of P.A. 09-179.

The following table summarizes the expected medical costs of each mandate in this volume for group plans. Medical cost is the primary component of health insurance premiums. See the Ingenix Consulting report (Appendix II) for further details.

## Summary of Estimated Medical Costs of Mandates In 2010: Volume II

Group Plans		
Mandate	Per Member Per Month (PMPM)	Percent of Premium
Mammography and Breast Ultrasound	\$2.54	0.80%
Maternity Minimum Stay	\$1.85	0.60%
Mastectomy or Lymph Node Dissection Minimum Stay	\$0.10	0.03%
Prescription Contraceptives	\$1.20	0.40%
Infertility Diagnosis and Treatment	\$2.80	0.90%
Autism Spectrum Disorder Therapies	\$0.03	0.01%
Coverage for Newborn Infants	\$4.96	1.70%
Blood Lead Screening and Risk Assessment	\$0.01	Less than 0.01%
Preventive Pediatric Care and Blood Lead Screening	\$1.91	0.60%
Low Protein Modified Food Products, Amino Acid Modified Preparations and Specialized Formulas	\$0.24	0.10%
Neuropsychological Testing for Children Diagnosed with Cancer	\$0.00	Less than 0.01%
TOTAL	\$15.64	5.16%

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Appendix II. Ingenix Consulting Actuarial and Economic Report

Appendix III. Index of Mandates





# **Volume II**

## **Chapter 1**

### **Mammography and Breast Ultrasound**

Review and Evaluation of Connecticut Statute Chapter 700,

§ 38a-530 and § 38a-503

Mandatory coverage for mammography and breast ultrasound

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## I. Overview

The Connecticut General Assembly directed the Connecticut Insurance Department (CID) to review the health benefits required by Connecticut law to be included in group and individual health insurance policies as of July 1, 2009. Reviews are conducted following the requirements stipulated under Public Act 09-179 (Appendix I) and are collaborative efforts of Connecticut Insurance Department and the University of Connecticut Center for Public Health and Health Policy (CPHHP).

Connecticut General Statutes, Chapter 700, §§ 38a-530 and 38a-503 state that each group and individual and health insurance policy...

...shall provide benefits for mammographic examinations to any woman covered under the policy which are at least equal to the following minimum requirements: (1) A baseline mammogram for any woman who is thirty-five to thirty-nine years of age, inclusive; and (2) a mammogram every year for any woman who is forty years of age or older. Such policy shall provide additional benefits for comprehensive ultrasound screening of an entire breast or breasts if a mammogram demonstrates heterogeneous or dense breast tissue based on the Breast Imaging Reporting and Data System established by the American College of Radiology or if a woman is believed to be at increased risk for breast cancer due to family history or prior personal history of breast cancer, positive genetic testing or other indications as determined by a woman's physician or advanced practice registered nurse.

In April 2010, CPHHP and Ingenix Consulting (IC) requested and received mammography and breast ultrasound claims data from six insurers and managed care organizations (MCOs) domiciled in Connecticut that cover over 90 percent of the population in fully insured group and individual health insurance plans in Connecticut (1.25 million persons). Claims data shows that claims are being paid for mammography and breast ultrasound by health insurers and MCOs.

### *Current coverage*

This mandate went into effect on October 1, 1988 (P.A. 90-243, S. 114).

### *Premium Impact*

**Group plans:** On a 2010 basis, medical cost is estimated to be \$2.54 per member per month (PMPM). Estimated total cost (insurance premium, administrative fees, and profit) of the mandated services in 2010 in group plans is \$3.05 PMPM which is approximately 0.8 percent of estimated total costs in group plans. Estimated cost sharing in 2010 in group plans is \$0.13 PMPM.

**Individual policies:** Four of the six insurers/MCOs provided claims data for individual health insurance policies. On a 2010 basis, medical cost is estimated to be \$1.88 PMPM. Estimated total cost (insurance premium, administrative fees, and profit) of the mandated services in 2010 in individual policies is \$2.45 PMPM, approximately 0.9 percent of estimated total costs in individual policies. Estimated cost sharing in 2010 in individual policies is \$0.44 PMPM. Individual policies data is less credible than group plans data primarily due to small sample size.

### *Self-funded plans*

Five health insurers/MCOs domiciled in Connecticut provided information about their self-funded plans, which represents an estimated 47 percent of the total population in self-funded plans in Connecticut. These five insurers/MCOs report that 95.6 percent of enrollees in their self-funded plans have coverage for

the mandated services.

This report is intended to be read in conjunction with the General Introduction to this volume and the Ingenix Consulting Actuarial and Economic Report which is included as Appendix II.

## II. Background

An estimated 207,090 new cases of breast cancer are expected to occur among women in the US during 2010; about 1,970 new cases are expected in men.<sup>1</sup> Excluding cancers of the skin, breast cancer is the most frequently diagnosed cancer in women. An estimated 40,230 breast cancer deaths (39,840 women; 390 men) are expected in 2010.<sup>2</sup> The American Cancer Society estimates that 2,790 new breast cancer cases were discovered and 480 women died of breast cancer in Connecticut in 2009.<sup>3</sup>

Breast cancer ranks second as a cause of cancer death in women, after lung cancer. Death rates for breast cancer have steadily decreased in women since 1990.<sup>4</sup> The decrease in breast cancer death rates represents progress in both earlier detection and improved treatment.

Mammography is a low-dose x-ray procedure that allows visualization of the internal structure of the breast. Mammography is highly accurate, but like most medical tests is not infallible. On average, mammography will detect about 80-90 percent of breast cancers in women without symptoms.<sup>5</sup> The small percentage of cancers that are not identified by mammography may be missed for several reasons, including breast density, tumor growth rate, inadequate positioning of the breast, or interpretation error (failure to see indications of an abnormality).

Breast ultrasound is useful in the evaluation of palpable masses that are mammographically occult, in evaluation of clinically suspected breast lesions in women younger than 30 years of age, and when a mammogram shows an abnormality in the breast tissue.<sup>6</sup> An abnormality may be a non-cancerous cyst, plugged milk duct or tumor.

According to data from the 2006 Behavioral Risk Factor Surveillance System (BRFSS), 69.9 percent of women aged 40 and older in Connecticut had a mammogram within the past year. Connecticut ranks fourth among states in this regard, trailing only Massachusetts (71.4 percent), Rhode Island (70.8 percent) and Delaware (70.2 percent).<sup>7</sup>

Women who have less than a high school education, who have no health insurance coverage, or who are recent immigrants to the US are least likely to have had a recent mammogram. White women have a higher incidence of breast cancer than African American women after age 40. In contrast, African American women have a higher incidence rate before age 40 and are more likely to die from breast cancer at every age. Incidence and death rates from breast cancer are lower among women of other racial and ethnic groups than

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<sup>1</sup> American Cancer Society. 2010. Cancer facts and figures, 2010. Atlanta: American Cancer Society. Available at: <http://www.cancer.org/acs/groups/content/@epidemiologysurveillance/documents/document/acspc-026238.pdf>. Accessed August 18, 2010.

<sup>2</sup> *Ibid.*

<sup>3</sup> American Cancer Society. Cancer Facts and Figures 2009. Atlanta: American Cancer Society; 2009.

<sup>4</sup> *Ibid.*

<sup>5</sup> American Cancer Society. 2010. Breast cancer facts and figures, 2009-2010. Atlanta: American Cancer Society Inc. Available at: <http://www.cancer.org/acs/groups/content/@nho/documents/document/f861009final90809pdf.pdf>. Accessed September 15, 2010.

<sup>6</sup> Perlmutter S. 2008. Breast cancer, ultrasonography. eMedicine Clinical Knowledge Base, Institutional Edition. Available at: <http://www.imedicine.com/DisplayTopic.asp?bookid=12&topic=795>. Accessed September 17, 2010.

<sup>7</sup> National Center for Chronic Disease Prevention and Health Promotion. 2007. Behavioral Risk Factor Surveillance System Public Use Data Tape, 2006. Centers for Disease Control and Prevention.

among white and African American women.<sup>8</sup>

Medicare, Medicaid, and most private health insurance plans cover mammography costs or a percentage of them. Low-cost or free mammograms are available in most communities. The Connecticut Department of Health sponsors the Connecticut Breast and Cervical Cancer Early Detection Program (CBCCEDP), a comprehensive screening program available throughout Connecticut for medically underserved women.

Mammography is the most common health insurance mandate in the United States. Forty-nine states and the District of Columbia require health insurance plans to cover mammography.<sup>9</sup>

National guidelines for breast cancer screening using mammography exist from several organizations, including the American Cancer Society (ACS), American College of Radiology, and the United States Preventive Services Task Force (USPSTF). Following years of broad agreement about the guidelines among multiple organizations, the USPSTF changed its recommendations in December 2009. The USPSTF currently recommends against routine mammography for women under age 50 who are not at increased risk for breast cancer by virtue of a known underlying genetic mutation or a history of chest radiation and recommends biennial screening mammography for women 50-74 years of age. The ACS and American College of Radiology continue to recommend yearly mammograms starting at age 40 and continuing for as long as a woman is in good health.

### III. Methods

Under the direction of CPHHP, medical librarians at the Lyman Maynard Stowe Library at the University of Connecticut Health Center (UCHC) gathered published articles and other information related to medical, social, economic, and financial aspects of the required benefit. Medical librarians conducted literature searches using PubMed, Scopus, UptoDate, Dynamed, Cochrane Database, EMedicine, PsychInfo, and a web search using Google. Search keywords included mammogram, mammography, breast ultrasound, breast cancer screening, social impact, insurance, insurance coverage, reimbursement, and economics.

CPHHP staff conducted independent literature searches using the Cochrane Review, Scopus, and Google Scholar using similar search terms used by the UCHC medical librarians. Where available, articles published in peer-reviewed journals are cited to support the analysis. Other sources of information may also be cited in the absence of peer-reviewed journal articles. Content from such sources may or may not be based on scientific evidence.

CPHHP staff consulted with clinical faculty and staff from the University of Connecticut School of Medicine on matters pertaining to medical standards of care; traditional, current and emerging practices; and evidence-based medicine related to the benefit.

Staff gathered additional information through telephone and e-mail inquiries to appropriate state, federal, municipal, and non-profit entities and from internet sources such as the State of Connecticut website, Centers for Medicare and Medicaid Services (CMS) website, other states' websites, professional organizations' websites, and non-profit and community-based organization websites.

With the assistance of the Connecticut Insurance Department (CID), CPHHP and Ingenix Consulting requested and received 2007 and 2008 claims data from insurance companies and MCOs domiciled in

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<sup>8</sup> American Cancer Society. 2010. Breast cancer facts and figures, 2009-2010.

<sup>9</sup> Hanson K, Bondurant E. 2009. Cancer insurance mandates and exceptions. National Conference of State Legislatures: Denver, CO. Available at: <http://www.ncsl.org/portals/1/documents/health/CancerMandatesExcept09.pdf>. Accessed July 1, 2010.

Connecticut. Six insurers/MCOs provided claims data for their fully insured group and individual plan participants. Five insurers/MCOs also provided information about mammography and breast ultrasound coverage in the self-funded plans they administer.

CPHHP and the CID contracted with Ingenix Consulting (IC) to provide actuarial and economic analyses of the mandated benefit. Further details regarding the insurer/MCO claims data and actuarial methods used to estimate the cost of the benefit and economic methods used to estimate financial burden may be found in Appendix II.

## IV. Social Impact

### ***1. The extent to which mammography and breast ultrasound is utilized by a significant portion of the population.***

Connecticut's estimated population covered by fully insured group and individual health insurance plans is 46.6 percent.<sup>10</sup> Connecticut's female population age 40-64 is estimated at 628,717 and its female population age 35-39 is estimated at 127,176.<sup>11</sup> If all women in Connecticut covered by fully insured group and individual health insurance plans in the 40-64 age group and one fifth of the women in the 35-39 age group receive an annual mammogram, estimated annual utilization of mammography is 304,835 women.

It is, however, unlikely that all eligible women receive mammography at the recommended frequency, thus the estimate is likely overstated. The National Center for Chronic Disease Prevention and Health Promotion reports that 69.1 percent of women age 40-64 received a mammogram in the past year.<sup>12</sup> If only 69.1 percent of the female population age 40-64 covered by fully insured group or individual health insurance plans in Connecticut receive an annual mammogram, the estimated number of women age 40-64 in Connecticut covered by fully insured group and individual health insurance plans who receive an annual mammogram is 210,641.

For further information please see Appendix II: Ingenix Consulting Actuarial and Economic Report, page 39-40.)

### ***2. The extent to which the treatment, service or equipment, supplies or drugs, as applicable, is available to the population, including, but not limited to, coverage under Medicare, or through public programs administered by charities, public schools, the Department of Public Health, municipal health departments or health districts or the Department of Social Services.***

#### ***Medicare***<sup>13</sup>

Medicare Part B provides mammogram coverage that closely parallels coverage required by Connecticut's health insurance mandate. Medicare covers one baseline mammogram between ages 35 and 39 and an annual mammogram for women 40 and older. The patient must pay 20 percent of the Medicare approved amount and no Part B deductible applies.

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<sup>10</sup> University of Connecticut, Center for Public Health and Health Policy. 2009. Review and Evaluation of Public Act 09-188, An Act Concerning Wellness Programs and Expansion of health insurance coverage. University of Connecticut. Available at: <http://publichealth.uconn.edu/images/reports/InsuranceReview09.pdf>. Accessed October 8, 2010.

<sup>11</sup> United States Census Bureau. American Community Survey. 2006-2008 American Community Survey 3-Year Estimates, Age and Sex, Connecticut.

<sup>12</sup> National Center for Chronic Disease Prevention and Health Promotion. 2007. Behavioral Risk Factor Surveillance System Public Use Data Tape 2006. Centers for Disease Control and Prevention.

<sup>13</sup> Medicare Coverage Guidelines for Mammogram Screening (State of Connecticut).

In addition to routine (annual) mammograms, Medicare covers diagnostic mammograms for men and women who present signs and symptoms that show the need for a mammogram or have a personal history of breast cancer or biopsy-proven benign breast disease, but do not currently have any signs of the cancer or disease. Based on these and other factors deemed medically significant by a physician, a diagnostic mammography may be ordered. The patient must pay 20 percent of the Medicare approved amount for these screenings, although in contrast to routine mammogram screenings, the Part B deductible does apply to diagnostic mammography. For recently developed digital technologies (e.g., magnetic resonance imaging mammography), the patient must pay 20 percent of the Medicare-approved amount with no Part B deductible, as well as a set copayment amount in the hospital outpatient setting.

### ***Public Programs Administered by Charities***

The American Cancer Society does not offer health care insurance, and does not have the means to provide all the people who need it with financial assistance. It does offer answers to financial and insurance questions, helps with transportation and lodging, and funds research on the causes of cancer and its potential prevention and treatment.<sup>14</sup>

Many hospitals and clinics sponsor mammography assistance programs that provide screening and diagnostic mammography tests for women who are uninsured and do not qualify for public assistance. There is a wide array of breast cancer charities throughout the country that offer financial assistance for mammography and breast ultrasound. Charitable cancer organizations are in general supported by private contributions, thus resources are not unlimited. Eligibility for financial assistance is generally based on need.

### ***Public Programs Administered by Public Schools***

No information was found that would indicate public schools would be a source of mammography and breast ultrasound or provide funding for mammography or breast ultrasound.

### ***The Department of Public Health (DPH)***

The Connecticut Department of Public Health website includes information and resources related to cancer, including in-depth information about breast cancer. DPH sponsors the Connecticut Breast and Cervical Cancer Early Detection Program (CBCCEDP), a comprehensive screening program available throughout Connecticut for medically underserved women. The primary objective of the program is to significantly increase the number of women who receive breast and cervical cancer screening, diagnostic and treatment referral services, including mammography and breast ultrasound. All services are offered free of charge through the Connecticut Department of Public Health's contracted health care providers located statewide.<sup>15</sup>

### ***Municipal Health Departments***

No information was found that would indicate municipal health departments would be a source of mammography and breast ultrasound or provide funding for mammography and breast ultrasound. Municipal health departments routinely provide cancer/cancer prevention information and resources, early detection and screening services or referrals, and treatment referral services for residents.

### ***The Department of Social Services (DSS)***

Medicaid covers a variety of radiological breast-health services, including mammograms, breast ultrasounds and breast MRIs.<sup>16</sup>

<sup>14</sup> American Cancer Society. 2007. "Access to Health Care." Available at: [http://www.cancer.org/docroot/subsite/accesstocare/content/Frequently\\_Asked\\_Questions.asp](http://www.cancer.org/docroot/subsite/accesstocare/content/Frequently_Asked_Questions.asp). Accessed June 1, 2010.

<sup>15</sup> Connecticut Department of Public Health. 2007. "Breast Cancer." Available at: <http://www.ct.gov/dph/cwp/view.asp?a=3134&q=397344&dphPNavCtr=|47735|#47736>. Accessed June 1, 2010.

<sup>16</sup> DSS Provider Fee Schedule, Physician Radiology (1/1/10).

***3. The extent to which insurance coverage is already available for the treatment, service or equipment, supplies or drugs, as applicable.***

State of Connecticut law requires coverage for mammography and breast ultrasound in fully insured group and individual health insurance plans as of October 1, 2001.<sup>17</sup> 2007 and 2008 claims data from six insurers/MCOs that cover 90 percent of the population in fully insured group and individual insurance plans in Connecticut showed evidence that claims are paid for the mandated services. Information received from five insurers/MCOs domiciled in Connecticut shows that 95.6 percent of members in their self-funded plans have coverage for the benefit.

***4. If the coverage is not generally available, the extent to which such lack of coverage results in persons being unable to obtain necessary health care treatment.***

Coverage is required and generally available for persons enrolled in fully insured group and individual health insurance plans. Coverage is also available to 95.6 percent of persons enrolled in self-funded plans; persons enrolled in fully insured group and self-funded plans represent the majority of the insured population under age 65 in Connecticut. Medicare and Medicaid generally cover mammography and breast ultrasound. Breast cancer screening programs are also available to medically underserved women in Connecticut through the Connecticut Breast and Cervical Cancer Early Detection Program (CBCCEDP) which is sponsored by DPH.

***5. If the coverage is not generally available, the extent to which such a lack of coverage results in unreasonable financial hardships on those persons needing treatment.***

As noted above, coverage for mammography and breast ultrasound is required to be included in fully insured group and individual insurance plans issued in Connecticut. Depending on the level of cost sharing and personal financial resources available, that coverage may or may not be sufficient for the insured's family to avoid unreasonable financial hardship. To encourage screening and access to early disease detection tools, cost-sharing for preventive procedures is minimal or waived in many health insurance plans.

A diagnosis of breast cancer carries significant health and economic costs for the individual and their family, even for those with comprehensive health benefits. Mammography and breast ultrasound used as screening and surveillance tools often result in early identification of breast cancer which leads to improved health outcomes for the patient. Additionally, negative economic impacts such as reduced productivity and lost income may be less severe.

Further discussion of financial and socioeconomic effects of the mandated benefit may be found in Appendix II: Ingenix Consulting Actuarial and Economic Report, page 35-38.

***6. The level of public demand and the level of demand from providers for mammography and breast ultrasound.***

The media attention and critical responses from professional organizations that followed the revised mammography screening guidelines issued by the U.S. Preventive Services Task Force in late 2009 are good indicators that public demand and provider demand for breast cancer screening through mammography and breast ultrasound is very high and the services are highly valued.

***7. The level of public demand and the level of demand from providers for insurance coverage for mammography and breast ultrasound.***

Several members of the public and providers testified in favor of insurance coverage for the mandated

<sup>17</sup> Conn. Gen. Stat. Ann. § 38a-492k (individual insurance policies); § 38a-518k (group insurance policies).



services during the time legislation for the mandated benefit was under consideration by the Connecticut General Assembly and when the statute was amended.<sup>18</sup>

Medical librarians and CPHHP staff found no published studies regarding the level of demand from the public or from providers for insurance coverage for mammography and breast ultrasound. Due in part to a high level of public and provider demand for insurance coverage for services for women and for cancer screenings, Connecticut is among many states that has enacted numerous required benefits for such services. Mammography and breast ultrasound fit into both categories and are also preventive services, thus demand for insurance coverage is not likely to wane until a superior method for early detection of breast cancer is discovered.

Public and provider demand for the services and for insurance coverage of the services is also indicated by the large number of states that mandate coverage for mammography as described below.

***8. The likelihood of achieving the objectives of meeting a consumer need as evidenced by the experience of other states.***

With the exception of Utah, every state and the District of Columbia requires fully insured plans to cover mammography. Breast cancer screening is the most common health insurance mandate in the United States. Twelve states require coverage for mammograms on a schedule at least as frequent as Connecticut's, i.e., a baseline mammogram at ages 35-39 and annually at age 40 and over.<sup>19</sup>

***9. The relevant findings of state agencies or other appropriate public organizations relating to the social impact of the mandated health benefit.***

Thirty states now require a fiscal note or an additional review process for any new required health insurance benefit prior to enactment.<sup>20</sup> Internet searches and telephone inquiries found several studies from state agencies and public organizations related to the social impact of mandated insurance coverage for mammography and breast ultrasound.

California: The California Health Benefits Review Program (CHBRP) reviewed the impact of 2009 Assembly Bill (AB) 56, a bill that would require health insurers to cover mammography and require health plans and insurers to notify female enrollees in writing as to when breast cancer screening should begin, as per the timing recommended by “national guidelines.” The CHBRP concluded that there is a preponderance of evidence that, among women ages 40 years and older, mammography screening reduces breast cancer mortality. CHBRP cited evidence that shows women ages 40-49 experience a smaller reduction in breast cancer mortality than women ages 50 years and older, and false-positive results are more frequent in the 40-49 year age group.<sup>21</sup> Additionally, the CHBRP reports the following public health impacts:

- Approximately 51 percent of insured women in California report receiving a mammogram at age 40 years—the age clinical practice guidelines recommend beginning screening with mammography for women of average risk for breast cancer.

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<sup>18</sup> Connecticut General Assembly. Report on Bills Favorably Reported By Committee. Insurance and Real Estate Committee. SB-422. March 9, 2006.

<sup>19</sup> National Association of Insurance Commissioners. 2008. NAIC Compendium of State Laws on Insurance Topics.

<sup>20</sup> National Conference of State Legislatures. 2009. Health insurance coverage mandates: Are they too costly? Presentation at the Louisiana Department of Insurance 2009 Annual Health Care Conference. May 28, 2009. Available at: <http://www.ncsl.org/portals/1/documents/health/MandatesCauchi09.pdf>. Accessed May 7, 2010.

<sup>21</sup> California Health Benefits Review Program (CHBRP), 2009. Analysis of Assembly Bill 56: Mammography. Report to California State Legislature. Oakland, CA: CHBRP. 09-01.

- 1,224 women need to be screened to prevent one death from breast cancer.
- Racial and ethnic disparities exist in breast cancer prevalence and in early diagnoses and mortality rates. Non-Hispanic white women have the highest rates of breast cancer, followed by blacks and Asian/Pacific Islanders. Hispanics have the lowest rates. The research on mammography utilization by race/ethnicity suggests that some of the differences in health outcomes among non-white women can be explained by their lower rates of mammography utilization.
- There are approximately 4,200 deaths each year in California due to breast cancer, a rate of 23.2 deaths per 100,000 women. It is estimated that for each life lost prematurely to breast cancer, there is a loss of 22.9 life-years and a cost of lost productivity of \$272,000.

**Massachusetts:** In 2008, Massachusetts published a review of several state insurance mandates, including its breast cancer screening mandate, which requires a baseline mammogram for women between the ages of 35 and 40 and an annual mammogram for women 40 of age and older.<sup>22</sup> The report cites a National Cancer Institute study that shows strong evidence that regular use of screening mammograms, followed by timely treatment when breast cancer is diagnosed, can help reduce the chances of dying from breast cancer by 17 percent for women in their forties, and 30 percent for women in their fifties and sixties.<sup>23</sup> Additionally, Massachusetts authors cite the Susan J. Komen Breast Cancer Foundation article that asserts that mammography is also a superior method of abnormal tissue detection when compared with other cancer-detecting procedures as follows: “[w]omen whose breast cancers were not found by mammography had a 53 percent greater risk of breast cancer death compared to those with cancers detected by mammography.”<sup>24</sup>

**Texas:** The Texas Department of Insurance (TDI) conducted a review of health insurance claims data from October 2005 to September 2006. Included in this review is the Texas mandate which requires group and individual insurance plans to cover an annual mammography for women 35 and over. In terms of social impact, Texas reports that mammography screening ranks third in rate of utilization among all of the Texas health insurance mandates.<sup>25</sup>

States searched for which no evidence of a review was found include Arkansas, Colorado, Louisiana, Maine, Maryland, Minnesota, New Jersey, New York, Ohio, Oregon, Pennsylvania, Rhode Island, Virginia, Washington, and Wisconsin.

### ***10. The alternatives to meeting the identified need, including but not limited to, other treatments, methods or procedures.***

The most widely recommended approach to breast cancer screening in the United States has been annual screening mammography, generally beginning at age 40 years. Currently, there are no alternatives to mammography and breast ultrasound that are equally effective and affordable. Breast self-examination and clinical breast exam performed by a health care professional are inexpensive and noninvasive; however, even with appropriate training they are not as effective as mammography in early detection of breast cancer. Breast MRI is a high cost service, and the American Cancer Society does not recommend the use of breast MRI in women who have less than 15 percent lifetime risk.

<sup>22</sup> Bachman SS, Highland J, Nordahl K, et al. 2008. Comprehensive review of mandated benefits in Massachusetts. Commonwealth of Massachusetts. Division of Health Care Finance and Policy. Available at: [http://www.mass.gov/Eeohhs2/docs/dhcfp/r/pubs/mandates/comp\\_rev\\_mand\\_benefits.pdf](http://www.mass.gov/Eeohhs2/docs/dhcfp/r/pubs/mandates/comp_rev_mand_benefits.pdf). Accessed September 17, 2010.

<sup>23</sup> National Cancer Institute. 2005. Breast cancer screening. Cancer trends progress report – 2005 update. Bethesda, MD: National Cancer Institute. Available at: <http://progressreport.cancer.gov/>. Accessed September 15, 2010.

<sup>24</sup> Bachman SS, et al. 2008.

<sup>25</sup> Texas Department of Insurance. 2006. Texas Mandated Benefit Cost and Utilization Summary Report, October 2005-September 2006 Reporting Period. Available at: <http://www.insurance.tx.gov/reports/life/documents/lhlmanbenrept06.pdf>. Accessed September 17, 2010.

**11. *Whether the benefit is a medical or broader social need and whether it is consistent with the role of health insurance and the concept of managed care.***

Coverage for mammography and breast ultrasound fulfills a medical need, that is, screening and early detection of breast cancer, including for women with dense breast tissue. Early detection of breast cancer is critical for successful medical and economic outcomes for patients. Required insurance coverage for mammography and breast ultrasound ensures that at least persons covered by fully insured group and individual insurance plans have access to the services. Breast cancer is an expensive disease to treat, especially in the late stages; therefore, prevention and early detection of breast cancer through mammography and breast ultrasound is consistent with the role of health insurance and the concept of managed care.

**12. *The potential social implications of the coverage with respect to the direct or specific creation of a comparable mandated benefit for similar diseases, illnesses, or conditions.***

It is possible that the basic structure of the mandate could be replicated for screening and surveillance for other types of disease. If denials of insurance coverage for certain screening and surveillance tools or methods were viewed as unfair or restricted access for a particular constituency, it is possible that mandated coverage could be proposed where, currently, mandated coverage does not exist.

**13. *The impact of the benefit on the availability of other benefits currently offered.***

Insurers and MCOs may cut costs by eliminating or restricting access to, or placing limits on other benefits currently offered. However, the availability of any benefits to be restricted may be limited. Existing benefits may be administratively costly to restrict and insurers may be contractually obligated to provide them. Additionally, many of the benefits that could be targets for elimination are included in plans for competitive advantage.

**14. *The impact of the benefit as it relates to employers shifting to self-funded plans and the extent to which the benefit is currently being offered by employers with self-funded plans.***

Five health insurers/MCOs domiciled in Connecticut provided information about their self-funded plans, which represents an estimated 47 percent of the total population in self-funded plans in Connecticut. These five insurers/MCOs report that 95.6 percent of enrollees in their self-funded plans have coverage for the mandated services. Because mammography and breast ultrasound benefits are typically included in self-funded plans not subject to state health insurance mandates, it is expected that the required benefit has little to no effect on employer decisions to shift to self-funded plans. Connecticut is not unique in this regard. A mandated benefits review conducted in Maryland found that “almost all employers with self-funded plans provide benefits that comply fully with the mandate requirement” for mammograms.<sup>26</sup>

There are several reasons for health insurance premium increases, including medical cost inflation, an aging population and an aging workforce, and required benefits or “mandates.” Employers contemplating a shift to self-funded plans are likely to weigh these and other factors. Employers also may shift to plans with higher coinsurance amounts to keep premiums at a more affordable level (“benefit buy down”). Benefit buy down can result in employees not taking up coverage and thus being uninsured or not accessing care when it is needed because of high deductibles.

**15. *The impact of making the benefit applicable to the state employee health insurance or health benefits plan.***

The mammography and breast ultrasound mandate is a current benefit that has been included in the state

<sup>26</sup> Moon M, Cowdry RW. 2008. Study of Mandated Health Insurance Services: A comparative evaluation. Maryland Health Care Commission. Available at: [http://mhcc.maryland.gov/health\\_insurance/mandated\\_1207.pdf](http://mhcc.maryland.gov/health_insurance/mandated_1207.pdf). Accessed July 16, 2010.

employee health insurance and health benefits plans at least in part since 1990. Thus the social impact of the benefit for the approximately 134,344 covered lives in state employee plans and 30,000 state retirees not enrolled in Medicare<sup>27</sup> is expected to be the same or similar to the social impact for persons covered in non-state employee health insurance plans as discussed throughout Section IV of this report.

State employee claims are included in the 2007 and 2008 claims data provided by insurers/MCOs for their fully insured group insurance enrollees. Because the state shifted to self-funded status on July 1, 2010 (during the time this report was being written), utilization under self-funded status is unknown. All self-funded plans, including those that provide coverage for state employees, are not regulated by the state insurance department and are exempt from state health insurance required benefit statutes.

In terms of financial impact, if the state employee health insurance/benefit plans continue to provide coverage for the required benefit, the IC actuarial analysis estimates the medical cost to the state employee health insurance plan will total \$5,008,900 in 2010.<sup>28</sup>

***16. The extent to which credible scientific evidence published in peer-reviewed medical literature generally recognized by the relevant medical community determines mammography and breast ultrasound to be safe and effective.***

A review of the medical literature found that, in general, mammography and breast ultrasound are safe and effective tools for breast cancer screening and surveillance. Some exceptions are notable, primarily the risk of low-dose radiation and the additional procedures and psychological effects of false-positive diagnosis of breast cancer.

A meta-analysis found that the low-dose radiation associated with mammography increases breast cancer risk for high-risk women (women at higher risk of breast cancer due to familial or genetic factors).<sup>29</sup> For women at high-risk, breast cancer screening is extremely important, and a careful approach that minimizes harmful exposure (e.g., avoidance of repeated mammography and use of non-ionizing screening techniques) is recommended.<sup>30</sup>

A ten-year review of mammography screening found that out of a total of 2,400 women included in the study, 23.8 percent had at least one false-positive mammogram. False-positive mammograms lead to additional mammograms, breast ultrasounds, and biopsies. Among the study population, one woman was hospitalized.<sup>31</sup> The report authors concluded that techniques are needed to decrease false-positive results while maintaining high sensitivity and that physicians should educate women about the risk of false-positive results from breast cancer screening.<sup>32</sup> A research study involving 140,387 women in the United Kingdom found that women who received a false-positive mammography at first screen were less likely to attend

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<sup>27</sup> Personal communication. Scott Anderson, State of Connecticut Comptroller's Office. September 14, 2010.

<sup>28</sup> The estimate is calculated by multiplying the estimated 2010 weighted average PMPM medical cost in fully insured plans in Connecticut by 12 to get an annual cost per insured life, and then multiplying that product by 163,334 covered lives, as reported by the State Comptroller's office. The actual cost of this mandate to the State plans may be higher or lower, based on the actual benefit design of the State plans and the demographics of the covered lives (e.g., level of cost-sharing, average age of members, etc.). Retention costs are not included in this estimate because the State is now self-funded and the traditional elements of retention do not apply. State costs for administration of this mandated benefit would be in addition to the above amount. See Appendix II, Ingenix Consulting Actuarial and Economic Report, for further discussion.

<sup>29</sup> Jansen-van der Weide MC, Greuter MJ, Jansen L, et al. 2010. Exposure to low-dose radiation and the risk of breast cancer among women with a familial or genetic predisposition: a meta-analysis. *European Radiology* 20(11): 2547-56.

<sup>30</sup> *Ibid.*

<sup>31</sup> Elmore JG, Barton MB, Mocerri VM, et al. 1998. Ten-year risk of false positive screening mammograms and clinical breast examinations. *New England Journal of Medicine* 228(16): 1089-96.

<sup>32</sup> *Ibid.*

subsequent screens, yet they were more likely to develop cancer and their cancers were larger.<sup>33</sup> More recent research, however, indicates that women in the United States are more likely to attend their next routine screening following a false-positive mammogram.<sup>34</sup>

The psychological effects of false-positive diagnosis of breast cancer have been studied in terms of breast-cancer-specific outcomes (such as anxiety about breast cancer) and generic outcomes that apply to people regardless of their experiences with breast cancer (such as generalized anxiety). A comprehensive review of existing research studies found that receiving a false-positive mammography affects psychosocial outcomes specific to breast cancer, but rarely affects generic well being.<sup>35</sup>

Breast ultrasound appears to carry little risk, and when combined with mammography is an effective method in increasing the rate of cancer detection.<sup>36</sup> Allergic contact dermatitis reaction to ultrasonic gels occurs, rarely, in ultrasonography applications, however no articles specific to breast ultrasound were found.

## IV. Financial Impact

### ***1. The extent to which the mandated health benefit may increase or decrease the cost of the treatment, service or equipment, supplies or drugs, as applicable, over the next five years.***

The mandate is not expected to materially alter the availability or cost of mammography and breast ultrasound over the next five years. Mammography is a high-volume, low-cost service and the presence of the insurance mandate is not expected to have any additional effect on its cost. Additionally, inclusion of mandated services in nearly all self-funded plans further dilutes any effect the existence of a mandate may have on the cost of the service. The cost of the service is likely to increase (or decrease) at the same rate as any other medical service.

### ***2. The extent to which the mandated health benefit may increase the appropriate or inappropriate use of mammography and breast ultrasound over the next five years.***

For those persons for whom mammography and breast ultrasound is recommended and whose insurance plans would not otherwise cover the services, the mandated health benefit may increase appropriate use of the services. For the uninsured, those covered by self-funded plans and those who use out-of-pocket funds or receive mammography and breast ultrasound from other sources, the mandated benefit may not increase appropriate use. Inappropriate use is not expected to be occurring due to well-established guidelines that are closely followed by providers.

### ***3. The extent to which mammography and breast ultrasound may serve as an alternative for more expensive or less expensive treatment, service or equipment, supplies or drugs, as applicable.***

Mammography and breast ultrasound are effective and efficient tools in detecting and monitoring breast cancer. Alternative forms of breast cancer detection and monitoring are less accurate and less effective (clinical breast exam and self breast exam) or more expensive (breast MRI).

### ***4. The methods that will be implemented to manage the utilization and costs of the mandated health***

<sup>33</sup> McCann J, Stockton D, Godward S. 2002. Impact of false-positive mammography on subsequent screening attendance and risk of cancer. *Breast Cancer Research* 4(5): R11. Epub 2002 Jul 17.

<sup>34</sup> Brewer NT, Salz T, Lillie SE. 2007. Systematic review: the long term effects of false-positive mammograms. *Annals of Internal Medicine* 146:502-10.

<sup>35</sup> Salz T, Richman AR, Brewer NT. 2010. Meta-analyses of the effect of false-positive mammograms on generic and specific psychosocial outcomes. *Psycho-Oncology* 19: 1026-34.

<sup>36</sup> Alnaimy NM, Khoumais N. 2009. Role of ultrasonography in breast cancer imaging. *PET Clinics* 4(3): 227-240.

*benefit.*

It is anticipated that insurers and MCOs utilize the same utilization management methods and cost controls that are used for other covered benefits. The legislation does not prohibit insurers and MCOs from employing utilization management, prior authorization, or other utilization tools at their discretion.

**5. *The extent to which insurance coverage for mammography and breast ultrasound may be reasonably expected to increase or decrease the insurance premiums and administrative expenses for policyholders.***

Insurance premiums include medical cost and retention costs. Medical cost accounts for medical services. Retention costs include administrative cost and profit (for for-profit insurers/MCOs) or contribution to surplus (for not-for-profit insurers/MCOs). (For further discussion, please see Appendix II, Ingenix Consulting Actuarial and Economic Report, page 12-13.)

**Group plans:** When the medical cost of the mandate is spread to all insureds in group plans, medical costs are estimated to be \$2.54 PMPM and retention costs are estimated to be \$0.51 PMPM in 2010. Thus the total effect on insurance premiums is estimated at \$3.05 PMPM in 2010. Insurance coverage for the mandated benefit may be reasonably expected to increase group health insurance premiums accordingly, that is, \$36.60 per year per insured.

**Individual policies:** When the medical cost of the mandate is spread to all insureds in individual policies, medical costs are estimated to be \$1.88 PMPM and retention costs are estimated to be \$0.56 PMPM in 2010. Thus the total effect on insurance premiums is estimated at \$2.44 PMPM in 2010. Insurance coverage for the mandated benefit may be reasonably expected to increase individual health insurance premiums accordingly, that is, \$29.28 per year per insured.

For further information, please see the Appendix II: Ingenix Consulting Actuarial and Economic Report.

**6. *The extent to which mammography and breast ultrasound is more or less expensive than an existing treatment, service or equipment, supplies or drugs, as applicable, that is determined to be equally safe and effective by credible scientific evidence published in peer-reviewed medical literature generally recognized by the relevant medical community.***

Mammography is currently the best available population-based method to detect breast cancer at an early stage when treatment is most effective. Mammography often reveals a lesion before it is palpable by clinical breast examination and, on average, 1-2 years before noted by breast self-examination.<sup>37</sup> Ultrasound is generally used to assist the clinical examination of a suspicious lesion detected via mammogram or physical examination, but as a screening device, the ultrasound is limited.

It could be argued that breast MRI is an equally safe and effective alternative to mammography. However, breast MRI has limited use as a general screening tool with a 10-fold higher cost than mammography and poor specificity (26 percent), resulting in significantly more false-positive reads that generate significant additional diagnostic costs and procedures.<sup>38</sup> The American Cancer Society does not recommend the use of breast MRI in women who have less than 15 percent lifetime risk. Among those with average risk, a combination of clinical breast examinations and yearly mammograms is recommended.

**7. *The impact of insurance coverage for mammography and breast ultrasound on the total cost of***

<sup>37</sup> Swart RS. 2010. Oncology-carcinoma of the breast. eMedicine Clinical Knowledge Base, Institutional Edition. Available at: <http://www.imedicine.com/DisplayTopic.asp?bookid=6&topic=2808>. Accessed September 17, 2010.

<sup>38</sup> *Ibid.*

***health care, including potential benefits or savings to insurers and employers resulting from prevention or early detection of disease or illness related to such coverage.***

The total cost of health care is understood to be the funds flowing into the medical system, which are the medical costs of insurance premiums and cost sharing. Actuarial analysis of claims data received from insurers/MCOs in Connecticut shows an expected cost in 2010 of \$44,003,538 for mammography and breast ultrasound for Connecticut residents covered by fully insured group and individual health insurance plans.

In terms of potential benefits or savings to insurers and employers resulting from prevention or early detection of disease or illness, benefits of screening mammography accrue to insurers and employers in terms of early detection of breast cancer. Employer economic benefits of early detection of breast cancer include employees returning to work sooner, improved on-the-job productivity and reduced mortality from breast cancer. Insurers may benefit from the early detection of breast cancer among insureds and potential decreased breast cancer treatment costs. Screening leads to subsequent medical costs of treatment for breast cancer. Cancer is one of the higher cost diseases to treat.

***8. The impact of the mandated health care benefit on the cost of health care for small employers, as defined in section 38a-564 of the general statutes, and for employers other than small employers.***

No published literature was found regarding the effect of mandated coverage for mammography and breast ultrasound on the cost of health care for small employers. Small employers may be more sensitive to premium increases than other employers and the estimated cost of the mandate (\$3.05 PMPM) suggests potential differences in effects may occur among different types of employers.

For further information regarding the differential effect of the mandates on small group vs. large group insurance, please see Appendix II: Ingenix Consulting Actuarial and Economic Report, page 28-29.

***9. The impact of the mandated health benefit on cost-shifting between private and public payers of health care coverage and on the overall cost of the health care delivery system in the state.***

Cost-shifting between private and public payers of health care coverage generally occurs when formerly privately insured persons, after enrolling in a public program or becoming un- or underinsured, require and are provided health care services. Cost-shifting also occurs when a formerly publicly-funded service becomes the responsibility of private payers, which can result following enactment of a health insurance mandate.

Most persons formerly covered under private payers lose such coverage due to a change in employer, change in employment status, or when private payers discontinue offering health care coverage as an employee benefit or require employee contributions to premiums that are not affordable. Because this required benefit became effective on October 1, 2001, it is unlikely that the mandate, taken individually, has any impact on cost-shifting between private and public payers of health care coverage at present.

The overall cost of the health delivery system in the state is understood to include total insurance premiums (medical costs and retention) and cost sharing. Actuarial analysis of claims data received from insurers/MCOs in Connecticut shows an expected cost in 2010 of \$52,611,561 for mammography and breast ultrasound screening for Connecticut residents covered by fully insured group and individual health insurance plans.

For further information, please see Appendix II, Ingenix Consulting Actuarial and Economic Report.





## **Volume II**

### **Chapter 2**

#### **Maternity Care, Minimum Stay**

Review and Evaluation of Connecticut General Statutes  
Chapter 700, §§ 38a-530c and 38a-503c.

Mandatory Coverage for Maternity Care.

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## I. Overview

The Connecticut General Assembly directed the Connecticut Insurance Department (CID) to review the health benefits required by Connecticut law to be included in fully insured group and individual health insurance policies. The review was conducted following the requirements stipulated under Public Act 09-179 (Appendix I). This review was a collaborative effort of CID and the University of Connecticut Center for Public Health and Health Policy (CPHHP). The CID and CPHHP contracted with the actuarial firm Ingenix Consulting to conduct a fiscal and economic analysis for each mandate.

This chapter evaluates the financial and social impact of the requirement for fully insured health insurance policies to cover postpartum hospital stays as specified under Connecticut General Statutes, Chapter <sup>700</sup>, §38a-530c and §38a-503c. The mandate requires fully insured group and individual health policies with maternity benefits to cover costs for at least forty-eight hours of inpatient care following a vaginal delivery and ninety-six hours following a cesarean delivery and allows for shorter stays at the physician's discretion after conferring with the patient. The mandate does not prevent a length of stay longer or shorter than forty-eight hours or ninety-six hours (48-hour/96-hour) for vaginal and C-section deliveries, respectively. In the case that a mother and her newborn discharge prior to the minimum covered stay, coverage for two follow-up visits must be provided—one within forty-eight hours of discharge and an additional visit within seven days of discharge.

The statutes require that as of October 1, 1996, that any fully insured health plan “that offers maternity benefits”:

...shall provide coverage of a minimum of forty-eight hours of inpatient care for a mother and her newborn infant following a vaginal delivery and a minimum of ninety-six hours of inpatient care for a mother and her newborn infant following a caesarean delivery...

...Any decision to shorten the length of inpatient stay to less than that provided [above] shall be made by the attending health care providers after conferring with the mother.

...If a mother and newborn are discharged pursuant to subsection (c) of this section, prior to the inpatient length of stay provided under subsection (b) of this section, coverage shall be provided for a follow-up visit within forty-eight hours of discharge and an additional follow-up visit within seven days of discharge. Such follow-up services shall include, but not be limited to, physical assessment of the newborn, parent education, assistance and training in breast or bottle feeding, assessment of the home support system and the performance of any medically necessary and appropriate clinical tests. Such services shall be consistent with protocols and guidelines developed by attending providers or by national pediatric, obstetric and nursing professional organizations for these services and shall be provided by qualified health care personnel trained in postpartum maternal and newborn pediatric care.

To analyze the impact of the postpartum hospital stay mandate, in March 2010, CPHHP and Ingenix Consulting (IC) requested and received 2007 and 2008 claims data related to the mandated benefit from six insurers and managed care organizations (carriers) domiciled in Connecticut. The carriers cover approximately 90 percent of the population in fully insured group and individual health policies in Connecticut (1.25 million persons). Six carriers provided data for group plans and four of the six carriers provided claims data for individual policies. However, the claims data for individual policies is considered less credible than the group plan data due to the lower response rate and fewer covered lives represented by the claims. Five carriers also provided information about postpartum maternity stay coverage in the self-

funded plans they administer. It is anticipated that the self-funded plans managed by the sixth carrier offer coverage comparable to the other five carriers.

Overall, the projected 2010 cost to Connecticut's health care system attributable to the postpartum hospital stay mandate is \$38,054,067. This amount includes \$29,752,047 in total medical claims, \$6,212,485 in retention (administrative expenses plus profit) and \$2,089,535 in cost sharing. On average, out-of-pocket cost sharing is expected to comprise approximately 5.5 percent of the dollars spent on postpartum hospital stays for the fully insured population.

### ***Current coverage***

The mandate went into effect on October 1, 1996 (P.A. 96-177, S. 2, 6). Most Connecticut residents have postpartum hospital stay coverage that meets the 48-hour for vaginal delivery and 96-hour for cesarean delivery minimum as a benefit under their health plan. However, coverage for follow-up well visits for those who discharge earlier than the minimum allowed stay may not be covered.

### ***Premium impact***

**Group plans:** On a 2010 basis, the paid medical cost is estimated to be \$1.85 per member per month (PMPM). The estimated total cost (insurance premium, administrative fees, and profit) attributable to the mandate in 2010 for group plans on average, is \$2.22 PMPM, which is 0.6 percent of the estimated total cost for group plans.

**Individual policies:** On a 2010 basis, medical cost is estimated to be \$1.28 PMPM. The estimated total cost of the mandated services in 2010 in individual policies is \$1.66 PMPM, which is approximately 0.6 percent of estimated total costs in individual policies. Individual policies data is less credible than group plans data primarily due to small sample size.

### ***Self-funded plans***

Five insurers provided information about postpartum hospital stay coverage under self-funded plans, accounting for approximately 47 percent of Connecticut residents enrolled in self-funded group plans. Responses indicate that approximately 92 percent of self-funded groups, accounting for 93.4 percent of self-funded members, have coverage for the service to an equal or greater extent than the Connecticut mandate requires of fully insured groups.

This report is intended to be read in conjunction with the General Introduction to this volume and the Ingenix Consulting Actuarial and Economic Report which is included as Appendix II.

## **II. Background**

### ***Post-delivery Maternity and Newborn Inpatient Hospital Stays and Discharge***

The period following the birth of a child involves psychosocial changes for the mother and physiological changes for both the mother and newborn. Following delivery, in-hospital stays play a role in monitoring and facilitating these transitions. A policy statement of the American Academy of Pediatrics (AAP) Committee on the Fetus and the Newborn establishes that a postpartum hospital stay "should be long enough to allow identification of early [newborn health] problems and to ensure that the family is able and prepared to care for the infant at home."<sup>39</sup>

Following delivery, the newborn must be monitored as the body becomes responsible for circulation, breathing, body temperature, blood sugar regulation, and digestion. Concurrently, the transition for the

<sup>39</sup> American Academy of Pediatrics. 2010. Policy statement: hospital stay for healthy term newborns. *Pediatrics* 125(2): 405-9.

mother includes physical and emotional changes, breastfeeding, and learning about general newborn care issues (e.g.: bathing, umbilical cord care, and taking a temperature), safety concerns and signs of neonatal illness.<sup>40</sup> The most common complications affecting the mother are postpartum bleeding, infections, reastfeeding issues and depression.<sup>41</sup> Orienting the mother to symptoms of health conditions affecting newborns is especially important since some conditions present after 48 hours of life, at which point families may have left the hospital. Delayed detection of congenital malformations, sepsis, and newborn breastfeeding issues such as initiation of breastfeeding, dehydration or clinical jaundice are among the health concerns during a newborn's first 48 hours of life.<sup>42</sup>

Consistent with these concerns, the AAP recommends a set of minimum criteria for pediatricians to evaluate prior to discharging a newborn that include newborn health, mother's readiness (knowledge, ability and confidence to provide adequate care); family, environmental and social risk factors; an established plan for follow-up care and a medical home for the newborn. For the final discharge, the AAP statement also suggests that, "All efforts should be made to keep mothers and infants together to promote simultaneous discharge. To accomplish this, a pediatrician's decision to discharge a newborn should be made jointly with input from the mother, her obstetrician, and other health care providers such as nursing staff and social workers who are involved in the care of mother and her infant."<sup>43</sup>

The mother, obstetrician and pediatrician all play a role in the decision-making process for hospital discharge after the birth of a child. The obstetrician is responsible for considering the health of the mother, whereas the pediatrician evaluates the health of the newborn and how prepared the mother is to provide care for the newborn. In a national survey conducted with obstetricians, pediatricians and mothers at the time of discharge, 17 percent of the sample was deemed unready by at least one party. Among the mothers identified as unready, perception of readiness varied across stakeholder groups with the mother most likely to identify as unready (11 percent) and the obstetrician least likely to identify the dyad as unready (1 percent compared to 5 percent by the pediatrician).<sup>44</sup>

In the same study, being a young, minority, low-income, uninsured or publicly insured mother was associated with being unready for discharge. Another study found that the mothers more likely to be identified as unready were non-Hispanic Black, had a history of chronic disease, were new to motherhood, received inadequate prenatal care or attended few in-hospital classes.<sup>45</sup> Weiss, et al. (2004) found that "earlier discharge was associated with young age, multiple pregnancies, public payer source, low socioeconomic status, lack of readiness for discharge, bottle-feeding and absence of a neonatal clinical problem."<sup>46</sup>

### ***Federal and State Mandates***

A substantial decrease in the total length of hospital stays for mothers and newborn infants following delivery occurred between 1970 and 1996.<sup>47</sup> As reported by the CDC, compared to 1970 the average length

<sup>40</sup> Friedman MA, Spitzer AR. 2004. Discharge criteria for the term newborn. *Pediatric Clinics of North America* 51(3): 599-618.

<sup>41</sup> Moldenhauer JS. 2008. Merck and Co. Women's Health Issues. Postdelivery Period. Available at: <http://www.merck.com/mmhe/sec22/ch262/ch262a.html>. Accessed November 5, 2010

<sup>42</sup> Friedman MA, Spitzer AR. 2004. Discharge criteria for the term newborn. *Pediatric Clinics of North America* 51(3): 599-618.

<sup>43</sup> American Academy of Pediatrics. 2010. Policy statement: hospital stay for healthy term newborns. *Pediatrics* 125(2): 405-9.

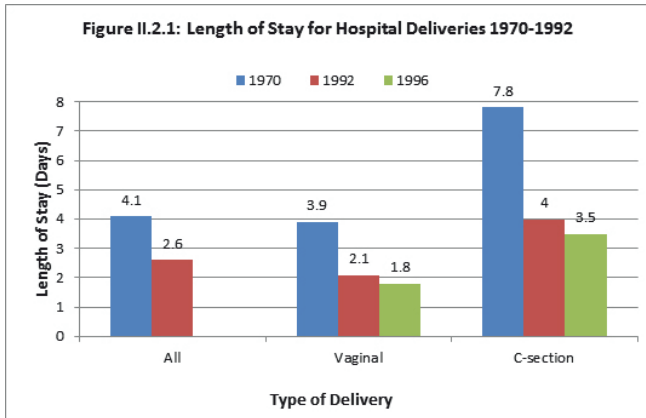
<sup>44</sup> Bernstein HH, Spino C, Finch S, et al. 2007. Decision-making for postpartum discharge of 4300 mothers and their healthy infants: the life around newborn discharge study. *Pediatrics* 120(2): e391-e400.

<sup>45</sup> *Ibid.*

<sup>46</sup> Weiss M, Ryan P, Lokken L, et al. 2004. Length of stay after vaginal birth: sociodemographic and readiness-for-discharge factors. *Birth* (Berkeley, California) 31(2): 93.

<sup>47</sup> Centers for Disease Control and Prevention. 1995. Trends in length of stay for hospital deliveries — United States, 1970–1992. *Morbidity and Mortality Weekly Report*. Available at: <http://www.cdc.gov/mmwr/preview/mmwrhtml/00036988.htm>. Accessed November 5, 2010.

of stay dropped from 3.9 to 2.1 days in 1996 for vaginal deliveries and from 7.8 to 4 days for C-section deliveries. Average length of stay continued to decrease through 1996 falling below 2 days (1.8) for vaginal deliveries and 4 days (3.5) for C-section delivery.<sup>48</sup> (Figure II.2.1). The decreasing trend in length of hospital stays, concerns about the impact of managed care on health care and concurrent limitations placed on reimbursements for hospital stays, led to responses from providers, the public and government.<sup>49-50</sup>



In 1992, the AAP in collaboration with the American Congress of Obstetricians and Gynecologists (ACOG) published “Guidelines for Perinatal Care” which recommended coverage for a minimum of 48 hours [2 days] for vaginal delivery and 96 hours [4 days] for cesarean delivery.<sup>51</sup> Public sentiment in support of longer stays,<sup>52</sup> pressure on providers, and claim denials led to legislation at the state and then the federal level.

Research conducted at the federal level estimated that by mid-year in 1998, forty states had enacted

legislation to extend the minimum postpartum length of hospital stays covered by insurance for the mother and infant.<sup>53</sup> The first “early discharge” law was enacted by Maryland in 1995. At least ten states, including Maryland and Connecticut, also included coverage for home and/or follow-up services in the case that the mother elects to discharge prior to the 48 hour/96 hour minimum covered stay. However, due to the federal Employees Retirement Income Security Act (ERISA), states could not mandate maternity and newborn hospital stay coverage under self-funded employer-provided insurance plans or plans written in other states.<sup>54</sup> State pressure on Congress to close the coverage gap created by ERISA led to debate and ultimately passage of the Newborns’ and Mothers’ Health Protection Act of 1996 (NMHPA) which established, in those plans that provide benefits for postpartum hospital stays, a minimum postpartum length of stay for both mother and infant consistent with the AAP/ACOG recommendations and mandates passed in states.

### III. Methods

Under the direction of CPHHP, medical librarians at the Lyman Maynard Stowe Library at the University of Connecticut Health Center (UCHC) gathered published articles and other information related to medical, social, economic, and financial aspects of the required benefit. Medical librarians conducted

<sup>48</sup> Liu Z, Dow W, Norton E. 2004. Effect of drive-through delivery laws on postpartum length of stay and hospital charges. *Journal of Health Economics* 23(1): 129-55.

<sup>49</sup> Gottlieb S, Einhorn TA. 1997. Current concepts review: managed care form, function and evolution. *Journal of Bone and Joint Surgery* 79: 125-36.

<sup>50</sup> Simonet D. 2007. Managed care in the USA: origins, HMO strategies and the marketing of health services. *Journal of Public Affairs* 7(4): 357-371.

<sup>51</sup> American Academy of Pediatrics and American College of Obstetricians and Gynecologists, 1992. *Guidelines for Perinatal Care*. 3rd ed. Elk Grove Village, IL and Washington, DC.

<sup>52</sup> Centers for Disease Control and Prevention. 1995. Trends in length of stay for hospital deliveries — United States, 1970–1992. *Morbidity and Mortality Weekly Report*. Available at: <http://www.cdc.gov/mmwr/preview/mmwrhtml/00036988.htm>. Accessed November 5, 2010.

<sup>53</sup> Federal Register. October 27, 2008. 57545-64. Available at: <http://www.dol.gov/ebsa/regs/fedreg/final/98028442.htm>. Accessed November 5, 2010. 40 states with legislation: Maryland, Massachusetts, New Jersey, North Carolina, Alabama, Alaska, Connecticut, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Maine, Minnesota, Missouri, New Mexico, New York, Ohio, Oklahoma, Pennsylvania, South Carolina, South Dakota, Tennessee, Washington, Virginia, Arkansas, Arizona, California, New Hampshire, Colorado, the District of Columbia, Louisiana, Montana, Nevada, North Dakota, Rhode Island, Texas and West Virginia.

<sup>54</sup> Evans WN, Garthwaite C, Wei H. 2008. The impact of early discharge laws on the health of newborns. *Journal of Health Economics* 27(4): 843-70.

literature searches using PubMed, Scopus, UptoDate, DynaMed, Cochrane database, EMedicine, CINAHL, and a web search using Google. Search keywords included: maternity, newborn, postpartum, postnatal, neonate, inpatient, outpatient, length of stay, early discharge, social impact, insurance, insurance coverage, reimbursement, economics, and cost.

CPHHP staff conducted independent literature searches using the Cochrane Review, Scopus, Westlaw, and Google Scholar using similar search terms to those used by the UCHC medical librarians. Where available, articles published in peer-reviewed journals are cited to support the analysis. Other sources of information may also be cited in the absence of peer-reviewed journal articles. Content from such sources may or may not be based on scientific evidence.

CPHHP staff consulted with clinical faculty from the University of Connecticut School of Medicine on matters pertaining to medical standards of care, traditional, current and emerging practices, and evidence-based medicine related to the benefit.

Staff gathered additional information through telephone and e-mail inquiries to appropriate state, federal, municipal, and non-profit entities and from internet sources such as the State of Connecticut website, Centers for Medicare and Medicaid (CMS) website, other states' websites, professional organizations' websites, and non-profit and community-based organization websites.

With the assistance of the Connecticut Insurance Department (CID), CPHHP and Ingenix Consulting requested and received 2007 and 2008 claims data from insurance companies and MCOs domiciled in Connecticut. Six health plan carriers provided maternity care claims data for their fully insured group plan participants and four provided claims data for their fully insured individual policy participants. Five carriers also provided information about coverage for postpartum hospital stays in the self-funded plans they administer, accounting for approximately 47 percent of the Connecticut population enrolled in self-funded plans. It is anticipated that the self-funded plans managed by the sixth carrier offer coverage comparable to the other five carriers.

CPHHP and CID contracted with Ingenix Consulting (IC) to provide actuarial and economic analysis of the mandated benefit. The IC Actuarial Report (Appendix II) includes a detailed explanation on how net new cost and premium estimates were calculated for the mandate.

## IV. Social Impact

### *1. The extent to which the postpartum hospital stay is utilized by a significant portion of the population.*

During 2008, 40,388 resident births occurred in Connecticut of which 97 percent were confirmed in-hospital births.<sup>55</sup> The average length of newborn and maternity stays, as reported by multiple sources, is consistent with a large proportion of the population utilizing a minimum stay of 2 days for vaginal delivery and 4 days for a C-section delivery. DPH Hospital Discharge Data documents the median hospital stay in 2007 as 3.0 days for pregnant women and 2.0 days for newborns.<sup>56</sup> Similarly, the Connecticut Hospital Association analysis of discharge data for 32 Connecticut hospitals in 2006 reported the average maternity

<sup>55</sup> Connecticut Vital Statistics. 2008. Table 2A—Connecticut, 2008—Population, births, deaths, fetal deaths, and infant deaths by place of occurrence and residence and marriages by place of occurrence. Available at: <http://www.ct.gov/dph/cwp/view.asp?a=3132&q=394598>. Accessed August 31, 2010.

<sup>56</sup> Connecticut Department of Public Health. 2009. Hospitalization statistics. Table H-1AA Connecticut resident hospitalizations, 2007—number and rate of hospital discharges, median length of stay, median charges, and total charges by age and sex for selected discharge diagnoses. Available at: <http://www.ct.gov/dph/cwp/view.asp?a=3132&q=397512&dphPNavCtr=#47732>. Accessed August 31, 2010.

stay was 2.9 days.<sup>57</sup>

The Connecticut Office of Health Care Access (OHCA) also provides utilization summaries on child delivery and newborn-related discharges by complexity of procedure and/or diagnosis using the Hospital Inpatient Discharge Database. Length of stay varies depending on whether the birth had complications or the newborn has any other significant problems. During 2008 normal newborns (those born without complication) stayed an average of 2.5 days whereas newborns with other significant problems stayed an average of 2.8 days. For deliveries, new mothers with uncomplicated vaginal deliveries stayed an average of 2.3 days whereas those with C-section deliveries stayed an average of 3.7 days if uncomplicated and 5.0 days if complicated.<sup>58</sup>

***2. The extent to which the postpartum hospital stay is available to the population, including, but not limited to, coverage under: Medicare, the Department of Social Services, the Department of Public Health, Municipal Health Departments and public programs run by public schools or charities.***

For families deemed as low-income or at-risk programs may be available to cover some component(s) of the maternity stay mandate. However, even among the programs that cover maternity stays, coverage of the 48-hour/96-hour stay is not required.

### ***Medicare***

Medicare provides coverage for reasonable and necessary services associated with maternity for a limited number of individuals under the age of 65 who are disabled. Medicare requires that “[s]killed medical management is appropriate throughout the events of pregnancy, beginning with diagnosis of the condition, continuing through delivery, and ending after the necessary postnatal care.” Further, “in the event of termination of pregnancy, regardless of whether terminated spontaneously or for therapeutic reasons (i.e., where the life of the mother would be endangered if the fetus were brought to term), the need for skilled medical management and/or medical services is equally important as in those cases carried to full term. After the infant is delivered and is a separate individual, items and services furnished to the infant are not covered on the basis of the mother’s eligibility.” Following delivery, the mother is covered for postnatal care but any treatment or services for the infant are not covered under Medicare.<sup>59</sup> No information was identified with regard to the number of Connecticut births covered by Medicare.

### ***Department of Social Services (DSS)***

The Department of Social Services is the oversight agency for the Medicaid program, Healthy Start, and Nurturing Families. Many of these programs are delivered in local settings including hospitals, community health centers, social service agencies and local health departments.

The *Medicaid* program offers HUSKY A coverage from pre-pregnancy and up to 60 days after giving birth for eligible expecting mothers earning at or below 250 percent of the federal poverty level (\$45,775 for a family of three). The coverage is for free health care. Approximately, one in five births are covered by Medicaid. Medicaid does “not have a minimum or maximum number of days” that it covers for mothers post-delivery. Alternatively, “medical necessity is the guideline used for coverage.”<sup>60</sup> Additionally, “Medicaid

<sup>57</sup> Connecticut Hospital Association. 2007. Patient census report trend summary 2006. Available at: [http://www.cthosp.org/member\\_services/Data\\_Services/documents/PCRTrendSummary2006.pdf](http://www.cthosp.org/member_services/Data_Services/documents/PCRTrendSummary2006.pdf). Accessed August 31, 2010.

<sup>58</sup> Connecticut Office of Health Care Access. General health care statistics Connecticut acute care hospitals statewide data detailed reports. Available at: <http://www.ct.gov/ohca/cwp/view.asp?a=1735&Q=277012&ohcaPNavCtr=#42037>. Accessed August 31, 2010.

<sup>59</sup> Centers for Medicare and Medicaid Services. Medicare Benefit Policy Manual. Chapter 1, section 80. Revision 119. January 15, 2010. Available at: <http://www.cms.gov/manuals/Downloads/bp102c01.pdf>. Accessed August 30, 2010.

<sup>60</sup> Personal communication. Nina Holmes, DSS Medical Policy Unit. May 21, 2010.



does not have an exchange policy”<sup>61</sup> similar to subsection (d) of Connecticut’s mandate,<sup>62</sup> whereby if a mother and her doctors agree, the mother may be discharged sooner than the 48/96 hour minimums in exchange for insurer coverage of a follow-up visit within 48 hours of discharge and an additional follow-up visit within seven days of discharge.

*Emergency Medicaid* allows coverage for labor and delivery of a child for undocumented immigrants but does not include prenatal or postnatal care. However, a baby born to an undocumented immigrant is considered a U.S. citizen and therefore, may be eligible for Medicaid at birth. If discharged early, the newborn, if deemed Medicaid eligible, would qualify for newborn pediatric screening visit(s). However, mothers discharged early do not receive post-delivery health assessments.

The *Healthy Start* program is geared towards income-eligible uninsured pregnant women as a source for free medical care, labor, delivery, nursing care, medications, counseling and related services. Eligible families with children under three years old can participate in counseling and parenting classes. This program is administered by DSS and DPH through grant-based contracts with hospitals, clinics, local departments of health and other local organizations.<sup>63</sup>

### ***Department of Public Health (DPH)***

The DPH shares administrative duties for many of the programs discussed under the DSS section above. The *WIC* program offers breastfeeding and nutrition support through supplemental food assistance and counseling but not postpartum hospital stay support.

### ***Municipal Health Departments***

At the local level, some health departments provide maternity and newborn related services by delivering programs funded by federal, state or local initiatives. For example, the Maternal Infant and Outreach Program in Hartford conducts neighborhood outreach and supports pregnant women and families throughout the year following the birth of the child by providing health, nutritional, educational and emotional support during home visits.<sup>64</sup> Municipalities may also offer low-cost prenatal programs and maternity services at a reduced fee. However, these programs do not guarantee funding for a minimum stay as stated in the Connecticut mandate.

### ***Other Public Agencies/Programs***

In some cases, birthing centers may offer a sliding scale for maternity care that includes prenatal care, delivery, recovery time, and post-delivery monitoring and education.<sup>65</sup> Home-visits and parenting groups are offered through birthing hospitals and community agencies.<sup>66</sup>

Several entities offer parent-support services without offering hospital stay or follow-up health assessments in the case of early discharge.

- The Connecticut Children’s Trust Fund, an independent state agency, funds the *Nurturing Families*

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<sup>61</sup> *Ibid.*

<sup>62</sup> Connecticut General Statutes. Revised January 1, 2010. § 38a-503c(d) (individuals); §38a-530c(d) (groups)

<sup>63</sup> State of Connecticut Department of Social Services. Health Care. Available at: <http://www.ct.gov/dss/cwp/view.asp?a=2353&q=305218#HS>. Accessed August 30, 2010.

<sup>64</sup> Hartford Department of Health and Human Services. Maternal and Child Health Division. Available at: [http://www.hartford.gov/Human\\_services/html%20files\\_06/Maternal.htm](http://www.hartford.gov/Human_services/html%20files_06/Maternal.htm). Accessed August 30, 2010.

<sup>65</sup> Connecticut Childbirth and Women’s Center. Frequently Asked Questions. Available at: <http://www.ctbirthcenter.com/faq.htm>. Accessed August 31, 2010.

<sup>66</sup> State of Connecticut Children’s Trust Fund. October 2005. Nurturing Families Network. Available at: <http://www.ct.gov/ctf/cwp/view.asp?a=1786&q=296678>. Accessed August 31, 2010.

program to help high-risk families navigate the challenges of parenthood when the first child is born.

- Not-for-profits such as Catholic Charities offer parenting education and follow-up services for a year after the birth of a child and help expecting mothers obtain access to health care or other needed services.<sup>67</sup>
- Hospitals may have lactation consultants, a Nurturing Families program, or similar programs.

Hospitals may also offer sliding scale fees or charity care funds to assist income-eligible families afford the cost of child delivery related hospital stays. A large proportion of charity care is allocated to pregnant women and children.<sup>68</sup> However, charity care funds are limited, vary widely across hospitals, and rely on financing from hospital benefactors.<sup>69</sup>

### ***3. The extent to which insurance coverage is already available for postpartum hospital stays.***

For the U.S. as a whole, 95.6 percent of childbirths were covered by insurance in 2006. Private insurance covered just over half of childbirths, public insurance covered about 43 percent of births and other unspecified forms of insurance covered 2.4 percent of births.<sup>70</sup> Widespread insurance coverage for postpartum hospital stays has also been documented in Connecticut. In Connecticut approximately 28.4 percent of births were covered as “medically necessary” stays by Medicaid.<sup>71</sup> 64.7 percent of Connecticut deliveries are covered by private insurers, of which about half qualify as fully insured individual or group health plans subject to the mandate. The remaining deliveries covered by private payers receive coverage for the 48-hour/96-hour stay through self-funded plans. Under federal mandate, self-funded plans must cover the minimum postpartum hospital stay.

Although postpartum maternity and newborn hospital stays covered by Medicaid are not subject to the state or federal mandates, analyses conducted at the national level and state level indicate a positive spillover effect on length of stay for those covered by Medicaid following passage of state and federal mandates.<sup>72,73</sup> However, when mothers covered by Medicaid elect to discharge prior to the minimum stay, it is unclear whether Medicaid covers home visits.

### ***4. If coverage for postpartum hospital stays is not generally available, the extent to which lack of coverage results in persons being unable to obtain necessary health care treatment.***

In Connecticut, postpartum hospital stay coverage is generally available, as described in Section IV-3, above. The uninsured population lacks minimum stay and early discharge follow-up protections, whereas the self-funded population may lack coverage for follow-up care if discharged from the hospital early. Lack of coverage may lead to shorter hospital stays among the uninsured population. A report using national data from the Healthcare Cost Utilization Project found the average length of stay for the uninsured was shorter

<sup>67</sup> Catholic Charities and Diocese of Norwich. Pregnancy Services. Available at: <http://www.ccfns.org/pregnancy.htm>. Accessed August 31, 2010.

<sup>68</sup> State of Connecticut Office of Health Care Access. 2006. Glossary of terms. Available at: <http://www.ct.gov/ohca/cwp/view.asp?a=1738&q=277038>. Accessed August 31, 2010.

<sup>69</sup> State of Connecticut Office of Health Care Access. 2009. Annual report on the financial status of Connecticut’s short term acute care hospitals for fiscal year 2008. Available at: [www.ct.gov/ohca/lib/ohca/publications/2009/fsreport\\_2008.pdf](http://www.ct.gov/ohca/lib/ohca/publications/2009/fsreport_2008.pdf). Accessed August 31, 2010.

<sup>70</sup> Russo CA, Wier L, Steiner C. 2009. Hospitalizations related to childbirth, 2006. Statistical Brief #71. Healthcare Cost and Utilization Project. Available at: <http://www.hcup-us.ahrq.gov/reports/statbriefs/sb71.jsp>. Accessed August 31, 2010.

<sup>71</sup> Kaiser Family Foundation. Number of births financed by Medicaid—2003. Available at: <http://www.statehealthfacts.org/comparemaptable.jsp?ind=222&cat=4>. Accessed August 21, 2010

<sup>72</sup> Liu Z, Dow W, Norton E. 2004. Effect of drive-through delivery laws on postpartum length of stay and hospital charges. *Journal of Health Economics* 23(1): 129-55.

<sup>73</sup> Evans W, Garthwaite C, Wei H. 2008. The impact of early discharge laws on the health of newborns. *Journal of Health Economics* 27(4): 843-70.

than stays funded by both public and private insurers (57.6 hours vs. 62.4 and 74.4 hours).<sup>74</sup>

As described under Section IV-2, uninsured mothers may be able to access caregiver-support services and the newborn may be eligible for follow-up newborn pediatric visits through Medicaid, if the child is found eligible and enrolled at birth. For the self-funded population, coverage for follow-up care if discharged early is not mandated. Like uninsured mothers, these caregivers may be able to access caregiver-support services. Furthermore, if the newborn is covered under the mother's policy or enrolled into Medicaid, the newborn should also be eligible for at least one follow-up visit soon after discharge from the hospital. However, mothers in both populations described lack mandated coverage for follow-up maternity medical checks.

***5. If coverage for postpartum hospital stays is not generally available, the extent to which lack of coverage results in unreasonable financial hardships on those persons needing treatment.***

**Length of Stay:** The IC report assumes the cost per day of an additional day for a maternity admission is \$2,089. One Connecticut insurer estimates that the combined allowed cost per day for a maternity admission and an inpatient newborn nursery stay is \$3,184.<sup>75</sup> The financial burden of an additional maternity day on a family with an income of \$50,000 but with varying insurance coverage is highlighted in the IC report.<sup>76</sup> Under a health plan with a 20 percent co-pay, an additional hospital day costs about 0.8 percent of the family income. For a family with no insurance, paying the full cost of an additional stay would translate into a loss of 4.2 percent of the family income.<sup>77</sup> The burden of an additional day of stay would be even greater using the \$3,184 allowed amount per day for newborn nursery and maternity admissions.

**Follow-up Visits for “Early” Hospital Discharges:** Those in self-funded group plans or in public plans may not have coverage for the two follow-up care visits specified in the state mandate for those who elect early discharge. The uninsured also would not have coverage and therefore, would be required to pay out-of-pocket if they elected to have home visits. If a mother is not covered but elects to have a home visit, the cost would likely not exceed that of well-care visits. For income-eligible or high-risk families, home visits specific to breastfeeding and newborn care may be provided for free through select programs discussed under Section IV-2.

Alternatively, according to the American Academy of Pediatrics (AAP), “it is important for your baby to be seen by a nurse or doctor when the baby is between 3 and 5 days old.” The AAP recommendation for babies who have been discharged before becoming 48 hours old to be examined by a health professional within 48 hours of leaving the hospital is likely to qualify for early discharge follow-up visits as covered under the mother's health plan. Therefore, those covered by self-funded plans may only be required to pay policy-determined cost-sharing or co-pays for an in office follow-up visit.<sup>78-79</sup>

***6 and 7. The level of public and provider demand for both postpartum hospital stays and insurance coverage for such care.***

<sup>74</sup> Merrill C, Steiner C. 2006. Hospitalizations Related to Childbirth, 2003. Healthcare Cost and Utilization Project. Statistical Brief #11. Available at: <http://www.hcup-us.ahrq.gov/reports/statbriefs/sb11.jsp>. Accessed August 31, 2010.

<sup>75</sup> Connecticut. 2008. The average cost of care. Available at: [www.connecticare.com/member/costofcare/costofcare.pdf](http://www.connecticare.com/member/costofcare/costofcare.pdf) Accessed September 1, 2010.

<sup>76</sup> Ingenix Consulting. Actuarial Report for the State of Connecticut on Set Two of the Health Insurance Mandates Covered by Public Act Number 09-179. December 10, 2010. Located in Appendix II.

<sup>77</sup> *Ibid.*

<sup>78</sup> American Academy of Pediatrics. June 2008. Question and Answers: Jaundice and Your Newborn. Available at: <http://www.aap.org/family/jaundicefaq.htm>. Accessed August 30, 2010.

<sup>79</sup> American Academy of Pediatrics. 2004. Committee on Fetus and Newborn. Hospital Stay for Healthy Term Newborns. *Pediatrics* 113(5): 1434-36.

The AAP and ACOG supported mandate initiatives in the mid-1990s to increase coverage for hospital stays following delivery. The 48-hour and 96-hour standards that were built into most state mandates and the federal mandate were recommended by the AAP and ACOG Committee on the Fetus and the Newborn in 1992. In part, provider support of the insurance mandate was driven by a desire to regain “control” from third-party payers over the patient discharge process.<sup>80</sup> However, contemporary provider opinions about the definition of appropriate practice regarding maternal and newborn care are not always congruous with the Committee. For example, when pediatricians were asked to select a minimal length of stay for a healthy newborn, 66.6 percent indicated that 24 hours was acceptable whereas only 19 percent stated that minimum stays should be 36 or more hours. Although a high percentage of pediatricians identified stays of less than 24 hours as acceptable, 59 percent of pediatricians felt the optimal stay was 37-48 hours and 23 percent felt the optimal stay was greater than 48 hours (Table II.2.1).<sup>81</sup> Interestingly, the pediatricians who were women or younger (<42 years of age) were more likely to find maternal factors, mother-infant factors and perinatal factors as important compared to male and older pediatricians.<sup>82</sup>

<b>Table II.2.1: Pediatrician Preference for Duration of Hospital Stay for Healthy Newborns</b>					
Minimal Stay			Optimal Stay		
<24	25-36	>36	<36	37-48	>48
66.6%	14.4%	19%	18%	59%	23%

Source: Bernstein et al. 2002

Conversely, a study by Lane, et al. (1999) found that nearly one-half (47 percent) of mothers felt a one-night postpartum hospital stay was too short and one-fourth felt a two-night stay was too short. The level of public demand for longer postpartum hospital stays is also reflected in current hospital discharge statistics and studies comparing the average length of stay before and after the passage of mandated minimum coverage for postpartum hospital stays.

OHCA’s analysis of hospital discharge data from 2008 found new mothers with uncomplicated vaginal deliveries stayed an average of 2.3 days, mothers with C-section deliveries stayed an average of 3.7 days, and newborns without complications stayed an average of 2.5 days. Evaluations of hospital discharge data before and after the passage of mandates at the federal and/or state level reflect that public demand for longer hospital stays following delivery was greater than what was covered by insurers previously (Additional discussion is provided in Section IV-16). At the same time, willingness to pay was not high enough for women to elect to pay out of pocket for longer stays in the period preceding passage of the state mandate.<sup>83-84</sup> For additional details, the Background, Section IV-1, Section IV-8, and Section IV-9 outline provider standards, hospital discharge statistics and changes in average length of stay following mandate implementation.

**8. The likelihood of achieving the objectives of meeting a consumer need as evidenced by the experience of other states.**

Nearly all states and the federal government have passed mandates requiring insurers to cover a 48-hour

<sup>80</sup> Personal Communication. Dr. Joseph Walsh, MD. OB/GYN University of Connecticut. 07/08/10.  
<sup>81</sup> Bernstein HH, Spino S, Baker A, et al. 2002. Postpartum discharge: do varying perceptions of readiness impact health outcomes? *Ambulatory Pediatrics* 2(5): 388-95.  
<sup>82</sup> Britton JR, Baker A, Spino C, et al. 2002. Postpartum discharge preferences of pediatricians: results from a national survey. *Pediatrics* 110(1): 53-60.  
<sup>83</sup> Evans W, Garthwaite C, Wei H. 2008. The impact of early discharge laws on the health of newborns. *Journal of Health Economics* 27(4): 843-70.  
<sup>84</sup> Liu Z, Dow W, Norton E. 2004. Effect of drive-through delivery laws on postpartum length of stay and hospital charges. *Journal of Health Economics* 23(1): 129-55.

stay for vaginal delivery and a 96-hour stay for C-section delivery. At least nine states, in addition to Connecticut, also cover one or two follow-up home visits if a mother and newborn are discharged prior to the minimum stay threshold. Of the pre-post studies conducted in states with postpartum stay mandates, the length of hospital stays has significantly increased for uncomplicated and complicated deliveries, regardless of delivery method as described in section III-9.

***9. The relevant findings of state agencies or other appropriate public organizations relating to the social impact of the mandated health benefit.***

Several mandate reviews have been completed by state agencies with regard to length-of-stay mandates. However, Pennsylvania is the only state for which CPHHP found a discussion of the social impact. Conducted by the Pennsylvania Health Care Cost Containment Agency (an independent state agency), the October 1999 report analyzed changes in length of stay for vaginal deliveries without complications consistent with Pennsylvania Act 85 of 1996. The report found that mothers stayed 1.6 days in 1995 compared to 2.1 days in 1998. Across different demographic and insured groups, the impact was similar. The average length-of stay for Medical Assistance enrollees increased from 1.6 days (1995) to 2.0 days (1998). Average maternity stay also increased from an average of 1.8 days (1994) to 2.1 days (1998).<sup>85</sup>

A descriptive epidemiological report published by the Philadelphia Department of Public Health stratified the policy impact on length of stay and hospital charges by demographic characteristics including race or ethnic group, adequate prenatal care, insurance status, mother's age and birth order.<sup>86</sup> Webb, et al. (2001) observed "comparable increases" in length of stay and hospital charges regardless of demographic.<sup>87</sup> On average, even populations in the state who are not covered by the mandate experienced improved access to longer lengths of stay. Webb, et al. (2001) concludes that the policy had a systematic impact at the institutional level for insurers and hospitals in terms of policies, procedures and practices. The study had limited ability to evaluate any change in health outcomes that may have resulted from the policy. Although they found that re-hospitalization within 60 days of discharge significantly declined from 15.4 per 1,000 deliveries to 12.7 per 1,000, it is unclear how much of the decline is attributable to changes in length of stay rather than underlying trends in health care utilization.<sup>88</sup>

***10. The alternatives to meeting the identified need, including but not limited to, other treatments, methods or procedures.***

The outcome of facilitating the transition to motherhood and monitoring newborn and maternal health could possibly be met through alternatives to "length of hospital stay" coverage policies.

**Follow-up visits within 48 hours of discharge:** In Connecticut and at least nine other states, individuals covered by the mandate who elect to discharge from the hospital prior to the threshold for minimum covered postpartum hospital stay are offered follow-up visits in the home or physician office. Services provided in such visits include physical assessment of the newborn, medically necessary or appropriate clinical tests, and parent education and guidance for breast or bottle feeding.<sup>89</sup> As recommended by the AAP, in Connecticut these follow-up visits are covered during the 48-hours following discharge. An additional visit at seven days is also covered. It may be that coverage for follow-up visits in the home or office following

<sup>85</sup> Pennsylvania Health Care Cost Containment Council. 1999. Minimum Maternity Stay Legislation: Changes in Hospital Length-of Stay for Childbirth. Available at: [www.phc4.org/reports/cdlos/docs/reportCdlos1999.pdf](http://www.phc4.org/reports/cdlos/docs/reportCdlos1999.pdf). Accessed August 30, 2010.

<sup>86</sup> Webb D, Culhane JF, Snyder S, et al. 2001. Pennsylvania's early discharge legislation: effect on maternity and infant lengths of stay and hospital charges in Philadelphia. *Health Services Research* 36(6 Pt 1): 1073–83.

<sup>87</sup> *Ibid.*

<sup>88</sup> *Ibid.*

<sup>89</sup> UnitedHealthcare/Oxford. Title of policy: in-patient maternity stay and subsequent home nursing. December 2009. Available at: [https://www.oxhp.com/secure/policy/inpatient\\_maternity\\_1209.html](https://www.oxhp.com/secure/policy/inpatient_maternity_1209.html). Accessed August 31, 2001.

discharge from the hospital meets the transition and health needs that occur following the birth of a child in a manner that is as effective as inpatient hospital stays.

**Postpartum midwifery services:** For low risk pregnancies midwifery services are fully covered by many insurance programs and offer extensive postpartum care services. Connecticut limits certification of midwives to the Certified Nurse Midwife (CNM) that requires a nursing degree, graduate level education in midwifery and passing a national certification test. As stated on one website, “Providing that no complications arise, women may remain at the birth center for up to 12 hours after giving birth. However, most mothers choose to go home between four and eight hours after the birth.”<sup>90,91</sup>

One CNM service extends care through the six-week postpartum office visit and includes:

- newborn care at home, including physical exams for the first two weeks of life,
- newborn metabolic testing (PKU testing) and hearing exam,
- sibling preparation for home and hospital birth,
- lactation support at birth and during the six-week neonatal period.

Another CNM service includes 24-hour availability of the midwife/physician team, newborn assessment, a one and six week postpartum office visit, orientation to newborn care and a 24-72 hour postpartum home visit by a nurse-midwife or registered nurse. Specific to this center, the baby receives PKU metabolic screening at the home visit on the first or second postpartum day and the newborn is checked for jaundice. However, Connecticut’s capacity for offering CNM services is limited by the small population of CNMs.

**Postpartum Doulas:** The postpartum doula role is to ease the transition by providing home-based support for the new family. Support ranges from breastfeeding assistance, helping relieve household duties, and offering guidance and help with newborn care. All services are non-medical. St. Mary’s Hospital in Waterbury now refers patients to Birth Partners Doulas of Connecticut for services and ConnectiCare is an insurer listed on the agency website. In many cases, doula expenses must be paid out-of-pocket and submitted to insurers for reimbursement, which may or may not be refunded.

**Target-Population for Minimum Coverage Threshold:** Evans, et al. (2004) propose targeting minimum coverage policies to complicated pregnancies, vaginal deliveries with complications, C-section deliveries, and newborns with complications. The underlying premise for this alternative is based on their econometric analysis of the impact of length of stay policies on hospital readmissions. Findings indicate that hospital readmissions in newborns without complications and vaginal deliveries without complications are minimal, whereas, hospital readmissions may be averted with decreases in “early discharges” among complicated deliveries.<sup>92</sup>

### ***11. Whether the benefit is a medical or broader social need and whether it is consistent with the role of health insurance and the concept of managed care.***

According to the AAP, traditionally, postpartum care involved evaluation of the mother and family’s readiness for the newborn, evaluating the health of the newborn and preparing the mother for responsibilities of care following discharge from the hospital. Postpartum care, as defined by the AAP, meets both a medical and social need. To the extent that the purpose of an extended postpartum length of stay is to allow for better assessment of the physical and mental health of the mother and newborn, this mandated benefit meets a

<sup>90</sup> Birth and Beyond. Types of midwives. Available at: [http://www.birthandbeyond.info/type\\_midwives.html](http://www.birthandbeyond.info/type_midwives.html). Accessed August 31, 2010.

<sup>91</sup> Connecticut Birth Center. Frequently Asked Questions. Available at: <http://www.ctbirthcenter.com/faq.htm>. Accessed August 31, 2010.

<sup>92</sup> Evans W, Garthwaite C, Wei H. 2008.

medical need. To the extent the stay is used to provide parenting education, it also meets a social need.

***12. The potential social implications of the coverage with respect to the direct or specific creation of a comparable mandated benefit for similar diseases, illnesses, or conditions.***

Within a year of passing the postpartum hospital stay coverage mandate, Connecticut enacted an additional mandate (§. 38a-530d) requiring fully insured plans to cover “at least forty-eight hours of inpatient care following a mastectomy or lymph node dissection,” and to provide “coverage for a longer period of inpatient care if such care is recommended by the patient’s treating physician after conferring with the patient.” The potential exists for future mandates specifying coverage for minimum lengths of stay for other conditions that require hospitalization.

***13. The impact of the benefit on the availability of other benefits currently offered.***

In an effort to control costs, it is possible that insurers or employers may increase co-pays or coinsurance or place limits on other services to compensate for the cost of this mandate. However, the option to restrict non-mandated benefits may be constrained based on competitive advantage for insurers to recruit policyholders or employers to recruit employees, contractual obligations to cover benefits, or administrative costs outweighing the benefit of eliminating the benefit.

***14. The impact of the benefit as it relates to employers shifting to self-funded plans and the extent to which the benefit is currently being offered by employers with self-funded plans.***

Although the Connecticut postpartum hospital stay mandate does not apply to self-funded plans, the federal NMHPA requires these plans to cover the same minimum stay as Connecticut law if the plan includes pregnancy coverage. According to five health plan carriers domiciled in Connecticut and covering approximately 48 percent of self-funded lives, 92 percent cover postpartum hospital stays to the extent of the state mandate.<sup>93</sup> The 8 percent of self-funded groups not covering postpartum hospital stays to the same extent as the state mandate may not offer pregnancy as a benefit or may lack the early-discharge follow-up care specific to the Connecticut mandate. Based on the similarity of coverage under self-funded plans, it seems unlikely that the mandate would drive an employer’s decision to switch to self-funded.

***15. The impact of making the benefit applicable to the state employee health insurance or health benefits plan.***

The state employee health insurance/benefit plans were subject to the maternity and newborn hospital stay requirement from the mandate implementation date of October 1, 1996 up until July 1, 2010 when Connecticut transitioned from fully insured group plans to self-funded. It appears that Connecticut continues to include mandated benefits in the health plans offered to state employees even though as a self-funded group the state employee plans would be exempt from state mandates under the federal Employee Retirement Income Security Act (ERISA). The social impact of the benefit for the approximately 134,344 covered lives in state employee plans and 30,000 state retirees not enrolled in Medicare<sup>94</sup> is expected to be the same or similar to the social impact for persons covered in non-state employee health insurance plans as discussed throughout Section IV of this report. In terms of financial impact, if the state employee health insurance/benefit plans continue to provide coverage for the required benefit, the IC actuarial analysis

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<sup>93</sup> Ingenix Consulting. Actuarial Report for the State of Connecticut on Set Two of the Health Insurance Mandates Covered by Public Act Number 09-179. December 10, 2010. Located in Appendix II.

<sup>94</sup> Personal communication. Scott Anderson, State of Connecticut Comptroller’s Office. September 14, 2010.

estimates the medical cost to the state employee health insurance plan will total \$3,648,215 in 2010.<sup>95</sup> Although the State of Connecticut is not required to cover the 48-hour/96-hour hospital stay by state law, Connecticut must continue to cover this length of stay under the federal NMHPA.

**16. *The extent to which credible scientific evidence published in peer-reviewed medical literature generally recognized by the relevant medical community determines postpartum maternity and newborn care to be safe and effective.***

The ability of mothers and newborns to stay longer in the hospital prior to discharge is a well-documented outcome of length of stay policies. However, the literature shows mixed results when assessing whether change also occurs with respect to hospital readmissions, infant mortality, emergency care, non-urgent care, and follow-up visits within the first 28 days after the birth of a newborn.

A limited number of articles apply a more rigorous approach to large hospital discharge data sets using econometric method, detailed control variables and quasi-experimental designs.<sup>96, 97-98</sup> These studies better evaluate the relationship between length of stay and health implications and therefore are the primary references for the following discussion. Although a number of other studies have explored early discharge along with health care utilization, jaundice, infection or neonatal mortality, the results of those studies are not discussed below based on research design limitations and conflicting results in the literature.<sup>99-100</sup>

### **Changes in Length of Stay**

Significant increases in length of stay following mandate implementation have been found for individual states and on average for the nation using HCUP data. State specific studies have also confirmed the same in New Jersey, Ohio, Maryland, California and Massachusetts.<sup>101, 102, 103, 104, 105, 106</sup>

Liu, et al. used Nationwide Inpatient Discharge data from the 18 states participating in the HCUP for two

<sup>95</sup> See Appendix II. Ingenix Consulting Actuarial and Economic Report. This estimate has been calculated by multiplying the 2010 PMPM medical cost in table 1.3A by 12 to get an annual cost per insured life, and then multiplying that product by 163,334 covered lives, as reported by the State Comptroller's office. This estimate is calculated using weighted averages for all claims paid by Connecticut-domiciled insurers and health maintenance organizations in the State. The actual cost of this mandate to the State plans may be higher or lower, based on the actual benefit design of the State plans and the demographics of the covered lives (e.g., level of cost-sharing, average age of members, etc.). Retention costs are not included in this estimate because the State is now self-funded and the traditional elements of retention do not apply. State costs for administration of this mandated benefit would be in addition to the above amount.

<sup>96</sup> Liu Z, Dow W, Norton E. 2004. Effect of drive-through delivery laws on postpartum length of stay and hospital charges. *Journal of Health Economics* 23(1): 129-55.

<sup>97</sup> Evans W, Garthwaite C, Wei H. 2008. The impact of early discharge laws on the health of newborns. *Journal of Health Economics* 27(4): 843-70.

<sup>98</sup> Dow WH, Harris DM, Liu Z. 2006. Differential effectiveness in patient protection laws: what are the causes? An example from the drive-through delivery laws. *Journal of Health Politics, Policy and Law* 31(6): 1107-27.

<sup>99</sup> Liu Z, Dow W, Norton E. 2004. Effect of drive-through delivery laws on postpartum length of stay and hospital charges. *Journal of Health Economics* 23(1): 129-55.

<sup>100</sup> Evans W, Garthwaite C, Wei H. 2008. The impact of early discharge laws on the health of newborns. *Journal of Health Economics* 27(4): 843-70.

<sup>101</sup> Liu Z, Dow W, Norton E. 2004. Effect of drive-through delivery laws on postpartum length of stay and hospital charges. *Journal of Health Economics* 23(1): 129-55.

<sup>102</sup> Evans WN, Garthwaite C, Wei H. 2008. The impact of early discharge laws on the health of newborns. *Journal of Health Economics* 27(4): 843-70.

<sup>103</sup> Miller M, O'Connor M, Carroll-Pankhurst C. 1997. Impact of short-stay legislation on length of stay, cost of care, and rehospitalization for infants born vaginally. *Pediatrics Research* 41: 205A.

<sup>104</sup> Udom N, Betley C. 1998. Effects of maternity-stay legislation on "drive-through deliveries." *Health Affairs* 17(5): 208-215.

<sup>105</sup> Datar A, Sood N. 2006. Impact of postpartum hospital-stay legislation on newborn length of stay, readmission, and mortality in California. *Pediatrics*. 118(1): 63-72.

<sup>106</sup> Dow WH, Harris DM, Liu Z. 2006. Differential effectiveness in patient protection laws: what are the causes? An example from the drive-through delivery laws. *Journal of Health Politics, Policy and Law* 31(6): 1107-27.



studies exploring changes in length of stay and cost six months after implementation of state mandates and the federal mandate.<sup>107</sup> The sample was limited to hospital discharges covered by private insurance. For vaginal deliveries, postpartum length of stay shifted to two nights on average for 11.3 percent of newborns and 9.5 percent for mothers. For C-sections, the average increase in length of stay nights was 6.4 percent for newborns and 5.7 percent for mothers.

Regardless of delivery type, the proportion of both normal and not-normal newborns using the minimum coverage available increased significantly (Figure II.2.2). As expected, the larger increase occurred among normal newborns.

Among vaginally-delivered normal newborns the probability of a one-night stay dropped from 55 to 39 percent while two-night stays increased from 41 to 56 percent. Though less dramatic, for C-section-delivered newborns two-night stays decreased from 30 to 21 percent, and three-night stays decreased from 56 to 55 percent, while four-night stays increased by 12 to 21 percent.<sup>108</sup>

### Connecticut Data

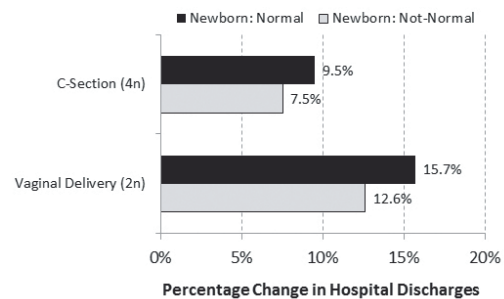
Using the same Nationwide Inpatient Sample, Dow, et al. found that 12 months following implementation of the mandate in Connecticut, a statistically significant 41 percent decrease (from 52 to 11 percent) in those staying fewer than two nights occurred among vaginally delivered newborns. However, this estimate may not be a sufficient reflection of the state since the sample relied on data from only four hospitals and a mean of 311 annual births for the study period (1995-1997).

### Spillover Effect

In general, mandates do not offer minimum coverage to Medicaid populations or the uninsured. However, a number of studies suggest a spillover effect resulting in increases in length of stay among these populations. Dato, et al. (1996) found that all payer types, including out-of-pocket payers, experienced significant increases in stay length.<sup>109</sup> Furthermore, California data showed that early discharges among newborns declined among Medicaid newborns, although the decline was less steep compared to the privately insured.<sup>110-111</sup> With the passage of the federal law, early discharge rates for complicated deliveries decreased at the same rate as uncomplicated deliveries despite having substantially lower early discharge rates prior to the law. These spillover effects may reflect a more universal shift in how physicians address length of stay among a patient population. As Datar and Sood (2006) explain,

This is consistent with the notion that physicians have a generalized practice pattern that they apply to all patients, and the legislation changed this practice. A vast literature that has examined spillover effects of managed care on fee-for-service patients also supports the view

Figure II.2.2. Increase in Probability of Newborn using Minimum Coverage Following Implementation of Mandates (national data)



<sup>107</sup> Liu Z, Dow W, Norton E. 2004. Effect of drive-through delivery laws on postpartum length of stay and hospital charges. *Journal of Health Economics* 23(1): 129-55.

<sup>108</sup> *Ibid.*

<sup>109</sup> Dato V, Ziskin L, Fulcomer M et al. 1996. Average postpartum length of stay for uncomplicated deliveries—New Jersey, 1995. *Morbidity and Mortality Weekly Report* 45(32): 700-04.

<sup>110</sup> Evans WN, Garthwaite C, Wei H. 2008. The impact of early discharge laws on the health of newborns. *Journal of Health Economics* 27(4): 843-70.

<sup>111</sup> Datar A, Sood N. 2006. Impact of postpartum hospital-stay legislation on newborn length of stay, readmission, and mortality in California. *Pediatrics* 118(1): 63-72.

that physicians might find it cognitively and organizationally difficult to treat patients with different insurance coverage in different ways.<sup>112</sup>

### **Hospital Readmissions**

Malkin et al. (2003) analyzed the negative health effect of shortened stay. They found that a stay that is 12 hours longer reduces the 28-day readmission rate by 18 percent. The same study also found that newborns discharged within 30 hours of birth had significantly elevated infant mortality.<sup>113</sup> In contrast, based on California data, Evans et al. (2008) did not find uniform changes in readmission rates. Rather, births with higher rates of complication (Medicaid vaginal deliveries and privately insured C-sections) experienced statistically significant reductions in readmissions rates following longer lengths of stay. The authors suggest that, “for routine pregnancies, early discharge of newborns pose little health concern, yet those with the highest risk of readmission benefited enormously from passage of the early discharge laws.”<sup>114</sup>

### **Effectiveness of In-Hospital Care**

The Connecticut Pregnancy Risk Assessment and Tracking Survey (2006) queried over 4,000 randomly selected recent mothers on their hospital experiences to pregnancy and child-delivery related topics. Results indicate that education and support of the mother regarding breastfeeding may be inadequate. Although 78.8 percent indicated they were given information about breastfeeding from hospital staff, only 66 percent reported that hospital staff helped them learn to breastfeed. One of the rationales for hospital stays is to orient new mothers to breastfeeding (or alternative means of feeding); however, implementation appears poor with 27.6 percent of Connecticut mothers report not having breastfed during their hospital stay.<sup>115</sup>

### **Maternal or Newborn Hospital-Borne Infections**

It is possible that increased length of stay may be related to a higher risk of nosocomial infections developing among mothers and newborns following delivery. However, a comprehensive search of the web-based and print media did not result in the identification of any articles on the topic. Information was also not available for incidence or prevalence rates of hospital-acquired infections for either mother or child following delivery of a child.

## **IV. Financial Impact**

### ***1. The extent to which the mandated health benefit may increase or decrease the cost of postpartum and newborn care, as applicable, over the next five years.***

Since the length of stay mandate has been in place since 1996, it is not expected that the mandated minimum coverage for length of stay will further increase or decrease the cost of postpartum and newborn care over the next five years. Future changes in per unit cost are more likely to be attributable to medical inflation. The length of hospital stays following delivery will continue to vary based on delivery method, presence of complications, payer type and preferences of the mother. The AAP recommendation that the mother and newborn stay together may also have an impact on length of stay for the mother, especially in the case of complicated births or intensive care stays for the newborn.

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<sup>112</sup> *Ibid.*

<sup>113</sup> Malkin J, Keeler E, Broder MS, et al. 2003. Postpartum length of stay and newborn health: a cost-effectiveness analysis. *Pediatrics* 111(4): e316-e322.

<sup>114</sup> Evans WN, Garthwaite C, Wei H. 2008. The impact of early discharge laws on the health of newborns. *Journal of Health Economics* 27(4): 843-70.

<sup>115</sup> Morin J. 2008. Addressing Racial and Ethnic Disparities in Low Birth Weight for Connecticut. Connecticut Department of Public Health. Available at: [http://www.ct.gov/dph/lib/dph/family\\_health/health\\_disparities\\_in\\_lbw\\_final\\_report\\_10\\_1\\_08.pdf](http://www.ct.gov/dph/lib/dph/family_health/health_disparities_in_lbw_final_report_10_1_08.pdf). Accessed August 31, 2010.

**2. *The extent to which the mandated health benefit may increase the appropriate or inappropriate use of the treatment, service or equipment, supplies or drugs, as applicable, over the next five years.***

Appropriate or inappropriate length of stay following delivery of a child is a subject of debate where quantitative evidence has traditionally been inconsistent. The criteria, established through the AAP policy statement, focus on whether readiness for discharge benchmarks have been met, rather than on the time duration spent in the hospital following delivery. Evidence suggests that, “altering the law so that only complicated deliveries would be given extra postpartum stays would save resources with little cost to health.”<sup>116</sup> As mentioned in prior sections, surveys of obstetricians, pediatricians and mothers also indicate that stays shorter than the minimum threshold for coverage can be appropriate for some mothers. To some extent, this is reflected in the proportion of mothers and newborns discharged prior to the end of the minimum covered stay without adverse health effects.

In the absence of Connecticut’s mandated health benefit, the minimum stay would be covered for most plans through the NMHPA. Therefore, the use of care, whether appropriate or inappropriate, would likely remain unchanged in those policies that include maternity benefits. The only utilization that may decrease is the follow-up care provided to those who elect to be released from the hospital prior to the minimum covered period.

**3. *The extent to which the mandated health benefit may serve as an alternative for a more expensive or less expensive treatment, service or equipment, supplies or drugs, as applicable.***

Provided that the mandated health benefit is implemented effectively, postpartum in-hospital stays for the mother and newborn (up to the minimum coverage threshold) can meet the need of monitoring and responding to maternal and newborn health and assisting the mother adapt to motherhood. This approach can be considered an alternative to the methods discussed under Section IV-10. The upcoming Section V-6 summarizes the relative expense of equally safe and effective approaches to postpartum care.

**4. *The methods that will be implemented to manage the utilization and costs of the mandated health benefit.***

It is assumed that health plan carriers continue to use many of the same utilization management methods and cost controls used for other covered benefits with the exception of using “medical necessity” as a determinant for length of stay up to the 48-hour/96-hour mandated threshold.

**5. *The extent to which insurance coverage for postpartum hospital stays, may be reasonably expected to increase or decrease the insurance premiums and administrative expenses for policyholders.***

Insurance premiums include medical cost and retention costs. Medical cost accounts for the amount paid by carriers for medical service claims. Retention costs include administrative cost and profit (for for-profit carriers) or contribution to surplus (for not-for-profit carriers). According to the Ingenix Consulting analysis, it is expected that on average the change in duration of postpartum inpatient hospital stays related to the mandate accounts for an estimated \$2.22 (\$1.85 medical; \$0.37 retention) PMPM premium for fully insured group plans and a \$1.66 (\$1.28 medical; \$0.38 retention) PMPM for fully insured individual policies. These cost estimates do not include any potential savings for medical costs avoided.

For further discussion, please see Appendix II, Ingenix Consulting Actuarial Report for the State of Connecticut, page 20-21.

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<sup>116</sup> Evans Wn, Garthwaite C, Wei H. 2008. The impact of early discharge laws on the health of newborns. *Journal of Health Economics* 27(4): 843-70.

**6. *The extent to which postpartum hospital stays is more or less expensive than an existing approach, that is determined to be equally safe and effective by credible scientific evidence published in peer-reviewed medical literature generally recognized by the relevant medical community.***

A review of the literature refers to the use of midwifery as “safe and effective approaches” to postpartum maternity and newborn care. Based on the literature regarding the effectiveness of length of stay policies on health, the ability to evaluate “equal” effectiveness is limited at best. The cost of these alternative forms of postpartum maternity and newborn care is more easily identified. For example, the midwifery professional fee charged by the Connecticut Childbirth and Women’s Center totals \$2,700 for the prenatal, birth and post-partum care described in Section IV-10.<sup>117</sup> It is likely that the postpartum care, which accounts for substantially less time and cost than the prenatal and delivery care, reflects a small proportion of the overall charge. Compared to the \$2,089 net new postpartum hospital stay cost anticipated in the Ingenix Consulting report, the midwifery fee appears to be less expensive.<sup>118</sup>

**7. *The impact of insurance coverage for postpartum hospital stays on the total cost of health care, including potential benefits or savings to insurers and employers resulting from prevention or early detection of disease or illness related to such coverage.***

The cost of health care includes the amount paid in medical claims plus the amount paid by the insured. The IC analysis of claims and allowed cost data from Connecticut-domiciled health plan carriers projects the cost of Connecticut’s postpartum hospital stay mandate for 2010. The estimated cost of the increase for postpartum hospital stays is \$31,841,582 of which \$29,752,047 is paid as medical claims by insurers and \$2,089,535 is paid by the claimant.

According to several evaluation studies, postpartum hospital stay mandates provide cost saving through prevention of hospital readmission. Several reports claim that prevented hospital readmissions for newborns and mothers offset some of the amount paid by employers and insurers for maternity stays.<sup>119</sup> A California-based study attributes a 0.2 percent decline in hospital readmissions to the increase in maternity stays.<sup>120</sup>

**8. *The impact of the postpartum hospital stay mandate on the cost of health care for small employers, as defined in § 38a-564 of the general statutes, and for employers other than small employers.***

Employer responses to the increase in premium cost from the postpartum hospital stay mandate would have occurred in the years following implementation in October 1996. A somewhat higher percentage of small compared to large employers may have elected to offset the cost of premium increases through employee cost-sharing, reducing coverage for non-mandated benefits, dropping pregnancy coverage, or discontinuing health plan coverage. As a general rule, a change in cost is expected to be felt more by small employers compared to larger employers. Small employers generally purchase lower cost, leaner benefit plans than large employers so if an increase in cost occurs, the percentage increase in “total paid medical cost will be somewhat greater for small groups than large.”<sup>121</sup>

**9. *The impact of the postpartum hospital stay mandate on cost-shifting between private and public***

<sup>117</sup> Connecticut Childbirth and Women’s Center. Frequently Asked Questions. Available at: <http://www.ctbirthcenter.com/faq.htm>. Accessed August 31, 2010.

<sup>118</sup> Ingenix Consulting. Actuarial Report for the State of Connecticut on Set Two of the Health Insurance Mandates Covered by Public Act Number 09-179. December 10, 2010. Located in Appendix II.

<sup>119</sup> Liu Z, Dow W, Norton E. 2004. Effect of drive-through delivery laws on postpartum length of stay and hospital charges. *Journal of Health Economics* 23(1): 129-55.

<sup>120</sup> Evans WN, Garthwaite C, Wei H. 2008. The impact of early discharge laws on the health of newborns. *Journal of Health Economics* 27(4): 843-70.

<sup>121</sup> Ingenix Consulting. Actuarial Report for the State of Connecticut on Set Two of the Health Insurance Mandates Covered by Public Act Number 09-179. December 10, 2010. Located in Appendix II.

*payers of health care coverage and on the overall cost of the health care delivery system in the state.*

It does not appear that cost-shifting between private and public payers for health care coverage is occurring nor does it appear that the state mandate is increasing the overall cost of health care delivery in the state in a manner that is greater than what would be required under the federal mandate. According to Ingenix Consulting estimates, the 2010 projected impact of the postpartum hospital stay mandate on the overall cost of Connecticut's health care delivery system is \$38,054,067. The breakdown for overall cost includes \$29,752,047 for medical claims, \$6,212,485 for administrative expenses and profit and \$2,089,535 for cost-sharing.<sup>122</sup> However, it is important to note that in the absence of a Connecticut mandate, the cost of postpartum hospital stays would remain approximately the same due to the 48-hour/96-hour coverage requirement set in place by federal law under NMHPA.

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<sup>122</sup> Ingenix Consulting. Actuarial Report for the State of Connecticut on Set Two of the Health Insurance Mandates Covered by Public Act Number 09-179. December 10, 2010. Located in Appendix II.



## **Volume II**

### **Chapter 3**

#### **Mastectomy Care, Minimum Stay**

Review and Evaluation of Connecticut Statute

Chapter 700, § 38a-530d and § 38a-503d

Mandatory Coverage for Mastectomy Care

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## I. Overview

The Connecticut General Assembly directed the Connecticut Insurance Department (CID) to review the health benefits required by Connecticut law to be included in group and individual health insurance policies. Reviews are conducted following the requirements stipulated under Public Act 09-179 and are collaborative efforts of Connecticut Insurance Department and the University of Connecticut Center for Public Health and Health Policy (CPHHP).

Connecticut General Statutes, Chapter 700, §§ 38a-530d and 38a-503d state that each group or individual health insurance policy...

...shall provide coverage for at least forty-eight hours of inpatient care following a mastectomy or lymph node dissection, and shall provide coverage for a longer period of inpatient care if such care is recommended by the patient's treating physician after conferring with the patient. No such insurance policy may require mastectomy surgery or lymph node dissection to be performed on an outpatient basis. Outpatient surgery or shorter inpatient care is allowable under this section if the patient's treating physician recommends such outpatient surgery or shorter inpatient care after conferring with the patient.

In April 2010, CPHHP and Ingenix Consulting (IC) requested and received mastectomy and lymph node dissection claims data from six insurers and managed care organizations (MCOs) domiciled in Connecticut that cover 90 percent of the population in fully insured group and individual health insurance plans in Connecticut (1.25 million persons). The insurers/MCOs interpreted the mandate to include the full gross cost of mastectomy surgery as well as the mandated hospital stay, thus cost estimates for the mandated benefit are based on the cost of a medical surgical hospital day. Actuarial analysis estimates the medical costs of the mandated benefit at a range of \$0.05 to \$0.15 per member per month (PMPM) in 2008.

### *Current coverage*

This mandate went into effect on July 1, 1997 (P.A. 97-198). Mastectomy can be performed on an inpatient or outpatient basis, depending on the health and preference of the patient and physician/surgeon recommendation. According to the Agency for Healthcare Research and Quality, the mean length of stay for a mastectomy patient with private insurance in the Northeastern U.S. was 2.3 days in 2008. Connecticut hospital discharge data show a median length of stay related to breast cancer was 2.0 days in 2007.

### *Premium impact*

**Group plans:** On a 2010 basis, medical cost is estimated to be \$0.10 PMPM. Estimated total cost (insurance premium, administrative fees, and profit) of the mandated services in 2010 in group plans is \$0.12 PMPM, which is approximately 0.03 percent of estimated total costs in group plans. Estimated cost sharing in 2010 in group plans is \$0.01 PMPM.

**Individual policies:** Four of the six insurers/MCOs provided claims data for individual health insurance policies. On a 2010 basis, medical cost is estimated to be \$0.07 PMPM. Estimated total cost (insurance premium, administrative fees, and profit) of the mandated services in 2010 in individual policies is \$0.09 PMPM, which is approximately 0.03 percent of estimated total costs in individual policies. Estimated cost sharing in 2010 in individual policies is \$0.01 PMPM. Individual policies data is less credible than group plans data primarily due to small sample size.

## *Self-funded plans*

Five health insurers/MCOs domiciled in Connecticut provided information about their self-funded plans, which represents an estimated 47 percent of the total population in self-funded plans in Connecticut. These five insurers/MCOs report that 83 percent of enrollees in their self-funded plans have coverage for the mandated services.

This report is intended to be read in conjunction with the General Introduction to this volume and the Ingenix Consulting Actuarial and Economic Report which is included as Appendix II.

## **II. Background**

An estimated 207,090 new cases of breast cancer are expected to occur among women in the US during 2010; about 1,970 new cases are expected in men.<sup>123</sup> Excluding cancers of the skin, breast cancer is the most frequently diagnosed cancer in women. An estimated 40,230 breast cancer deaths (39,840 women; 390 men) are expected in 2010.<sup>124</sup> Breast cancer ranks second as a cause of cancer death in women, after lung cancer. Death rates for breast cancer have steadily decreased in women since 1990.<sup>125</sup> The decrease in breast cancer death rates represents progress in both earlier detection and improved treatment.

Most women with breast cancer have some type of surgery to remove a tumor in the breast. Mastectomy is usually performed as a treatment for breast cancer, but is sometimes performed as a preventive measure for women at extreme risk for developing breast cancer. Mastectomy is the surgical removal of the entire breast, or both breasts, usually including the nipple and the areola. Breast reconstruction can be done at the same time as the mastectomy or completed at a later time.

In consultation with their oncologist, women with breast cancer can decide whether to be treated with a mastectomy or a breast-conserving surgery, known as lumpectomy. A lumpectomy is the removal of the cancerous breast tissue as well as a surrounding amount of healthy breast tissue. A lumpectomy is usually followed by radiation therapy. During mastectomy or lumpectomy, lymph nodes under the arm are checked for any spread of cancer using sentinel lymph node biopsy or an axillary (armpit) lymph node dissection.

Mastectomy can be performed on an inpatient or outpatient basis, depending on the health and preference of the patient and physician/surgeon recommendation. Some evidence suggests decreased recovery time and better psychological adjustment for patients who undergo mastectomy on an outpatient basis.<sup>126,127</sup> The mean length of stay for a mastectomy patient with private insurance in the Northeastern U.S. was 2.3 days in 2008.<sup>128</sup> Connecticut hospital discharge data show a median length of stay related to breast cancer was 2.0 days in 2007.<sup>129</sup> A shorter length of stay following surgery can decrease the patient's risk of nosocomial, or hospital-acquired infections, while recovery under the watchful presence of hospital staff and with life-saving resources and equipment available immediately can be beneficial should a serious complication arise. Women who undergo breast reconstruction immediately following mastectomy generally require a longer

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<sup>123</sup> American Cancer Society. 2010. Cancer Facts and Figures. Available at: <http://www.cancer.org/acs/groups/content/@epidemiologysurveillance/documents/document/acspc-026238.pdf>. Accessed August 18, 2010.

<sup>124</sup> *Ibid.*

<sup>125</sup> *Ibid.*

<sup>126</sup> Margolese RG, Lasry JC. 2000. Ambulatory surgery for breast cancer patients. *Annals of Surgical Oncology* 7(3): 181-7.

<sup>127</sup> Marla J, Stallard S. 2009. Systematic review of day surgery for breast cancer. *International Journal of Surgery* 7(4): 318-24.

<sup>128</sup> US Department of Health and Human Services, Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project. 2008 National Statistics on Hospital Stays. Available at: [http://hcupnet.ahrq.gov/HCUPnet.jsp?Id=A4EF22F667D641EC&Form=SelCROSSTAB&JS=Y&Action=%3E%3ENext%3E%3E&\\_Oneway=No](http://hcupnet.ahrq.gov/HCUPnet.jsp?Id=A4EF22F667D641EC&Form=SelCROSSTAB&JS=Y&Action=%3E%3ENext%3E%3E&_Oneway=No). Accessed August 18, 2010.

<sup>129</sup> Connecticut Department of Public Health. Hospitalization statistics. 2007. Available at: <http://www.ct.gov/dph/cwp/view.asp?a=3132&q=397512&dphPNavCtr=|#47732>. Accessed September 1, 2010.

length of stay than those who do not. Breast reconstruction occurs more frequently for younger patients.

The federal Women's Health and Cancer Rights Act of 1998 provides certain rights related to mastectomy care. Under the Women's Health and Cancer Rights Act (WHCRA), group health plans offering mastectomy coverage must also provide coverage for all stages of reconstruction of the breast on which the mastectomy was performed, surgery and reconstruction of the other breast to produce a symmetrical appearance, prostheses and treatment of physical complications of the mastectomy, including lymphedema.<sup>130</sup> The law does not require insurers to cover a minimum hospital stay in connection with mastectomy.

### III. Methods

Under the direction of CPHHP, medical librarians at the Lyman Maynard Stowe Library at the University of Connecticut Health Center (UCHC) gathered published articles and other information related to medical, social, economic, and financial aspects of the required benefit. Medical librarians conducted literature searches using PubMed, Scopus, UptoDate, DynaMed, Cochrane database, EMedicine, CINAHL, and a web search using Google.

Search keywords included mastectomy, lymph node dissection, breast cancer surgery, lumpectomy, inpatient, outpatient, length of stay, social impact, insurance, insurance coverage, reimbursement, economics.

CPHHP staff conducted independent literature searches using the Cochrane Review, Scopus, and Google Scholar using similar search terms used by the UCHC medical librarians. Where available, articles published in peer-reviewed journals are cited to support the analysis. Other sources of information may also be cited in the absence of peer-reviewed journal articles. Content from such sources may or may not be based on scientific evidence.

CPHHP staff consulted with clinical faculty from the University of Connecticut School of Medicine on matters pertaining to medical standards of care; traditional, current and emerging practices; and evidence-based medicine related to the benefit.

Staff gathered additional information through telephone and e-mail inquiries to appropriate state, federal, municipal, and non-profit entities and from internet sources such as the State of Connecticut website, Centers for Medicare and Medicaid (CMS) website, other states' websites, professional organizations' websites, and non-profit and community-based organization websites.

With the assistance of the Connecticut Insurance Department (CID), CPHHP and Ingenix Consulting requested and received 2007 and 2008 claims data from insurance companies and MCOs domiciled in Connecticut. Six insurers/MCOs provided claims data for their fully insured group and individual plan participants; five insurers/MCOs provided information about mastectomy and lymph node dissection minimum inpatient stay coverage in the self-funded plans they administer.

CPHHP and the CID contracted with Ingenix Consulting (IC) to provide actuarial and economic analyses of the mandated benefit. Further details regarding the insurer/MCO claims data and actuarial methods used to estimate the cost of the benefit and economic methods used to estimate financial burden may be found in Appendix II.

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<sup>130</sup> TITLE IX--WOMEN'S HEALTH AND CANCER RIGHTS. As passed in H.R. 4328, the Omnibus Appropriations bill FY 99 Conference Report 105-825; Public Law: 105-277 (10/21/98). Available at: [http://www.cms.gov/HealthInsReformforConsume/06\\_TheWomensHealthandCancerRightsAct.asp#TopOfPage](http://www.cms.gov/HealthInsReformforConsume/06_TheWomensHealthandCancerRightsAct.asp#TopOfPage). Accessed September 1, 2010.

## IV. Social Impact

### ***1. The extent to which the service is utilized by a significant portion of the population.***

In 2008 there were 8,873 hospital discharges for mastectomy in the Northeastern United States for persons covered by private insurance.<sup>131</sup> For these discharges, the mean length of stay was 2.3 days.<sup>132</sup> In 2006 in Connecticut, there were 2,820 new cases of invasive (malignant) breast cancer; 1591 of which occurred in women under age 65.<sup>133</sup> Of these, an estimated 741 women were covered by fully insured and individual health plans subject to the mastectomy care mandate.<sup>134</sup> It is highly unlikely that all of these women underwent mastectomy; however, the precise number of women who undergo mastectomy or lymph node dissection versus lumpectomy versus other cancer treatment or no treatment each year in Connecticut is difficult to determine.

Connecticut Department of Health hospital discharge data shows there were approximately 691 hospital discharges in 2008 with ICD-9-CM codes for breast cancer for women under age 65.<sup>135</sup> The proportion of these discharges related to mastectomy is unknown; however, recent studies of trends in mastectomy rates found a range of 43 percent in one study and 60 percent in another study of women who have breast cancer surgery have mastectomies.<sup>136, 137</sup> Using this range of percentage and the percentage of women under age 65 covered by fully insured group and individual health insurance plans (46.6 percent), the mastectomy minimum stay insurance mandate may have been applicable to a range of approximately 138-193 women in 2008.

### ***2. The extent to which the service is available to the population, including, but not limited to, coverage under Medicare, or through public programs administered by charities, public schools, the Department of Public Health, municipal health departments or health districts or the Department of Social Services.***

#### ***Medicare***

In 2008 in the Northeastern U.S., 30 percent of the mastectomies performed were covered by Medicare and average length of stay for patients was 2.3 days.<sup>138</sup> While Medicare does not provide information regarding a defined amount of recovery time for a mastectomy or lymph node dissection, data shows that on average, coverage is available for inpatient stays following mastectomy at levels comparable to Connecticut's required benefit.<sup>139</sup>

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<sup>131</sup> US Department of Health and Human Services, Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project. 2008 National Statistics on Hospital Stays. Available at: [http://hcupnet.ahrq.gov/HCUPnet.jsp?Id=A4EF22F667D641EC&Form=SelCROSSTAB&JS=Y&Action=%3E%3ENext%3E%3E&\\_Oneway=No](http://hcupnet.ahrq.gov/HCUPnet.jsp?Id=A4EF22F667D641EC&Form=SelCROSSTAB&JS=Y&Action=%3E%3ENext%3E%3E&_Oneway=No). Accessed August 18, 2010.

<sup>132</sup> *Ibid.*

<sup>133</sup> State of Connecticut, Department of Public Health. "Cancer Incidence in Connecticut, 2006." Available at: <http://www.ct.gov/dph/lib/dph/ctr/pdf/CancerIncidenceinConnecticut2006.pdf>. Accessed November 5, 2010.

<sup>134</sup> Based on the number of women diagnosed with malignant breast cancer in Connecticut in 2005 and the estimated percentage of women under age 65 in fully insured group and individual health insurance plans (1634 women; 46.6%).

<sup>135</sup> State of Connecticut, Department of Public Health. "Hospitalization Statistics." Available at: <http://www.ct.gov/dph/cwp/view.asp?a=3132&q=397512&dphPNNavCtr=#47732>. Accessed November 5, 2010.

<sup>136</sup> Katipamula R, Degenim AC, Hoskin T, et al. 2009. Trends in mastectomy rates at the Mayo Clinic Rochester: Effect of surgical year and preoperative magnetic resonance imaging. *Journal of Clinical Oncology* 27: 4082-88.

<sup>137</sup> Balch CM, Jacobs K. 2009. Mastectomies on the rise for breast cancer: "the tide is changing." *Annals of Surgical Oncology* 16(10): 2669-72.

<sup>138</sup> US Department of Health and Human Services, Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project. 2008 National Statistics on Hospital Stays. Available at: [http://hcupnet.ahrq.gov/HCUPnet.jsp?Id=A4EF22F667D641EC&Form=SelCROSSTAB&JS=Y&Action=%3E%3ENext%3E%3E&\\_Oneway=No](http://hcupnet.ahrq.gov/HCUPnet.jsp?Id=A4EF22F667D641EC&Form=SelCROSSTAB&JS=Y&Action=%3E%3ENext%3E%3E&_Oneway=No). Accessed August 18, 2010.

<sup>139</sup> Personal correspondence with Medicare (via [medicare@custhelp.com](mailto:medicare@custhelp.com)). May 20, 2010.

### ***Public Programs Administered by Charities***

In 2008 in the U.S., 1.7 percent of hospital discharges for mastectomy (876 total) were attributed to the uninsured.<sup>140</sup> For these surgeries, mean length of stay was 1.9 days and mean hospital charges were \$24,804.<sup>141</sup> Cancer and breast cancer charities provide help and support in many ways to breast cancer patients; however, CPHHP researchers found no evidence indicating that charities provide funding for inpatient hospital stays and the high cost of hospitalization and surgery make such help and support unlikely. Hospital and physician charges for uninsured patients undergoing mastectomy or lymph node dissection are more likely to be covered through publicly-funded programs such as Medicaid disproportionate share hospital (DSH) payments.

### ***Public Programs Administered by Public Schools***

CPHHP researchers found no information that indicates that public schools provide funding for or provision of post-surgical care for mastectomy and lymph node dissection.

### ***The Department of Public Health (DPH)***

CPHHP researchers found no information that indicates that the DPH provides funding for or provision of post-surgical care for mastectomy and lymph node dissection.

### ***Municipal Health Departments***

CPHHP researchers found no information that indicates that municipal health departments provide funding for or provision of post-surgical care for mastectomy and lymph node dissection.

### ***The Department of Social Services (DSS)***

Medicaid “does not have a minimum requirement” as it pertains to post-mastectomy and lymph node dissection coverage. Alternatively, Medicaid determines coverage based on medical necessity.<sup>142</sup> As noted above, state participation in the Medicaid disproportionate share hospital program provides financial assistance to hospitals that serve a large number of low-income patients—primarily patients enrolled in Medicaid and the uninsured.

### ***3. The extent to which insurance coverage is already available for the service.***

State of Connecticut law requires coverage for at least 48 hours of inpatient care following a mastectomy or lymph node dissection in fully insured group and individual health insurance plans as of July 1, 1997.<sup>143</sup> 2007 and 2008 claims data from six insurers/MCOs that cover 90 percent of the population in fully insured group and individual insurance plans in Connecticut showed evidence that claims are paid for the mandated services. Information received from five insurers/MCOs domiciled in Connecticut shows that 83 percent of members in their self-funded plans have coverage for the benefit.

As noted above, data shows a similar level of post-mastectomy care is accessed by Medicare patients and coverage under Medicaid is available based on medical necessity.

### ***4. If the coverage is not generally available, the extent to which such lack of coverage results in persons being unable to obtain necessary health care treatment.***

Coverage is required and generally available for persons enrolled in fully insured group and individual

<sup>140</sup> US Department of Health and Human Services, Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project. 2008 National Statistics on Hospital Stays. Available at: [http://hcupnet.ahrq.gov/HCUPnet.jsp?Id=A4EF22F667D641EC&Form=SelCROSSTAB&JS=Y&Action=%3E%3ENext%3E%3E&\\_Oneway=No](http://hcupnet.ahrq.gov/HCUPnet.jsp?Id=A4EF22F667D641EC&Form=SelCROSSTAB&JS=Y&Action=%3E%3ENext%3E%3E&_Oneway=No). Accessed August 18, 2010.

<sup>141</sup> *Ibid.*

<sup>142</sup> Personal correspondence with Nina Holmes, DSS Medical Policy Unit. May 21, 2010.

<sup>143</sup> Conn. Gen. Stat. Ann. § 38A-530D (INDIVIDUAL INSURANCE POLICIES); § 38A-503D (GROUP INSURANCE POLICIES).

health insurance plans. Coverage is available to 83 percent of persons enrolled in self-funded plans; persons enrolled in fully insured and self-funded group plans represent the majority of the insured population under age 65 in Connecticut.

***5. If the coverage is not generally available, the extent to which such a lack of coverage results in unreasonable financial hardships on those persons needing treatment.***

Coverage for at least 48 hours of inpatient care following a mastectomy or lymph node dissection is generally available. As noted above, coverage is required to be included in fully insured group and individual policies purchased in Connecticut and coverage is generally included in self-funded plans. Depending on the level of cost sharing and personal financial resources available, that coverage may or may not be sufficient for the insured's family to avoid unreasonable financial hardship.

Mastectomy and lymph node dissection are procedures related to breast cancer. Diagnosis and treatment of cancer are high-cost medical services and often result in financial hardships on those needing treatment and their families. The richness of benefits included in health insurance plans is variable, depending on coverage limits and cost-sharing, thus even for persons with insurance coverage for mastectomy and lymph node dissection, unreasonable financial hardship can occur.

Further discussion of financial and socioeconomic effects of the mandated benefit may be found in Appendix II: Ingenix Consulting Actuarial and Economic Report, pages 41-42.

***6. The level of public demand and the level of demand from providers for the service.***

Rates of mastectomy are increasing and lumpectomy (also known as breast conserving surgery or breast conservation therapy) is decreasing.<sup>144</sup> This is a national trend and there are multiple reasons for its emergence, including patient attitudes and choices about surgical options and the risks and benefits of these options.<sup>145</sup> Bilateral mastectomy provides cancer treatment benefit, cancer prevention, cosmetic advantage, and improved quality of life through reduced fear and anxiety related to recurrence of cancer. Because there is no mandated minimum stay for lumpectomy, the demand for inpatient stays following mastectomy may be increasing accordingly.

***7. The level of public demand and the level of demand from providers for insurance coverage for the service.***

A surgeon and the Connecticut Medical Society provided testimony in favor of insurance coverage for the mandated services during the time legislation for the mandated benefit was under consideration by the Connecticut General Assembly.<sup>146</sup>

Public and provider demand for the services and for insurance coverage of the services is also indicated by the number of states that mandate coverage for minimum stay following mastectomy as described below.

***8. The likelihood of achieving the objectives of meeting a consumer need as evidenced by the experience of other states.***

The Council for Affordable Health Insurance reports that twenty-five states have coverage mandates for minimum stay following mastectomy.<sup>147</sup> States listed include Arkansas, Arizona, California, Connecticut,

<sup>144</sup> Balch CM, Jacobs LK. 2009. Mastectomies on the rise for breast cancer: "the tide is changing." *Annals of Surgical Oncology* 16:2669-72.

<sup>145</sup> *Ibid.*

<sup>146</sup> Connecticut General Assembly. Report on Bills Favorably Reported By Committee. Insurance and Real Estate Committee. SB-334. March 27, 1997.

<sup>147</sup> Bunce VC, Wieske JP. 2009. Health insurance mandates in the states 2009. Council for Affordable Health Insurance. Available at: [http://www.cahi.org/cahi\\_contents/resources/pdf/HealthInsuranceMandates2009.pdf](http://www.cahi.org/cahi_contents/resources/pdf/HealthInsuranceMandates2009.pdf). Accessed May 6, 2010.

Florida, Georgia, Illinois, Kansas, Louisiana, Maryland, Maine, Missouri, Montana, North Carolina, New Jersey, New Mexico, New York, Oklahoma, Pennsylvania, Rhode Island, South Carolina, Tennessee, Texas, Virginia, and West Virginia. The National Association of Insurance Commissioners lists no information about mandated minimum inpatient stays for mastectomy and/or lymph node dissection in their compendium of state health insurance laws.<sup>148</sup> The Kaiser Family Foundation reports that 20 states have mastectomy minimum inpatient stay mandates.<sup>149</sup>

**9. *The relevant findings of state agencies or other appropriate public organizations relating to the social impact of the mandated health benefit.***

Thirty states now require a fiscal note or an additional review process for any new required health insurance benefit prior to enactment.<sup>150</sup> Internet searches and telephone inquiries found four studies from state agencies and public organizations related to the financial and/or social impact of mandated insurance coverage for inpatient care following mastectomy or lymph node dissection. States searched included Arkansas, California, Colorado, Louisiana, Maine, Maryland, Massachusetts, Minnesota, New Jersey, New York, Ohio, Oregon, Pennsylvania, Rhode Island, Texas, Virginia, Washington, and Wisconsin.

**California:** In 2005, the California Health Benefits Review Program analyzed Assembly Bill 8, which proposed mandatory coverage of not less than 48 hours of inpatient care for a woman undergoing a mastectomy and not less than 24 hours of inpatient care for a woman undergoing a lymph node dissection for treatment for breast cancer. The report notes that overall utilization rates of breast cancer surgery would be projected to remain the same and the average length of stay would be projected to increase from approximately 1.89 days to approximately 1.90 days.<sup>151</sup> The California report authors assume that only 10 percent of the one-day stays in California would shift to two-day stays after the mandate because physicians would be likely to continue to recommend that their patients return home as soon as possible after surgery, particularly in light of the lack of evidence regarding clinical benefit of two-day inpatient stays relative to one-day inpatient stays.

In terms of financial impact, the California analysis estimates total annual expenditure for the 20.2 million Californians that would be affected by the proposed legislation would increase by \$840,000 (0.002 percent).<sup>152</sup>

**Maryland:** In 2008, Maryland reviewed a proposed 48-hour minimum post-mastectomy inpatient coverage mandate. Discussion of social impact is brief, however, the authors report they were unable to find any evidence that individuals are avoiding mastectomy procedures because coverage for a 48-hour hospital stay following mastectomy is not mandated.<sup>153</sup>

In terms of financial impact, the mandate would cost, at most, \$0.05 PMPM if spread across the entire under-65 insured population. The report cautioned that the estimate may be high, given that it assumes

<sup>148</sup> NAIC Compendium of State Laws on Insurance Topics. National Association of Insurance Commissioners. August 2009.

<sup>149</sup> Kaiser Family Foundation. 2008. State mandated benefits: inpatient mastectomy stay, 2008. State Health Facts.org. Available at: <http://www.statehealthfacts.org/comparetable.jsp?cat=10&ind=489>. Accessed November 9, 2010.

<sup>150</sup> National Conference of State Legislatures. 2009. Health insurance coverage mandates: Are they too costly? Presentation at the Louisiana Department of Insurance 2009 Annual Health Care Conference. May 28, 2009. Available at: <http://www.ncsl.org/portals/1/documents/health/MandatesCauchi09.pdf>. Accessed May 7, 2010.

<sup>151</sup> California Health Benefits Review Program (CHBRP). 2005. Analysis of A.B. 8: Health Care Coverage: Mastectomies and Lymph Node Dissections. Report to Cal. State Leg. Oakland, CA: CHBRP. 05-01. Available at: [http://www.chbrp.org/docs/index.php?action=read&bill\\_id=77&doc\\_type=3](http://www.chbrp.org/docs/index.php?action=read&bill_id=77&doc_type=3). Accessed November 9, 2010.

<sup>152</sup> *Ibid.*

<sup>153</sup> Maryland Health Care Commission. 2008. Annual Mandated Health Insurance Services Evaluation. [http://mhcc.maryland.gov/health\\_insurance/annualmandaterpt2008.pdf](http://mhcc.maryland.gov/health_insurance/annualmandaterpt2008.pdf)

that every mastectomy patient will stay in the hospital for at least two days, and does not assume any member cost sharing will be applied to the additional stay.<sup>154</sup>

**Massachusetts:** In 2004, the Massachusetts Division of Health Care Finance and Policy reviewed the potential impact of proposed legislation that would guarantee women under age 65 a hospital stay of 48 hours following a mastectomy, and 24 hours following a lymph node dissection. The report found no evidence that women are being denied an inpatient stay post-surgery if they wished one, or that they would necessarily stay two nights if legally entitled to do so.<sup>155</sup> The authors assert there is some indication that the proposed coverage might increase the inappropriate use of service over the next five years if women stay longer than is medically necessary.

In terms of financial impact, the report notes that the cost of the proposed mandate would range from \$0.29 to \$0.72 PMPM, with total impact in 2005 ranging from \$1,168,000 to \$2,873,000.<sup>156</sup>

**Texas:** In 2000, Milliman USA estimated the cost of a proposed 48 hour post-mastectomy minimum-coverage mandate at \$0.02 PMPM.<sup>157</sup> No discussion of social impact appears in the report.

***10. The alternatives to meeting the identified need, including but not limited to, other treatments, methods or procedures.***

Mandated coverage for at least 48 hours of inpatient care following a mastectomy or lymph node dissection developed as a result of concerns about patient safety. The statute allows outpatient surgery or shorter inpatient care at the physician and patient's discretion.

***11. Whether the benefit is a medical or broader social need and whether it is consistent with the role of health insurance and the concept of managed care.***

Coverage for at least 48 hours of inpatient care following mastectomy or lymph node dissection fulfills a medical need, that is, care and monitoring following a surgical procedure in treatment of breast cancer. Required insurance coverage for inpatient care following mastectomy ensures that at least persons covered by fully insured and individual insurance plans have access to the services. Breast cancer is an expensive disease to treat surgically; inpatient care and monitoring following mastectomy is therefore consistent with the role of health insurance and the concept of managed care.

***12. The potential social implications of the coverage with respect to the direct or specific creation of a comparable mandated benefit for similar diseases, illnesses, or conditions.***

The post-surgical mastectomy and lymph node dissection care mandate developed due to concerns about patient outcomes and health immediately following mastectomy. It is conceivable that a comparable mandated benefit for required coverage on an inpatient basis for a minimum amount of time could be enacted for other surgical procedures where patient outcomes and health require the type of intensive monitoring that is available in inpatient settings.

Approximately one year before enacting the mastectomy or lymph node dissection minimum stay mandate, Connecticut enacted a minimum stay mandate for maternity (§§ 38a-530c and 38a-503c). Given the

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<sup>154</sup> *Ibid.*

<sup>155</sup> Review and Evaluation of Proposed Legislation Entitled "An Act Providing Breast Cancer Patient Protection," Massachusetts Division of Health Care Finance and Policy, November, 2004. Available at: [http://www.mass.gov/Eeohhs2/docs/dhcfp/r/pubs/mandates/breast\\_los.pdf](http://www.mass.gov/Eeohhs2/docs/dhcfp/r/pubs/mandates/breast_los.pdf). Accessed June 23, 2010.

<sup>156</sup> *Ibid.*

<sup>157</sup> "Cost Impact Study of Mandated Benefits in Texas." Milliman and Robertson, Inc., (2000). [http://www.tdi.state.tx.us/reports/documents/benefits1\\_00.pdf](http://www.tdi.state.tx.us/reports/documents/benefits1_00.pdf).



minimum stay and provider recommendation clauses of both statutes, the potential continues to exist for enactment of mandates specifying minimum periods and conditions for which an insurer must cover inpatient care. However, since the enactment of the mastectomy care mandate in 1997, no similar mandate has been established.

***13. The impact of the benefit on the availability of other benefits currently offered.***

Insurers and MCOs may cut costs by eliminating or restricting access to, or placing limits on other non-mandated benefits currently offered. However, the availability of any benefits to be restricted may be limited. Existing benefits may be administratively costly to restrict and insurers may be contractually obligated to provide them. Additionally, many of the benefits that could be targets for elimination are included in plans for competitive advantage. The relatively low volume of delivery of the benefit and associated costs in Connecticut would suggest little to no impact on the availability of other benefits currently offered.

***14. The impact of the benefit as it relates to employers shifting to self-funded plans and the extent to which the benefit is currently being offered by employers with self-funded plans.***

Due to the relatively small number of persons requiring 48 hours of inpatient care following a mastectomy or lymph node dissection and the expected small overall financial impact of the mandate, it is not anticipated that employers will shift to self-funded plans as a result of this single mandate nor did so following its passage. It is also not anticipated that repeal of this single mandate would lead to a shift from self-funded plans to fully insured plans among employers. Employers cognizant of the cumulative financial effects of mandated benefits and large enough to assume the risk of employee health care costs are the more likely to consider shifting to self-funded plans.

There are several reasons for health insurance premium increases, including medical cost inflation, an aging population and an aging workforce, and required benefits or “mandates.” Employers contemplating a shift to self-funded plans are likely to weigh these and other factors. Employers also may shift to plans with higher coinsurance amounts to keep premiums at a more affordable level (“benefit buy down”). Benefit buy down can result in employees not taking up coverage and thus being uninsured or not accessing care when it is needed because of high deductibles.

Five health insurers/MCOs domiciled in Connecticut provided information about their self-funded plans, which represents an estimated 47 percent of the total population in self-funded plans in Connecticut. These five insurers/MCOs report that 83 percent of enrollees in their self-funded plans have coverage for the mandated services. Because the mandated benefit under review is typically included in self-funded plans not subject to state health insurance mandates, it is expected that the required benefit has little to no effect of employer decisions to shift to self-funded plans.

***15. The impact of making the benefit applicable to the state employee health insurance or health benefits plan.***

The minimum inpatient stay following mastectomy or lymph node dissection mandate is a current benefit that has been included in the state employee health insurance and health benefits plans at least in part since 1997. Thus the social impact of the benefit for the approximately 134,344 covered lives in state employee plans and 30,000 state retirees not enrolled in Medicare<sup>158</sup> is expected to be the same or similar to the social impact for persons covered in non-state employee health insurance plans as discussed throughout Section IV of this report.

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<sup>158</sup> Personal communication. Scott Anderson, State of Connecticut Comptroller’s Office. September 14, 2010.

State employee claims are included in the 2007 and 2008 claims data provided by insurers/MCOs for their fully insured group insurance enrollees. Because the state shifted to self-funded status on July 1, 2010 (during the time this report was being written), utilization under self-funded status is unknown. All self-funded plans, including those that provide coverage for state employees, are not regulated by the state insurance department and are exempt from state health insurance required benefit statutes.

In terms of financial impact, if the state employee health insurance/benefit plans continue to provide coverage for the required benefit, the IC actuarial analysis estimates the medical cost to the state employee health insurance plan will total \$197,201 in 2010.<sup>159</sup>

***16. The extent to which credible scientific evidence published in peer-reviewed medical literature generally recognized by the relevant medical community determines inpatient care following mastectomy and/or lymph node dissection to be safe and effective.***

A review of the medical literature found that, in general, inpatient care following mastectomy or lymph node dissection is a safe and effective medical practice. The primary safety risks are adverse events associated with hospital stays. An “adverse event” is harm to a patient as a result of medical care, such as an infection associated with the use of hospital equipment. A recent government report based on a nationally representative sample of Medicare beneficiaries found that an estimated 13.5 percent of hospitalized Medicare patients experienced adverse events during their hospital stays, a rate of 1 in 7 patients.<sup>160</sup> An additional 13.5 percent of hospitalized Medicare beneficiaries experienced events during their hospital stays that resulted in temporary harm.<sup>161</sup> Physician reviewers of the hospital discharge information determined that 44 percent of adverse and temporary harm events were clearly or likely preventable.<sup>162</sup>

No specific studies of adverse events associated with inpatient stays for mastectomy and lymph node dissection, or among privately-insured populations, were found. In contrast, several studies described the safety of ambulatory or day surgery for breast cancer/mastectomy.<sup>163,164</sup>

The safety and effectiveness of mastectomy and lymph node dissection per se is not reviewed in depth herein as the mandated benefit is defined as the inpatient care following a mastectomy/lymph node dissection. However, medical research and practice guidelines demonstrate that mastectomy and lymph node dissection are safe and effective options for breast cancer treatment.<sup>165,166</sup> In addition, observational studies demonstrate that prophylactic mastectomy is effective in preventing breast cancer and reducing death from breast cancer for women at high risk (e.g., genetic markers for breast cancer).<sup>167</sup>

<sup>159</sup> The estimate is calculated by multiplying the estimated 2010 weighted average PMPM medical cost in fully insured plans in Connecticut by 12 to get an annual cost per insured life, and then multiplying that product by 163,334 covered lives, as reported by the State Comptroller’s office. The actual cost of this mandate to the State plans may be higher or lower, based on the actual benefit design of the State plans and the demographics of the covered lives (e.g., level of cost-sharing, average age of members, etc.). Retention costs are not included in this estimate because the State is now self-funded and the traditional elements of retention do not apply. State costs for administration of this mandated benefit would be in addition to the above amount. See Appendix II, Ingenix Consulting Actuarial and Economic Report, for further discussion.

<sup>160</sup> Department of Health and Human Services. Office of the Inspector General. 2010. Adverse Events in Hospitals: National Incidence among Medicare Beneficiaries. Available at: <http://oig.hhs.gov/oei/reports/oei-06-09-00090.pdf>. Accessed November 16, 2010.

<sup>161</sup> *Ibid.*

<sup>162</sup> *Ibid.*

<sup>163</sup> Marla S, Stallard S. 2009. Systematic review of day surgery for breast cancer. *International Journal of Surgery* 7(4): 318-23.

<sup>164</sup> Margolese RG, Lasry JC. 2000. Ambulatory surgery for breast cancer patients. *Annals of Surgical Oncology* 7(3): 181-7.

<sup>165</sup> National Cancer Institute. 2010. Breast Cancer Treatment, Stage I, II, IIIA, and Operable IIIC Breast Cancer. Available at: <http://www.cancer.gov/cancertopics/pdq/treatment/breast/HealthProfessional/page6>. Accessed November 16, 2010.

<sup>166</sup> National Cancer Institute. 2010. Breast Cancer Treatment, Stage IIIB, Inoperable IIIC, IV, Recurrent and Metastatic Breast Cancer. Available at: <http://www.cancer.gov/cancertopics/pdq/treatment/breast/HealthProfessional/page7>. Accessed November 16, 2010.

<sup>167</sup> Lostumbo L, Carbine NE, Wallace J. 2010. Prophylactic mastectomy for the prevention of breast cancer. *Cochrane Database of Systematic Reviews* 2010, Issue 11. Art. No.: CD002748.

## IV. Financial Impact

### ***1. The extent to which the mandated health benefit may increase or decrease the cost of the service over the next five years.***

The mandate is not expected to materially alter the availability or cost of inpatient care following mastectomy or lymph node dissection over the next five years. The statute allows outpatient surgery or shorter inpatient care if recommended by the physician after conferring with the patient. The cost of the mandated benefit is likely to increase (or decrease) at the same rate as any other medical service.

### ***2. The extent to which the mandated health benefit may increase the appropriate or inappropriate use of the service over the next five years.***

A minimum inpatient stay following mastectomy or lymph node dissection mandate would seem to increase its appropriate use if insurers did not include such coverage in the absence of the mandate. As noted, it is not uncommon for mandated benefits to be included in self-funded plans that are not subject to state benefit mandates. National data shows average length of stay for mastectomy is 2.1 days for persons with private insurance; therefore, overutilization (unnecessarily longer inpatient stays following mastectomy or lymph node dissection) appears unlikely.<sup>168</sup> The statutes allow outpatient surgery or shorter inpatient care at the physician and patient's discretion, thus the mandate does not require insurance coverage for longer than necessary inpatient stays, which would be a form of overutilization.

### ***3. The extent to which the mandated health benefit may serve as an alternative for more expensive or less expensive treatment, service or drug(s).***

A minimum inpatient stay following mastectomy or lymph node dissection care does not serve as an alternative for any other treatment, service or equipment, supplies or drugs. Lack of any medically necessary care often leads to complications and more extensive treatment that is more expensive than the care forgone at the earlier treatment opportunity.

### ***4. The methods that will be implemented to manage the utilization and costs of the mandated health benefit.***

It is anticipated that insurers and MCOs utilize the same utilization management methods and cost controls that are used for other covered benefits. The legislation does not prohibit insurers and MCOs from employing utilization management, prior authorization, or other utilization tools at their discretion. Overall cost impact is limited due to the small number of beneficiaries requiring the service and because the statute allows outpatient surgery or shorter inpatient care if recommended by the physician after conferring with the patient.

### ***5. The extent to which insurance coverage for the service may be reasonably expected to increase or decrease the insurance premiums and administrative expenses for policyholders.***

Insurance premiums include medical cost and retention costs. Medical cost accounts for medical services. Retention costs include administrative cost and profit (for for-profit insurers/MCOs) or contribution to surplus (for not-for-profit insurers/MCOs). (For further discussion, please see Appendix II, Ingenix Consulting Actuarial and Economic Report, page 12-13.)

**Group plans:** When the medical cost of the mandate is spread to all insureds in group plans, medical costs

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<sup>168</sup> US Department of Health and Human Services, Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project. 2008 National Statistics on Hospital Stays. Available at: [http://hcupnet.ahrq.gov/HCUPnet.jsp?Id=A4EF22F667D641EC&Form=SelCROSSTAB&JS=Y&Action=%3E%3ENext%3E%3E&\\_Oneway=No](http://hcupnet.ahrq.gov/HCUPnet.jsp?Id=A4EF22F667D641EC&Form=SelCROSSTAB&JS=Y&Action=%3E%3ENext%3E%3E&_Oneway=No). Accessed August 18, 2010.

are estimated to be \$0.10 PMPM and retention costs are estimated to be \$0.02 PMPM in 2010. Thus the total effect on insurance premiums is estimated at \$0.12 PMPM in 2010. Insurance coverage for the mandated benefit may be reasonably expected to increase group health insurance premiums accordingly, that is, \$1.44 per year per insured.

**Individual policies:** When the medical cost of the mandate is spread to all insureds in individual policies, medical costs are estimated to be \$0.07 PMPM and retention costs are estimated to be \$0.02 PMPM in 2010. Thus the total effect on insurance premiums is estimated at \$0.09 PMPM in 2010. Insurance coverage for the mandated benefit may be reasonably expected to increase individual health insurance premiums accordingly, that is, \$1.08 per year per insured.

For further information, please see Appendix II: Ingenix Consulting Actuarial and Economic Report.

***6. The extent to which the service is more or less expensive than an existing treatment, service or drug(s), that is determined to be equally safe and effective by credible scientific evidence published in peer-reviewed medical literature generally recognized by the relevant medical community.***

Not applicable. For women for whom it is medically necessary to have a period of inpatient hospitalization following mastectomy or lymph node dissection, at present there are no equally safe and effective alternatives. Mandated coverage of the benefit developed out of concerns for patient safety. For some women, outpatient mastectomy or less than two days of inpatient care following surgery may be safe and effective. The statute does not require such women to be or remain hospitalized; it requires insurance coverage for inpatient care and a minimum length of stay for those women who need it. Medical librarians and CPHHP staff found no published literature documenting any equally safe and effective post-surgical recovery and monitoring methods for women who require two days of inpatient care following surgery.

***7. The impact of insurance coverage for the service on the total cost of health care, including potential benefits or savings to insurers and employers resulting from prevention or early detection of disease or illness related to such coverage.***

The total cost of health care is understood to be the funds flowing into the medical system, which are the medical costs of insurance premiums and cost sharing. Actuarial analysis of claims data received from insurers/MCOs in Connecticut shows an expected cost in 2010 of \$1,777,114 for inpatient care following mastectomy or lymph node dissection for Connecticut residents covered by fully insured group and individual health insurance plans.

The mandated benefit provides coverage for a minimum inpatient stay following a surgical procedure, thus there is little impact in terms of prevention of disease related to the mandated benefit. There may be some financial impact in terms of early detection of illness following or resulting from a surgical procedure, such as an infection. If an infection is detected and treated quickly, serious and costly health complications may be avoided in some cases.

***8. The impact of the mandated health care benefit on the cost of health care for small employers, as defined in § 38a-564 of the general statutes, and for employers other than small employers.***

No published literature was found regarding the effect of mandated coverage for inpatient care following a mastectomy or lymph node dissection on the cost of health care for small employers. Although small employers may be more sensitive to premium increases than other employers, the estimated cost of the mandate (\$0.12 PMPM) suggests little difference in effects among different types of employers.

For further information regarding the differential effect of the mandates on small group vs. large group insurance, please see Appendix II: Ingenix Consulting Actuarial and Economic Report, page 28-29.)

***9. The impact of the mandated health benefit on cost-shifting between private and public payers of health care coverage and on the overall cost of the health care delivery system in the state.***

Cost-shifting between private to public payers of health care coverage generally occurs when formerly privately insured persons, after enrolling in a public program or becoming un- or underinsured, require and are provided health care services. Cost-shifting also occurs when a formerly publicly-funded service becomes the responsibility of private payers, which can result following enactment of a health insurance mandate.

Most persons formerly covered under private payers lose such coverage due to a change in employer, change in employment status, or when private payers discontinue offering health care coverage as an employee benefit or require employee contributions to premiums that are not affordable. Because this required benefit became effective July 1, 1997, it is unlikely that the mandate, taken individually, has any impact on cost-shifting between private and public payers of health care coverage at present.

The overall cost of the health delivery system in the state is understood to include total insurance premiums (medical costs and retention) and cost sharing. Actuarial analysis of claims data received from insurers/MCOs in Connecticut shows an expected cost in 2010 of \$2,113,426 for inpatient care following a mastectomy or lymph node dissection for Connecticut residents covered by fully insured group and individual health insurance plans.

For further information, please see Appendix II, Ingenix Consulting Actuarial and Economic Report.



**Volume II**  
**Chapter 4**  
**Prescription Contraceptives**

Review and Evaluation of Connecticut Statute  
Chapter 700, §§ 38a-530e and 38a-503e  
Mandatory Coverage for Prescription Contraceptives

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## I. Overview

In Public Act 09-179, An Act Concerning Reviews of Health Insurance Benefits Mandated in this State, the Connecticut General Assembly directed the Connecticut Insurance Department to review statutorily mandated health benefits existing on or effective on July 1, 2009. This report is a part of that review and was conducted following the requirements stipulated under Public Act 09-179. The review is a collaborative effort of the Connecticut Insurance Department and the University of Connecticut Center for Public Health and Health Policy.

Connecticut General Statutes, Chapter 700, §§ 38a-530e and 38a-503e mandate that group and individual health insurance policies issued, renewed or continued in this state provide coverage for prescription contraception shall not be excluded from group or individual health insurance policy. Exceptions are individuals employed by a religious employer (“qualified church-controlled organization”) who may not have access to prescription contraceptives due to their employer’s bona fide religious tenets that are contrary to use of contraception. In addition, individuals who state in writing that prescription contraception is contrary to their religious or moral beliefs may be issued a policy or rider that excludes coverage for prescription contraception.

Specifically, CGSA § 38a-530e provides that:

Each group health insurance policy providing coverage of the type specified in subdivisions (1), (2), (4), (11) and (12) of § 38a-469 delivered, issued for delivery or renewed in this state on or after July 1, 1996, shall provide coverage for outpatient prescription drugs approved by the federal Food and Drug Administration shall not exclude coverage for prescription contraceptive methods approved by the federal Food and Drug Administration.

(b) (1) Notwithstanding any other provision of this section, any insurance company, hospital or medical service corporation, or health care center may issue to a religious employer a group health insurance policy that excludes coverage for prescription contraceptive methods which are contrary to the religious employer’s bona fide religious tenets.

(2) Notwithstanding any other provision of this section, upon the written request of an individual who states in writing that prescription contraceptive methods are contrary to such individual’s religious or moral beliefs, any insurance company, hospital or medical service corporation, or health care center may issue to or on behalf of the individual a policy or rider thereto that excludes coverage for prescription contraceptive methods.

(c) Any health insurance policy issued pursuant to subsection (b) of this section shall provide written notice to each insured or prospective insured that prescription contraceptive methods are excluded from coverage pursuant to said subsection. Such notice shall appear, in not less than ten-point type, in the policy, application and sales brochure for such policy.

(d) Nothing in this section shall be construed as authorizing a group health insurance policy to exclude coverage for prescription drugs ordered by a health care provider with prescriptive authority for reasons other than contraceptive purposes.

(e) Notwithstanding any other provision of this section, any insurance company, hospital or medical service corporation, or health care center which is owned, operated or substantially controlled by a religious organization which has religious or moral tenets which conflict with the requirements of this section may provide for the coverage of prescription contraceptive methods as required under this section through another such entity offering a limited benefit plan. The cost, terms, and availability of such coverage shall not differ from the cost, terms, and availability of other prescription coverage offered to the insured.

(f) As used in this section, 'religious employer' means an employer that is a 'qualified church-controlled organization' as defined in 26 USC 3121 or a church-affiliated organization.

§ 38a-503e mandates the same coverage in individual health insurance policies delivered, issued for delivery, renewed or continued in Connecticut.

In April 2010, CPHHP and Ingenix Consulting (IC) requested and received 2007 and 2008 prescription contraception claims data from six insurers and managed care organizations (MCOs) domiciled in Connecticut that cover over 90 percent of the population in fully insured group and individual health insurance plans in Connecticut (1.25 million persons). Based on that claims data, a review of the legislative history, reviews of pertinent literature and the Ingenix Consulting report, this review found the following:

### *Current coverage*

This mandate has been in effect since July 1, 1996 (P.A. 99-79, S.2.).

### *Premium impact*

**Group plans:** On a 2010 basis, medical cost of this mandate is estimated to be \$1.20 PMPM. Estimated total cost to insurers (insurance premium, administrative fees, and profit) of the mandated services on a 2010 basis in group plans is \$1.44 PMPM, which is approximately 0.4 percent of estimated total premium costs in group plans. Estimated cost sharing on a 2010 basis in group plans is \$1.01 PMPM.

**Individual policies:** Four of the six insurers/MCOs provided claims data for individual health insurance policies. On a 2010 basis, medical cost is estimated to be \$0.94 PMPM. Estimated total cost (insurance premium, administrative fees, and profit) of the mandated services in 2010 in individual policies is \$1.22 PMPM, which is approximately 0.4 percent of estimated total of estimated total premiums in individual policies. Estimated cost sharing on a 2010 basis in individual policies is \$1.04 PMPM. Individual policies data is less credible than group plans data primarily due to small sample size.

### *Self-funded plans*

Six insurers/MCOs domiciled in Connecticut provided data on their self-funded plans which represents an estimated 98 percent of the total Connecticut population in self-funded plans. These insurers/MCOs report that 65 percent of members in their self-funded plans have benefits at least equal to this mandate.

This report is intended to be read in conjunction with the General Introduction to this volume and the Ingenix Consulting actuarial report which is included as Appendix II.

## II. Background

The typical American woman spends three decades of her life trying to avoid unintended pregnancy.<sup>169</sup> Yet, an estimated half of all pregnancies in the United States are unintended.<sup>170</sup> Prescription contraceptives offer reliable reversible methods to enable family planning and avoid unintended pregnancies. The National Survey of Family Growth defines prescription contraception methods as oral contraception (pills), implants, progesterone-only injection, emergency contraception, intrauterine device, diaphragm or cervical cap, patch, and combined injection.

In 2008, there were 66 million U.S. women of reproductive age (13-44) and over half (36 million) reported needing contraceptive services and supplies.<sup>171</sup> In Connecticut, there were 738,410 reproductive aged women 423,570 of whom needed contraception.<sup>172</sup> Virtually all U.S. women (99 percent) who have ever had sexual intercourse used some type of birth control in their lifetime.<sup>173</sup> However, not all women use contraception consistently. Over seven percent of women at risk of unintended pregnancy do not currently use any form of birth control.<sup>174</sup> At risk of an unintended pregnancy is defined as a woman who is not pregnant or trying to get pregnant, currently sexually active with a man and not protected by surgical sterilization (hysterectomy, tubal ligation or partner's vasectomy).<sup>175</sup> There are numerous reasons why women do not use contraception, including being uninsured, side effects, medical misinformation, aversion to medical exams, did not expect to have sex, and partner did not want to use birth control.<sup>176, 177</sup>

The most commonly used prescription contraception by women in the United States is oral contraception followed by injectables (Lunelle™, Depo-Provera™), and the patch.<sup>178</sup> The male condom is the most frequently used over the counter contraception.<sup>179</sup> Table II.4.1 lists the prevalence of use of prescription contraception, over the counter, and behavior-based methods.<sup>180</sup>

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<sup>169</sup> Culwell, KR, Feinglass, J. 2007. The association of health insurance with use of prescription contraception. *Perspectives on Sexual and Reproductive Health* 39(4): 226-230.

<sup>170</sup> Finer, LB, Henshaw, SK. 2006. Disparities in rates of unintended pregnancy in the United States, 1994 and 2001. *Perspectives on Sexual and Reproductive Health* 38(2): 90-96.

<sup>171</sup> Frost, JJ, Henshaw, SK, Sonfield. 2010. A. Contraceptive needs and services: National and state data, 2008 update. Guttmacher Institute: New York.

<sup>172</sup> *Ibid.*

<sup>173</sup> Mosher, WD, Jones, J. 2010. Use of contraception in the United States: 1982-2008. National Center for Health Statistics. *Vital Health Stat* 23(29).

<sup>174</sup> *Ibid.*

<sup>175</sup> Culwell, KR, Feinglass, J. 2007. The association of health insurance with use of prescription contraception. *Perspectives on Sexual and Reproductive Health* 39(4), 226-230.

<sup>176</sup> Mosher, WD., Jones, J. 2010. Use of contraception in the United States: 1982-2008. National Center for Health Statistics. *Vital Health Stat* 23(29).

<sup>177</sup> Leeman, L. 2007. Medical barriers to effective contraception. *Obstetrics and Gynecology Clinics of North America*, 34:19-29.

<sup>178</sup> Mosher, WD., Jones, J. 2010. Use of contraception in the United States: 1982-2008. National Center for Health Statistics. *Vital Health Stat* 23(29).

<sup>179</sup> *Ibid.*

<sup>180</sup> *Ibid.* Table adapted.

<b>Table II.4.1: Prevalence of Contraception Use</b>	
<i>Percentage of women aged 15-44 years who have ever had sexual intercourse and ever used the specific contraception method: United States 2006-2008 (n = 53,240,000)</i>	
<b>Method</b>	<b>Percentage</b>
<b>Prescription Contraception</b>	
Any method	99.1
Pill	82.3
3-month injectable (Depo-Provera™)	22.2
Female sterilization	19.9
Male sterilization	13.4
Contraception patch	10.0
Emergency contraception	9.7
Intrauterine device (IUD)	7.4
Contraception ring	6.3
Diaphragm	3.1
Norplant™ or Implanon™ implant	1.4
1-month injectable (Lunelle™)	1.9
Other methods (includes cervical cap and other methods)	0.1
<b>Over-the-Counter and Behavioral</b>	
Condom	93.0
Withdrawal	58.8
Periodic abstinence – calendar rhythm	19.4
Foam alone	6.6
Today™ sponge	4.7
Jelly or cream alone	4.7
Periodic abstinence – natural family planning	4.6
Suppository or insert	3.4
Female condom	1.9

Prescription contraceptives are of particular importance for women with certain medical conditions (e.g. HIV/AIDS, heart disease) that may require long-acting, highly effective, contraception to avoid health complications that may be brought on or exacerbated by pregnancy. In addition, some women may need to prevent pregnancy due to the likelihood of passing on severe genetic defects. Women with these conditions are often advised that the sole use of barrier or behavior-based methods of contraception may not be the most appropriate choice because of their relatively higher typical use failure rates. There are also some non-contraceptive uses for prescription contraception for treatment of a variety of disorders including hyperandrogenism, dysmenorrhea, menorrhagia, reduction of ovarian cancer, and benign cysts of the breasts and ovaries.<sup>181</sup>

Prescription contraceptives are effective forms of birth control since they are reliable and reversible. Two

<sup>181</sup> Martin, KA, Douglas, PS. 2010. Risks and side effects associated with estrogen-progestin contraceptives. *Up to Date*.

of the most commonly used prescription contraception have typical failure rates ranging from 6.7 percent for injectable to 8.7 percent for oral contraception.<sup>182</sup> However, certain medications, antibiotics, and supplements can interact with hormonal contraception and reduce their effectiveness. There are several over the counter and behavior-based contraception methods. The typical use failure rates for these methods are fairly high: male condom (17.4 percent), withdrawal (18.4 percent), periodic abstinence (25.3 percent), spermicides (29.0 percent), female condoms (27.0 percent), and no method (85 percent). The much higher typical use failure rates of the over the counter and behavioral methods are due primarily to the greater variability in the consistency and correctness of use.

Side effects of prescription contraception, particularly oral contraception, include bloating, nausea, breast tenderness, mood changes, breakthrough bleeding, amenorrhea, headaches, and drug interaction.<sup>183</sup> Side effects are the most frequently cited reason for discontinuation of Depo-Provera™, Norplant™ and oral contraception which are methods with the lowest typical use failure rates.<sup>184</sup> Discontinuation of contraception increases the risk of unintended pregnancy since women tend to switch to less effective methods or use no method at all.<sup>185</sup>

The greatest risk of prescription contraception use has been the increase in cardiovascular morbidity and mortality associated with oral contraception. However, the current estrogen content in oral contraception has been reduced which makes this method substantially safer. Older women who smoke continue to be a high risk group for which oral contraception is not recommended. There still exists a small increase in stroke, hypertension, venous thromboembolic disease, and myocardial infarction associated with oral contraception. In addition, some studies have shown an increased risk of breast, cervical, and melanoma related to oral contraception.<sup>186</sup>

The CDC developed evidence-based recommendations for contraceptive use by individuals with certain characteristics (e.g. age, history of pregnancy) and preexisting medical conditions (e.g. diabetes and hypertension).<sup>187</sup> The recommendations were based largely on guidance from the World Health Organization (WHO).<sup>188</sup> Selecting a contraceptive method is more complicated for these women since their conditions may increase the risk of morbidity or mortality. Contraindications include personal characteristics, cardiovascular disease, headache and epilepsy, depression, reproductive tract/breast abnormalities, cancer, infections, HIV, gastrointestinal disease, thalassemia and sickle cell anemia, diabetes and thyroid disease, drug interactions, and rheumatologic issues.

A very high percentage (99 percent) of women in the United States has used some form of contraception in their lifetime.<sup>189</sup> However, contraception failure is a primary cause of unintended pregnancy since half of all unintended pregnancies occur to women who use some method of reversible contraception.

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<sup>182</sup> Mosher, WD, Jones, J. 2010. Use of contraception in the United States: 1982-2008. National Center for Health Statistics. *Vital Health Stat* 23(29).

<sup>183</sup> Martin, KA, Douglas, PS. 2010. Risks and side effects associated with estrogen-progestin contraceptives. Up to Date.

<sup>184</sup> Chandra, A, Martinez, GM, Mosher, WD, et al. 2005. Fertility, family planning, and reproductive health of U.S. women. Data from 2002 National Survey of Family Growth. National Center for Health Statistics. *Vital Health Stat* 23(25).

<sup>185</sup> Moreau, C, Cleland, K, Trussell, J. 2007. Contraceptive discontinuation attributed to method dissatisfaction in the United States. *Contraception* 76: 267.

<sup>186</sup> Martin, KA, Douglas, PS. 2010. Risks and side effects associated with estrogen-progestin contraceptives. Up to Date.

<sup>187</sup> Kaunitz, AM. 2010. Prescribing contraceptives when medical problems and other health conditions intervene. *SRM8*(4): 5-10.

<sup>188</sup> Department of Reproductive Health, World Health Organization (WHO). 2009. Medical Eligibility Criteria for Contraceptive Use. 4<sup>th</sup> ed. Geneva, Switzerland: WHO. Available at: [http://www.who.int/reproductivehealth/publications/family\\_planning/9789241563888/en/index.html](http://www.who.int/reproductivehealth/publications/family_planning/9789241563888/en/index.html). Accessed December 29, 2010.

<sup>189</sup> Mosher, WD, Jones, J. 2010. Use of contraception in the United States: 1982-2008. National Center for Health Statistics. *Vital Health Stat* 23(29).

Reducing the risk of contraception failure has a major impact on reducing unintended pregnancies. In a study using the Behavioral Risk Factor Surveillance System (2002 and 2004 datasets), researchers identified demographic characteristics, behavioral risk factor patterns, and health care encounters of women at risk for an unintended pregnancy.<sup>190</sup> A woman was considered high-risk if she was fertile, her male partner was fertile, she did not want to become pregnant and she was not doing anything to prevent a pregnancy. Demographic characteristics of high-risk women included being Black, non-Hispanic, older than 35, married, earning less than \$35,000 annually, and less likely to have health insurance. In terms of behavioral and clinical characteristics, high-risk women were more likely to be obese, smoke, exercise less, take less folic acid, and less likely to have Papanicolaou (Pap) tests, HIV tests, and STD counseling than low-risk women. In addition, teens (aged 15-19) as a group are at risk for unintended pregnancies. Teens that do not use a contraceptive at first sexual intercourse are twice as likely to become teen mothers as are teenagers who use a method. Over half (54 percent) of teenage women who use contraceptives rely on the pill and nearly one-quarter (23 percent) choose condoms.<sup>191</sup> However, these are unreliable methods for teens since the typical use failure rate for condoms is 17.4 percent and teens are more than twice as likely to experience a pill failure as women age 30 or older.<sup>192</sup>

There are numerous barriers to accessing prescription contraception. Women with certain demographic characteristics have greater difficulty accessing these services and supplies.<sup>193</sup> For example, uninsured women are over 20 percent less likely to report using prescription contraception.<sup>194</sup> Being older, African American, non-Hispanic, having less than a college degree, unemployed outside the home, and reporting a religion other than Protestant are other factors associated with lower use of prescription contraceptives.<sup>195</sup>

Medical barriers have been defined as “practices, derived at least partly from a medical rationale, that result in a scientifically unjustifiable impediment to, or denial of, contraception” and pose an additional hurdle to prescription contraception.<sup>196</sup> The barriers include a delay in seeking prescription contraception to avoid a pelvic examination, sexually transmitted infection screen, or perceived need to have had a recent menses. Regulatory or financial barriers limiting contraceptive dissemination to adolescents or undocumented immigrants also reduce access.<sup>197</sup>

In 1996, the World Health Organization (WHO) published the first edition of the *Medical Eligibility Criteria for Contraceptive Use* to provide evidence-based guidance on the safety of contraceptive method use for women with specific characteristics and medical conditions. The document was designed to be used as a reference by policy makers, family planning program managers, and the scientific community when developing family planning guidance at the country or program level. The CDC adapted the document for use in the U.S. and created the *United States Medical Eligibility Criteria for Contraceptive Use (USMEC)*. This document is intended to assist family planning providers when counseling women, men, and couples about contraceptive method choice.<sup>198</sup>

<sup>190</sup> Xaverius, PK, Tenkkuk, LE, Salas, J. 2009. Differences between women at higher and lower risk for unintended pregnancy. *Women's Health Issues*, 19: 306-312.

<sup>191</sup> Mosher, WD, Jones, J. 2010. Use of contraception in the United States: 1982-2008. National Center for Health Statistics. *Vital Health Stat* 23(29).

<sup>192</sup> Kost, K, Singh, S, Vaughan, B, et al. 2008. Estimates of contraceptive failure from the 2002 National Survey of Family Growth. *Contraception* 77: 10-21.

<sup>193</sup> Culwell, KR, Feinglass, J. 2007. Changes in prescription contraception use, 1995-2002: The effect of insurance status. *Obstetrics and Gynecology* 110(6): 1371-1378.

<sup>194</sup> Leeman, L. 2007. Medical barriers to effective contraception. *Obstetrics and Gynecology Clinics of North America* 34: 19-29.

<sup>195</sup> *Ibid.*

<sup>196</sup> Shelton, JD, Angel, MA, Jacobstein, RA. 1992. Medical barriers to access to family planning. *Lancet* 340: 1334-5.

<sup>197</sup> Leeman, L. 2007. Medical barriers to effective contraception. *Obstetrics and Gynecology Clinics of North America* 34: 19-29.

<sup>198</sup> Centers for Disease Control and Prevention. 2010. Unintended Pregnancy. Available at: <http://www.cdc.gov/reproductivehealth/UnintendedPregnancy/>. Accessed December 29, 2010.

Other organizations that provide treatment guidelines include: American College of Obstetricians and Gynecologists,<sup>199</sup> American Society for Reproductive Medicine,<sup>200</sup> Office of Population Affairs,<sup>201</sup> and Planned Parenthood.<sup>202</sup>

According to the NAIC, thirty-three states have laws similar to Connecticut's mandating coverage for prescription contraceptives.

### III. Methods

CPHHP staff consulted with medical librarians at the Lyman Maynard Stowe Library at the University of Connecticut (UCHC). Medical librarians conducted literature searches to gather published articles and other information related to medical, social, economic, and financial aspects of the required benefit. Sources used included PubMed, Scopus, Center for Disease Control and Prevention (CDC) website, and Google. Search terms included:

- Insurance
- Contraception
- Contraception/economics
- Health services accessibility
- Reproductive health services
- Contraceptive agents
- Contraceptive agents/female
- Contraceptive behavior
- Contraceptive behavior/statistics and numerical data
- Medically uninsured
- Population surveillance
- Women's health services
- Women's health services/adverse effects
- Connecticut
- Contraceptives, oral/adverse effects

CPHHP staff conducted independent literature searches using the Cochrane Review, Pubmed, and Google Scholar using similar search terms as the UCHC medical librarians. Where available, articles published in peer-reviewed journals are cited to support the analysis. Other sources of information may also be cited in the absence of peer-reviewed journal articles. Content from such sources may or may not be based on scientific evidence.

CPHHP staff consulted with a practicing obstetrician/gynecologist in the community on matters pertaining to medical standards of care, traditional, current and emerging practices, and evidence-based medicine related to the benefit.

Staff gathered additional information through telephone and e-mail inquiries to appropriate state, federal, municipal, and non-profit entities and from internet sources such as the State of Connecticut website, Centers for Medicare and Medicaid (CMS) website, other states' websites, professional organizations'

<sup>199</sup> The American Congress of Obstetricians and Gynecologists. Available at: <http://www.acog.org/>. Accessed December 29, 2010.

<sup>200</sup> American Society for Reproductive Medicine. Available at: <http://www.asrm.org/>. Accessed December 29, 2010.

<sup>201</sup> U.S. Department of Health and Human Services. Office of Population Affairs. Available at: <http://www.hhs.gov/opa/>. Accessed December 29, 2010.

<sup>202</sup> Planned Parenthood. Available at: <http://www.plannedparenthood.org/>. Accessed December 29, 2010.

websites, and non-profit and community-based organization websites.

With the assistance of the Connecticut Insurance Department (CID), CPHHP and Ingenix Consulting requested and received 2007 and 2008 claims data from insurance companies and MCOs domiciled in Connecticut. Six insurers/MCOs provided claims data for their fully insured group and individual plan participants, as well as information about their self-funded plans.

CPHHP and the CID contracted with Ingenix Consulting to provide actuarial and economic analyses of the mandated benefit. Further details regarding the insurer/MCO claims data and actuarial methods used to estimate the cost of the benefit and economic methods used to estimate financial burden may be found in Appendix II.

## IV. Social Impact

### ***1. The extent to which prescription contraceptives are utilized by a significant portion of the population.***

In 2008, there were 66 million U.S. women of reproductive age (13-44) and over half (36 million) reported needing contraceptive services and supplies.<sup>203</sup> In Connecticut, there were 738,410 reproductive aged women and 423,570 reported needing contraception.<sup>204</sup> Virtually all U.S. women (99 percent) who have ever had sexual intercourse used some type of birth control in their lifetime.<sup>205</sup> The most commonly used prescription contraception by women in the United States is oral contraception (82.3 percent) followed by injectables (Lunelle<sup>TM</sup>, Depo-Provera<sup>TM</sup>) (24.1 percent), and the patch (10.0 percent).<sup>206</sup>

### ***2. The extent to which the prescription contraceptives are available to the population, including, but not limited to, coverage under Medicare, or through public programs administered by charities, public schools, the Department of Public Health, municipal health departments or health districts or the Department of Social Services.***

#### ***Medicare***

Medicare Part D plans cover a variety of prescription contraceptives.<sup>207, 208</sup>

#### ***Public Programs Administered by Charities***

Planned Parenthood of Connecticut is the grantee for State of Connecticut family planning funds. The family planning clinics provide reproductive health care services for males and females, including clinical exams, contraception information and prescriptions, emergency contraception, pregnancy testing and counseling, STD and HIV testing and counseling, and other reproductive health services. Planned Parenthood Service Connecticut and Rhode Island (PPSNE) serviced nearly 70,000 patients each year.<sup>209</sup>

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<sup>203</sup> Frost, JJ, Henshaw, SK, Sonfield, A. 2010. Contraceptive needs and services: National and state data, 2008 update. Guttmacher Institute: New York.

<sup>204</sup> *Ibid.*

<sup>205</sup> Mosher, WD, Jones, J. 2010. Use of contraception in the United States: 1982-2008. National Center for Health Statistics. *Vital Health Stat* 23(29).

<sup>206</sup> *Ibid.*

<sup>207</sup> Medicare Part D Drug Formulary Search. 2010. Available at: <http://hipformulary.hipusa.com/> . Accessed December 29, 2010.

<sup>208</sup> Medicare. Medicare Plans and Formularies. Available at: <http://plancompare.medicare.gov/pfdn/FormularyFinder/DrugSearch>. Accessed December 29, 2010.

<sup>209</sup> Connecticut 211 Infoline. Family Planning Clinics. Available at: <http://ct211.org/InformationLibrary/Documents/familyplanningclinics.asp>. Accessed December 29, 2010.



### ***Public Programs Administered by Public Schools***

School Based Health Centers (SBHCs) are free-standing medical clinics within or on school grounds. SBHCs are located in schools predominantly serving low-income minority children. SBHCs operate under the sponsorship of a variety of organizations representing community health centers, hospitals, municipalities, boards of education and regional education councils, local health departments, and community based organizations. A mix of funding sources supports SBHCs activities including state, federal, local and private dollars. Some of the services provided include diagnosis and treatment, physical exams, immunization, prescribing and dispensing medications, dental care, and mental health care.<sup>210</sup> In 2006-2007, 68 state-funded SBHC sites in 19 Connecticut communities provided health services to more than 20,000 students in grades Pre-K to 12. Seven percent of visits to DPH-funded SBHC clinics in 2006-2007 were for reproductive health.<sup>211</sup>

### ***The Department of Public Health (DPH)***

The Connecticut Department of Public Health website provides information about Community Health Center Programs and Services, which require Gynecology /Family Planning Services. Additionally, six CHCs participate in the 340B Drug Pricing Program, which provides discounts for many outpatient prescription drugs for uninsured patients. The 340B Drug Pricing Program includes prescription contraceptives in the outpatient prescription drugs eligible for discounting.

### ***Municipal Health Departments***

No information was found that would indicate municipal health departments provide funding for prescription contraception.

### ***The Department of Social Services (DSS)***

The Department of Social Services through the Medicaid program provides coverage for prescription contraceptives under two categories: retail pharmacy and Physician/APRN. The retail pharmacy component of DSS coverage includes oral contraceptives, diaphragms and emergency contraceptives.<sup>212</sup> Additionally, over-the-counter male and female condoms are covered, though a prescription is still needed for audit purposes. Physicians and APRN's can bill Medicaid for prescription contraceptives including intrauterine devices, patches, and rings.<sup>213</sup> Family planning clinics participate in both the retail pharmacy and physician/APRN components of the Medicaid program in Connecticut. They may also bill for other prescriptions such as emergency contraception.<sup>214</sup>

### ***3. The extent to which insurance coverage is already available for prescription contraceptives.***

State of Connecticut law requires coverage for prescription contraceptives in fully insured group and individual health insurance plans as of October 1, 1999.<sup>215</sup> Exceptions are individuals employed by a religious employer ("qualified church-controlled organization") who may not have access to prescription contraceptives due to their employer's bona fide religious tenets that are contrary to use of contraception. In addition, individuals who state in writing that prescription contraception is contrary to their religious or moral beliefs may be issued a policy or rider that excludes coverage for prescription contraception. 2007 and

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<sup>210</sup> Connecticut Department of Public Health. 2009. School Based Health Centers. Available at: <http://www.ct.gov/dph/cwp/view.asp?a=3138&q=387698>. Accessed December 29, 2010.

<sup>211</sup> Connecticut Department of Public Health. 2009. Connecticut School Based Health Centers: Healthy Students Make Better Learners. 2006-2007 Annual Report. Available at: <http://www.ct.gov/dph/cwp/view.asp?a=3138&q=387698>. Accessed December 29, 2010.

<sup>212</sup> Personal communication. Nina Holmes, DSS Medical Policy Unit and James Zakszewski, RPh, DDS Pharmacy Consultant. May 21, 2010.

<sup>213</sup> *Ibid.*

<sup>214</sup> *Ibid.*

<sup>215</sup> Conn. Gen. Stat. Ann. § 38A-503E (INDIVIDUAL INSURANCE POLICIES); § 38A-530E (GROUP INSURANCE POLICIES).

2008 claims data from six insurers/MCOs that cover 90 percent of the population in fully insured group and individual insurance plans in Connecticut showed evidence that claims are paid for the mandated services. All six carriers provided data on their self-funded plans for this mandate and 65 percent of members in their self-funded plans have benefits at least equal to this mandate.

***4. If the coverage is not generally available, the extent to which such lack of coverage results in persons being unable to obtain necessary health care treatment.***

Coverage is required and generally available for persons enrolled in fully insured group and individual health insurance plans. Coverage is available to 65 percent of persons enrolled in self-funded plans; persons enrolled in fully insured and self-funded group plans represent the vast majority of the insured under the age of 65 in Connecticut. As noted above, Medicaid generally provides the benefit. The population in Medicare for which prescription contraceptives are needed is expected to be limited. For persons uninsured or for whom prescription contraception is unaffordable other resources may be available. For example, Community Health Center (CHC) are required to offer Gynecology/Family Planning Services. Additionally, several CHCs participate in the 340B Drug Pricing Program, which provides discounts for many outpatient prescription drugs for uninsured patients. The 340B Drug Pricing Program includes prescription contraceptives in the outpatient prescription drugs eligible for discounting.

***5. If the coverage is not generally available, the extent to which such a lack of coverage results in unreasonable financial hardships on those persons needing treatment.***

As noted above, coverage for prescription contraceptives is required to be included in fully insured group and individual policies purchased in Connecticut, with certain exclusions for religious employers. This mandate involves the prescription drug benefit which has a cost-sharing structure that is unlike that of medical plans. The annual allowed cost of a generic prescription for birth control pills may be roughly from \$180 to \$600, which is \$15 to \$50 monthly. This would be the cost to the patient without insurance who must pay for the entire cost. One form of birth control pills, ortho tri-cyclen, which has about 20 percent of the market share, is available currently for \$9 per month through one of the major retail store pharmacies.

***6. The level of public demand and the level of demand from providers for prescription contraceptives.***

In 2008, there were 66 million U.S. women of reproductive age (13-44) and over half (36 million) reported needing contraceptive services and supplies.<sup>216</sup> In Connecticut, there were 738,410 reproductive aged women and 423,570 reported a need for contraception.<sup>217</sup> Virtually all U.S. women (99 percent) who have ever had sexual intercourse used some type of birth control in their lifetime.<sup>218</sup>

At the time the Bill was under consideration, testimony was received in support of the service and insurance coverage from the public and providers. Members of the community, leaders of professional organizations and providers advocated for prescription contraception noting the many benefits. For example, prescription contraceptives are safe and effective, allow for family planning which results in healthier babies, and are bundled with women's health care services, procedures, and screenings.<sup>219</sup>

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<sup>216</sup> Frost, JJ, Henshaw, SK, Sonfield, A. 2010. Contraceptive needs and services: National and state data, 2008 update. Guttmacher Institute: New York.

<sup>217</sup> *Ibid.*

<sup>218</sup> Mosher, WD, Jones, J. 2010. Use of contraception in the United States: 1982-2008. National Center for Health Statistics. *Vital Health Stat* 23(29).

<sup>219</sup> Connecticut General Assembly. Report on Bills Favorably Reported by Committee. Available at: <http://www.cga.ct.gov/ps99/jfr/h/1999HB-05950-R00INS-JFR.htm>. Accessed December 29, 2010.

**7. *The level of public demand and the level of demand from providers for insurance coverage for prescription contraceptives.***

In 1993, virtually all insurance plans covered prescription drug benefits but half did not cover any prescription contraceptives and only one-third covered oral contraceptives.<sup>220</sup> Since that time advocacy groups have contributed to an increase in insurance coverage for prescription contraception. In 2000, the U.S. Equal Employment Opportunity Commission found that the failure of employers to include contraceptives in prescription drug coverage constituted sex discrimination under the Title VII of the Civil Rights Act.<sup>221</sup> Furthermore, in 2001 a district court ruled that excluding prescription contraceptives from an otherwise comprehensive prescription drug plan was illegal.<sup>222</sup> Although these decisions applied only to the employers named in the complaints, they influenced insurance-purchasing decisions of employers wanting to avoid similar lawsuits. Furthermore, one of the government's public health goals included in Healthy People 2010 is to "increase the proportion of health insurance policies that cover contraceptive supplies and services." Public health goals such as these may have influenced states to enact mandates to require contraceptive coverage.

In Connecticut, public and provider support for coverage of this service is documented in the public testimony received during the time the Bill was under consideration for passage by the general assembly (as noted above in Question 6).

**8. *The likelihood of achieving the objectives of meeting a consumer need as evidenced by the experience of other states.***

According to the National Association of Insurance Commissioners (NAIC), 32 states have statutes requiring some type of prescription contraceptive coverage in health insurance plans subject to state regulation.<sup>223</sup> The Council for Affordable Health Insurance reports that 29 states have coverage mandates for prescription contraceptives.<sup>224</sup> Specific provisions vary widely across states. The broadest mandates require coverage of FDA-approved prescription contraceptive drugs and devices and related services. In some states, insurers are not allowed to impose different deductibles, copayments, waiting periods or other actions. Some state mandates require coverage of any FDA-approved prescription contraceptive drug or device if the insurer provides prescription drug coverage but they do not limit deductibles or copayments. Some mandates limit coverage to certain plans or types of providers. Other states only require plans to offer coverage to purchasers (mandatory offer mandates). Many state laws mandating contraceptive coverage include a "conscience" clause whereby employers and insurers may refuse to provide contraceptive coverage if they oppose contraception on religious grounds. For further information, please see Table II.4.2.<sup>225</sup>

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<sup>220</sup> The Alan Guttmacher Institute (AGI). 1994. Uneven and Unequal: Insurance Coverage and Reproductive Health Services. AGI: New York.

<sup>221</sup> U.S. Equal Employment Opportunity Commission. 2000. Decision on coverage of contraception. Available at: <http://www.eeoc.gov/policy/docs/decision-contraception.html>. Accessed December 29, 2010.

<sup>222</sup> Western District of Washington U.S. District Court, Jennifer Erickson v. Bartell Drug Company, C.00-1213L., June 21, 2001.

<sup>223</sup> National Association of Insurance Commissioners. 2009. Compendium of State Laws on Insurance Topics. Mandated Benefits- Women's Health, Pregnancy, Fertility and Preventative Care, "Contraceptive Service" Section.

<sup>224</sup> Bunce VC, Wieske JP. 2009. Health insurance mandates in the states 2009. Council for Affordable Health Insurance. Available at: [http://www.cahi.org/cahi\\_contents/resources/pdf/HealthInsuranceMandates2009.pdf](http://www.cahi.org/cahi_contents/resources/pdf/HealthInsuranceMandates2009.pdf). Accessed May 6, 2010.

<sup>225</sup> National Association of Insurance Commissioners. 2010 Compendium of State Laws on Insurance Topics.

<b>Table II.4.2 State Mandates for Prescription Contraceptives</b>	
State	Coverage
Alaska	Contraceptives must be covered by plans if any prescription drugs are covered.
Arizona	If coverage for prescription drugs, must include coverage for contraceptives in group plans. Religious employer exemption.
Arkansas	Cover contraceptive drugs the same as other prescriptions. Copayments, deductible, fees, etc. must be the same. Religious employer exemption.
California	Insurance policy that covers prescriptions must cover FDA-approved contraceptives and provide identical coverage for dependents. Religious employer exemption.
Connecticut	If policy provides coverage for outpatient drugs, it shall not exclude coverage for contraceptive prescriptions. Religious employer/individual exemption.
Delaware	Requires insurance coverage for all FDA-approved contraceptives for group plans.
Georgia	If policy provides coverage for prescription drugs on an outpatient basis, it shall provide coverage for any prescribed drug or device approved by FDA for use as a contraceptive.
Hawaii	Each employer group health policy shall cease to exclude contraceptive services or supplies for subscribers or subscribers' dependents. Religious employer exemption.
Illinois	If policy provides coverage for prescription drugs or outpatient medical services, must provide coverage to same extent for all FDA-approved prescription contraceptives or for outpatient contraceptive services. Does not cover abortions or sterilizations.
Iowa	Prohibits exclusion of payment benefits for prescription contraceptives and devices approved by FDA. Does not include tubal ligation or vasectomy or over the counter drugs or devices.
Kentucky	Contraceptives covered under prescription drugs for Kentucky Health Care Reform Act.
Maine	If policy provides coverage for prescription drugs or outpatient medical services, it must provide coverage to same extent for all FDA-approved prescription contraceptives or for outpatient contraceptive services. Religious employer exemption.
Maryland	If policy provides coverage for prescription drugs, coverage shall be provided for FDA-approved contraceptive drugs or devices obtained under a prescription and for procedures associated with their use. Religious employer/organization exemption.
Massachusetts	Must cover contraceptives if policy covers other outpatient prescriptions; applies to individual policies.
Missouri	Cover contraceptives either at no charge or with same coinsurance and deductible as any other covered drug. Excludes drugs and devices intended to induce an abortion.
Montana	A.G. Opinion No. 16 (March 28, 2006) (interpreting § 49-2-309; § 49-2-303) If an employer benefit plan covers prescriptions, it may not exclude contraceptives.
Nevada	If coverage is provided for prescription drugs or devices, policy shall include coverage for any type of contraceptive drug or device. If outpatient care provided, so must health care service related to contraceptives. No higher deductibles. Religious employer/insurer exemption.

<b>Table II.4.2 State Mandates for Prescription Contraceptives</b>	
State	Coverage
New Hampshire	If group coverage provided for outpatient services or prescription benefits, coverage shall also be provided for outpatient contraceptive services or FDA-approved contraceptive drugs or devices.
New Jersey	If policy provides coverage for outpatient prescription drugs, it shall provide coverage for prescription female contraceptives. Religious employer exemption.
New Mexico	If coverage provided for prescription drugs, coverage shall be provided for FDA-approved prescription contraceptive drugs or devices. Religious organization exemption.
New York	If policy covers prescription drugs, must include contraceptives. Religious employer exemption.
North Carolina	Provide coverage for prescription contraceptive drugs or devices. Same coinsurance and deductibles as for other prescriptions. Does not include RU-484 or equivalent or prevent or equivalent. Religious employer exemption. Prescribed contraceptive drugs or devices approved by the FDA are covered if the plan covers prescription drugs or devices.
Oklahoma	Contraceptives are not excluded.
Oregon	Health benefit plans and student health insurance policies must cover contraceptives and related consultations, examinations, and procedures.
Rhode Island	Every plan that covers prescription drugs must cover FDA-approved contraceptive drugs and devices requiring a prescription. Religious employer exemption.
Texas	A health plan that covers prescription drugs must also cover contraceptives. Must be subject to same cost sharing applicable to other prescriptions. Does not cover any drug or device to terminate a pregnancy. Insurer affiliated with a religious organization is not required to provide such coverage.
Vermont	Provide coverage for outpatient contraceptive services, including sterilization. Also cover prescription contraceptives and contraceptive devices, if insurance plan covers prescriptions. May not place any greater financial burden than for access to other treatments.
Virginia	If coverage provided for prescription drugs on an outpatient basis, coverage shall also be available for any FDA-approved contraceptive drug or device. Includes essential benefit plan contracts and state employee benefits plans.
Washington	If policy covers prescription drugs, must include drugs and contraceptive devices requiring a prescription.
West Virginia	Health insurance plans that cover prescription drugs may not exclude or restrict coverage for contraceptives. May not impose greater deductibles, etc., than for other drugs. Religious employer exemption.

**9. *The relevant findings of state agencies or other appropriate public organizations relating to the social impact of the mandated coverage for prescription contraceptives.***

Thirty states now require a fiscal note or an additional review process for any new required health insurance benefit prior to enactment.<sup>226</sup> Internet searches and telephone inquiries found studies from Maryland, Massachusetts, and Texas related to the financial impact of mandated insurance coverage for prescription contraceptives. No studies of the social impact were found. States searched included Arkansas, California, Colorado, Louisiana, Maine, Maryland, Massachusetts, Minnesota, New Jersey, New York, Ohio, Oregon, Pennsylvania, Rhode Island, Texas, Virginia, Washington, and Wisconsin.

**Maryland:** In 2008, Maryland published an analysis of the state's contraceptives mandate.<sup>227</sup> The report concluded that the full cost of implementing the mandate equaled 0.6 percent of the premium for group plans, and 0.7 percent for individual policies.

**Massachusetts:** The Massachusetts Division of Health Care Finance and Policy reviewed of the cost and impact of the Massachusetts mandated benefit for prescription contraception (MASSACHUSETTS GENERAL LAWS C. 175 § 47W).<sup>228</sup> Based on total claims for outpatient contraceptive procedures and consultations, evaluation and management with a contraception-related diagnosis, and all pharmacy claims for contraceptive drugs and devices, estimated prescription contraception costs are \$1.14 PMPM for medical costs and \$1.33 PMPM (0.44 percent of the total premium) after administrative loading.

**Texas:** The Texas Department of Insurance (TDI) reviewed the Texas mandated benefit for prescription contraception (TEXAS I.C. ART. 21.52L; I.C. §§ 1369.104, 1369.105).<sup>229</sup> The report concluded that, for group plans, "oral contraceptives" cost 0.18 percent of total claims paid in 2006. Additionally, the category of "prescription contraceptive drugs, devices and related services" averaged 0.07 percent of the total claims paid in 2006. In 2005 and 2006, oral contraceptives were the "most frequently used [mandated] benefit," in part because each monthly refill of oral contraceptives is counted as an independent utilization.

For individual policies, oral contraceptive mandated benefit claims costs were 0.26 percent of total mandated benefit claims paid in 2005, and 0.10 percent in 2006. As with group plans, contraceptives (both oral and other prescriptions, as well as devices and related services) were the most frequently used mandate among individual policies, totaling nearly half of all mandated benefit claims. The report contrasted this trend with reconstructive breast surgery, which accounted for only 5.43 percent of the number of total claims, but given its rare and expensive nature, amounted to more than 40 percent of all mandated benefit costs.

**10. *The alternatives to meeting the identified need, including but not limited to, other treatments, methods or procedures.***

Prescription contraceptives developed through medical research efforts to provide reliable and reversible means of avoiding unintended pregnancies. Two of the most commonly used prescription contraception have typical use failure rates ranging from 6.7 percent for injectable to 8.7 percent for oral contraception. Alternatives to prescription contraception include over-the-counter and behavior-based contraception methods. The typical use failure rates for these methods are fairly high: male condom (17.4 percent),

<sup>226</sup> National Conference of State Legislatures. 2009. Health insurance coverage mandates: Are they too costly? Presentation at the Louisiana Department of Insurance 2009 Annual Health Care Conference. May 28, 2009. Available at: <http://www.ncsl.org/portals/1/documents/health/MandatesCauchi09.pdf>. Accessed May 7, 2010.

<sup>227</sup> Maryland Health Care Commission. 2008. Study of Mandated Health Insurance Services: A Comparative Evaluation. Available at: [http://mhcc.maryland.gov/health\\_insurance/mandated\\_1207.pdf](http://mhcc.maryland.gov/health_insurance/mandated_1207.pdf). Accessed December 21, 2010.

<sup>228</sup> Comprehensive Review of Mandated Benefits in Massachusetts. 2008. Division of Health Care Finance and Policy.

<sup>229</sup> Texas Department of Insurance. 2006. Texas Mandated Benefit Cost and Utilization Summary Report (October 2005-September 2006 Reporting Period). Available at: <http://www.tdi.state.tx.us/reports/life/documents/lhlmanbenrept06.pdf>. Accessed June 23, 2010.

withdrawal (18.4 percent), periodic abstinence (25.3 percent), spermicides (29.0 percent), female condoms (27.0 percent), and no method (85 percent). The much higher typical use failure rates of the over the counter and behavioral methods are due primarily to the greater variability in the consistency and correctness of use. Female and male sterilization are also alternative treatments although they typically are not reversible.

***11. Whether the benefit is a medical or broader social need and whether it is consistent with the role of health insurance and the concept of managed care.***

Prescription contraception addresses a social need by averting unintended pregnancy and the associated physical, emotional, economic, and social problems and therefore contributes to the health and well-being of women and their families.<sup>230</sup> The CDC includes family planning as one of the ten most important public health achievements in the twentieth century noting that, “smaller families and longer birth intervals have contributed to the better health of infants, children, and women, and have improved the social and economic role of women.”<sup>231</sup>

Prescription contraceptives also address medical needs for women since obtaining this service typically requires a woman to visit a clinician where she also receives valuable health care including a pelvic exam, breast exam, Papanicolaou (Pap) smear, and sexually transmitted disease screening. Prescription contraceptives can also help to avert unintended pregnancies which are related to adverse birth outcomes (e.g. miscarriage, low birth weight) and carry associated social and medical costs.<sup>232</sup> In addition, unintended pregnancies are associated with greater maternal stress and depression and reduced infant health, well baby care, and breastfeeding.

Required insurance coverage for prescription contraception ensures that at least persons covered by fully insured and individual insurance plans have access to the service. Neglect of women’s health and family planning can have deleterious outcomes, therefore prevention of unintended pregnancies, prenatal care, and early detection of diseases associated with women’s health are consistent with the role of health insurance and the concept of managed care. Additionally, claims data show prescription contraception carry a higher cost-sharing than most other required benefits.

***12. The potential social implications of the coverage with respect to the direct or specific creation of a comparable mandated benefit for similar diseases, illnesses, or conditions.***

This mandated insurance benefit is different from the other mandates since it is a pharmaceutical benefit rather than a medical one. It is therefore difficult to anticipate any comparable mandated benefit for similar diseases, illnesses or conditions. However, it is conceivable that some beneficiaries and providers may demand insurance coverage for non-prescription forms of contraception.

***13. The impact of the benefit on the availability of other benefits currently offered.***

Insurers and MCOs may cut costs by eliminating or restricting access to, or placing limits on other non-mandated benefits currently offered. However, the availability of any benefits to be restricted may be limited. Existing benefits may be administratively costly to restrict and insurers may be contractually obligated to provide them. Additionally, many of the benefits that could be targets for elimination are included in plans for competitive advantage.

The actuarial analysis estimates the medical cost of the mandate is 0.4 percent of estimated total premium

<sup>230</sup> Brown, S, Eisenberg, L. 1995. The best intentions: Unintended pregnancy and the well-being of children and families. Institute of Medicine Report. National Academy Press: Washington, D.C..

<sup>231</sup> Center for Disease Control and Prevention. 1999. Achievements in public health, 1990-99: Family Planning *MMWR* 48(47): 1073-80.

<sup>232</sup> Mosher, WD, Jones, J. 2010. Use of contraception in the United States: 1982-2008. National Center for Health Statistics. *Vital Health Stat* 23(29).

costs in group plans, therefore the impact of the benefit is not expected to have a significant impact on the availability of other benefits currently offered.

***14. The impact of the benefit as it relates to employers shifting to self-funded plans and the extent to which the benefit is currently being offered by employers with self-funded plans.***

Due to the relatively low cost to employers of prescription contraceptives and the expected small overall financial impact of the mandate, it is not anticipated that employers will shift to self-funded plans as a result of this single mandate. It is also not anticipated that repeal of this single mandate would lead to a shift from self-funded plans to fully insured plans among employers. Employers cognizant of the cumulative financial effects of mandated benefits and large enough to assume the risk of employee health care costs are the more likely to consider shifting to self-funded plans.

There are several reasons for health insurance premium increases, including medical cost inflation, an aging population and an aging workforce, and required benefits or “mandates.” Employers contemplating a shift to self-funded plans are likely to weigh these and other factors. Employers also may shift to plans with higher coinsurance amounts to keep premiums at a more affordable level (“benefit buy down”). This can result in employees not taking up coverage and thus being uninsured or not accessing care when it is needed because of high deductibles.

Six health insurers/MCOs domiciled in Connecticut provided information about their self-funded plans, which represents an estimated 98 percent of the total population in self-funded plans in Connecticut. These insurers/MCOs report that 65 percent of members in their self-funded plans have benefits at least equal to this mandate.

***15. The impact of making the benefit applicable to the state employee health insurance or health benefits plan.***

Coverage of prescription contraception is a current benefit that has been included in the state employee health insurance and health benefits plans at least in part since 1999. Thus the social impact of the benefit for the approximately 134,344 covered lives in state employee plans and 30,000 state retirees not enrolled in Medicare<sup>233</sup> is expected to be the same or similar to the social impact for persons covered in non-state employee health insurance plans as discussed throughout Section IV of this report.

State employee claims are included in the 2007 and 2008 claims data provided by insurers/MCOs for their fully insured group insurance enrollees. Because the state shifted to self-funded status on July 1, 2010 (during the time this report was being written), utilization under self-funded status is unknown. All self-funded plans, including those that provide coverage for state employees, are not regulated by the state insurance department and are exempt from state health insurance required benefit statutes.

In terms of financial impact, if the state employee health insurance/benefit plans continue to provide coverage for the required benefit, the IC actuarial analysis estimates the medical cost to the state employee health insurance plan will total \$2,366,410 in 2010.<sup>234</sup>

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<sup>233</sup> Personal communication. Scott Anderson, State of Connecticut Comptroller’s Office. September 14, 2010.

<sup>234</sup> The estimate is calculated by multiplying the estimated 2010 weighted average PMPM medical cost in fully insured plans in Connecticut by 12 to get an annual cost per insured life, and then multiplying that product by 163,334 covered lives, as reported by the State Comptroller’s office. The actual cost of this mandate to the State plans may be higher or lower, based on the actual benefit design of the State plans and the demographics of the covered lives (e.g., level of cost-sharing, average age of members, etc.). Retention costs are not included in this estimate because the State is now self-funded and the traditional elements of retention do not apply. State costs for administration of this mandated benefit would be in addition to the above amount. See Appendix II, Ingenix Consulting Actuarial and Economic Report, for further discussion.



**16. *The extent to which credible scientific evidence published in peer-reviewed medical literature generally recognized by the relevant medical community determines prescription contraceptives to be safe and effective.***

Prescription contraceptives are effective forms of birth control since they are reliable and reversible. Two of the most commonly used prescription contraception have typical use failure rates ranging from 6.7 percent for injectable to 8.7 percent for oral contraception. However, certain medications, antibiotics, and supplements can interact with hormonal contraception and reduce their effectiveness.

Prescription contraceptives are of particular importance for women with certain medical conditions (e.g. HIV/AIDS, heart disease) that may require long-acting, highly effective, contraception to avoid health complications that may be brought on or exacerbated by pregnancy. In addition, some women may need to prevent pregnancy due to the likelihood of passing on severe genetic defects. Women with these conditions are often advised that the sole use of barrier or behavior-based methods of contraception may not be the most appropriate choice because of their relatively higher typical-use rates of failure.<sup>235</sup>

The CDC developed evidence-based recommendations for contraceptive use by individuals with certain characteristics (e.g. age, history of pregnancy) and preexisting medical conditions (e.g. diabetes and hypertension). The recommendations were based largely on guidance from the World Health Organization (WHO). Selecting a contraceptive method is more complicated for these women since their conditions may increase the risk of morbidity or mortality. Contraindications include personal characteristics, cardiovascular disease, headache and epilepsy, depression, reproductive tract/breast abnormalities, cancer, infections, HIV, gastrointestinal disease, thalassemia and sickle cell anemia, diabetes and thyroid disease, drug interactions, and rheumatologic issues.

## **IV. Financial Impact**

**1. *The extent to which the mandated health benefit may increase or decrease the cost of prescription contraceptives over the next five years.***

The mandate is not expected to materially alter the availability of prescription contraceptives or its cost over the next five years. The cost of the service is likely to increase (or decrease) at the same rate as any other medical service, except for those prescription contraceptives that experience changes in patent status and the associated reduction in cost from brand-name to generic pricing.

**2. *The extent to which the mandated health benefit may increase the appropriate or inappropriate use of prescription contraceptives over the next five years.***

A required benefit for prescription contraceptives would seem to increase their appropriate use if insurers did not include such coverage in the absence of the mandate. However, it is not uncommon for mandated benefits to be included in self-funded plans that are not subject to state-mandated benefits. For those who use out-of-pocket funds to cover prescription contraceptives or receive them from other sources, a mandated benefit may not increase appropriate use.

Due to the nature of prescription contraceptives, inappropriate use is not likely to occur regardless of the presence of a mandate.

**3. *The extent to which the mandated health benefit may serve as an alternative for more expensive or less expensive treatment, service or drug(s).***

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<sup>235</sup> Martin, KA, Douglas, PS. 2010. Risks and side effects associated with estrogen-progestin contraceptives. Up to Date.

There are several birth control methods that are less expensive alternatives to prescription contraception. However, it should be noted that the typical use failure rates for these methods are fairly high: male condom (17.4 percent), withdrawal (18.4 percent), periodic abstinence (25.3 percent), spermicides (29.0 percent), and female condoms (27.0 percent). Prescription contraception such as injectable (6.7 percent), patch (8.0 percent) and pill (8.7 percent) are considerably more reliable methods.<sup>236</sup>

Prescription contraceptives help to enable family planning and avoid unwanted pregnancies. The cost of prenatal care and delivery is approximately \$10,000.<sup>237</sup> However, women with unintended pregnancies are less likely to have prenatal care, and are more likely to engage in unhealthy activities, therefore, they are more likely to have low birth weight and/or unhealthy babies which could drive the cost of deliveries and follow-up care substantially higher.<sup>238</sup>

#### ***4. The methods that will be implemented to manage the utilization and costs of the mandated health benefit.***

It is anticipated that insurers and MCOs utilize the same utilization management methods and cost controls that are used for other covered benefits. The legislation does not prohibit insurers and MCOs from employing utilization management, prior authorization, or other utilization tools at their discretion. This mandate involves a prescription drug benefit, which has a cost-sharing structure that is unlike that of medical plans. Cost-sharing for pharmacy plans differs depending on whether the drug falls into the generic, brand, or specialty tiers. For this mandate more so than the others, a larger portion of the cost is borne by the insured.

See Appendix II, Ingenix Consulting Actuarial and Economic Report for further information.

#### ***5. The extent to which insurance coverage for prescription contraceptives may be reasonably expected to increase or decrease the insurance premiums and administrative expenses for policyholders.***

Insurance premiums include medical cost and retention costs. Medical cost accounts for medical services. Retention costs include administrative cost and profit (for for-profit insurers/MCOs) or contribution to surplus (for not-for-profit insurers/MCOs). (For further discussion, please see Appendix II, Ingenix Consulting Actuarial and Economic Report, page 12-13.)

**Group plans:** When the medical cost of the mandate is spread to all insureds in group plans, medical costs are estimated to be \$1.20 PMPM and retention costs are estimated to be \$0.24 PMPM in 2010. Thus the total effect on insurance premiums is estimated at \$1.44 PMPM in 2010. Insurance coverage for the mandated benefit may be reasonably expected to increase group health insurance premiums accordingly, that is \$17.28 per year per insured.

**Individual policies:** When the medical cost of the mandate is spread to all insureds in individual policies, medical costs are estimated to be \$0.94 PMPM and retention costs are estimated to be \$0.28 PMPM in 2010. Thus the total effect on insurance premiums is estimated at \$1.22 PMPM in 2010. Insurance coverage for the mandated benefit may be reasonably expected to increase individual health insurance premiums accordingly, that is, \$14.64 per year per insured.

For further information, please see the Appendix II Ingenix consulting Actuarial and Economic Report.

<sup>236</sup> Kost, K, Singh, S, Vaughan, B, et al. 2008. Estimates of contraception failure from the 2002 National Survey of Family Growth. *Contraception* 77(1): 10-21.

<sup>237</sup> Ingenix Consulting.

<sup>238</sup> Finer, LB, Henshaw, SK. 2006. Disparities in rates of unintended pregnancy in the United States, 1994 and 2001. *Perspectives on Sexual and Reproductive Health*, 38(2): 90-96.

**6. *The extent to which prescription contraceptives are more or less expensive than an existing treatment, service or drug(s), that is determined to be equally safe and effective by credible scientific evidence published in peer-reviewed medical literature generally recognized by the relevant medical community.***

Prescription contraception are reliable methods with typical failure rates ranging from 6.7 percent for injectable to 8.7 percent for the pill.<sup>239</sup> There are several other birth control methods that are non-prescription and less expensive. However, they have much higher typical use failure rates since they are less effective and there is greater variability in the consistency and correctness of their use. The higher failure rates may lead to unintended pregnancies and associated costs including medical complications, maternity leave, unemployment benefits, and increased number of family members on insurance plans. In addition, some women with certain medical conditions (e.g. HIV/AIDS, heart disease) may require long-acting, highly effective, contraception to avoid health complications that may be brought on or exacerbated by pregnancy.

**7. *The impact of insurance coverage for prescription contraceptives on the total cost of health care, including potential benefits or savings to insurers and employers resulting from prevention or early detection of disease or illness related to such coverage.***

The total cost of health care is understood to be the funds flowing into the medical system, which are the medical costs of insurance premiums and cost sharing. Actuarial analysis of claims data received from insurers/MCOs in Connecticut shows an expected cost in 2010 of \$36,553,331 for prescription contraceptives for Connecticut residents covered by fully insured group and individual health insurance plans.

In terms of potential benefits or saving to insurers and employers resulting from prevention or early detection of disease or illness, prescription contraceptives require regular visits to a doctor where women receive general health care (e.g. blood pressure, urinalysis, height, and weight) and early detection of many diseases. For example, the physical exam typically includes a pelvic exam, breast exam and breast self-examination instructions, Pap smear to screen for cervical cancer, sexually transmitted disease screening, and counseling for STD and AIDS risk factors.

**8. *The impact of the mandated health care benefit on the cost of health care for small employers, as defined in § 38a-564 of the general statutes, and for employers other than small employers.***

No published literature was found regarding the effect of mandated coverage of prescription contraceptives on the cost of health care for small employers. Small employers have a reduced negotiating power due to a smaller number of covered lives in their insurance plans. The estimated cost of the mandate (\$1.10 PMPM) suggests potential differences in effects among different sized employers.

For further information regarding the differential effect of the mandates on small group vs. large group insurance, please see Appendix II: Ingenix Consulting Actuarial and Economic Report, page 28-29.)

**9. *The impact of the mandated health benefit on cost-shifting between private and public payers of health care coverage and on the overall cost of the health care delivery system in the state.***

Cost-shifting between private and public payers of health care coverage generally occurs when formerly privately insured persons, after enrolling in a public program or becoming un- or underinsured, require and are provided health care services. Cost-shifting also occurs when a formerly publicly-funded service becomes

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<sup>239</sup> Kost, K, Singh, S, Vaughan, B, et al. 2008. Estimates of contraception failure from the 2002 National Survey of Family Growth. *Contraception* 77(1): 10-21.

the responsibility of private payers, which is often the result of a legislative requirement.

Most persons formerly covered under private payers lose such coverage due to a change in employer, change in employment status, or when private payers discontinue offering health care coverage as an employee benefit or require employee contributions to premiums that are not affordable. Because this required benefit became effective in 1999, it is unlikely that the mandate, taken individually, has any impact on cost-shifting between private and public payers of health care coverage at present.

The overall cost of the health delivery system in the state is understood to include total insurance premiums (medical costs and retention) and cost sharing. Actuarial analysis of claims data received from insurers/MCOs in Connecticut shows an expected cost in 2010 of \$40,651,203 for prescription contraception for Connecticut residents covered by fully insured group and individual health insurance plans.

For further information, please see Appendix II, Ingenix Consulting Actuarial and Economic Report.

**Volume II**  
**Chapter 5**  
**Infertility Diagnosis and Treatment**

Review and Evaluation of Connecticut Statute  
Chapter 700, Section 38a-536 and Section 38a-509  
Mandatory Coverage for Infertility Diagnosis and Treatment

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## I. Overview

In Public Act 09-179, An Act Concerning Reviews of Health Insurance Benefits Mandated in this State, the Connecticut General Assembly directed the Connecticut Insurance Department to review statutorily mandated health benefits existing on or effective on July 1, 2009. This report is a part of that review and was conducted following the requirements stipulated under Public Act 09-179. The review is a collaborative effort of the Connecticut Insurance Department and the University of Connecticut Center for Public Health and Health Policy (CPHHP).

CGSA § 38a-536 and § 38a-509 mandate that group and individual health insurance policies issued, renewed or continued in this state provide coverage for medically necessary diagnosis and treatment of infertility.

Specifically, CGSA § 38a-536 provides that:

Each group health insurance policy providing coverage of the type specified in subdivisions (1), (2), (4), (11) and (12) of section 38a-469 delivered, issued for delivery, amended, renewed or continued in this state on or after October 1, 2005, shall provide coverage for the medically necessary expenses of the diagnosis and treatment of infertility, including, but not limited to, ovulation induction, intrauterine insemination, in-vitro fertilization, uterine embryo lavage, embryo transfer, gamete intra-fallopian transfer, zygote intra-fallopian transfer and low tubal ovum transfer. For purposes of this section, “infertility” means the condition of a presumably healthy individual who is unable to conceive or produce conception or sustain a successful pregnancy during a one-year period.

(b) Such policy may:

- (1) Limit such coverage to an individual until the date of such individual’s fortieth birthday;
- (2) Limit such coverage for ovulation induction to a lifetime maximum benefit of four cycles;
- (3) Limit such coverage for intrauterine insemination to a lifetime maximum benefit of three cycles;
- (4) Limit lifetime benefits to a maximum of two cycles, with not more than two embryo implantations per cycle, for in-vitro fertilization, gamete intra-fallopian transfer, zygote intra-fallopian transfer or low tubal ovum transfer, provided each such fertilization or transfer shall be credited toward such maximum as one cycle;
- (5) Limit coverage for in-vitro fertilization, gamete intra-fallopian transfer, zygote intra-fallopian transfer and low tubal ovum transfer to those individuals who have been unable to conceive or produce conception or sustain a successful pregnancy through less expensive and medically viable infertility treatment or procedures covered under such policy. Nothing in this subdivision shall be construed to deny the coverage required by this section to any individual who foregoes a particular infertility treatment or procedure if the individual’s physician determines that such treatment or procedure is likely to be unsuccessful;
- (6) Require that covered infertility treatment or procedures be performed at facilities that conform to the standards and guidelines developed by the American Society of

Reproductive Medicine or the Society of Reproductive Endocrinology and Infertility;

- (7) Limit coverage to individuals who have maintained coverage under such policy for at least twelve months; and
  - (8) Require disclosure by the individual seeking such coverage to such individual's existing health insurance carrier of any previous infertility treatment or procedures for which such individual received coverage under a different health insurance policy. Such disclosure shall be made on a form and in the manner prescribed by the Insurance Commissioner.
- (c) (1) Any insurance company, hospital or medical service corporation, or health care center may issue to a religious employer a group health insurance policy that excludes coverage for methods of diagnosis and treatment of infertility that are contrary to the religious employer's bona fide religious tenets.
- (2) Upon the written request of an individual who states in writing that methods of diagnosis and treatment of infertility are contrary to such individual's religious or moral beliefs, any insurance company, hospital or medical service corporation, or health care center may issue to or on behalf of the individual a policy or rider thereto that excludes coverage for such methods.
- (d) Any health insurance policy issued pursuant to subsection (c) of this section shall provide written notice to each insured or prospective insured that methods of diagnosis and treatment of infertility are excluded from coverage pursuant to said subsection. Such notice shall appear, in not less than ten-point type, in the policy, application and sales brochure for such policy.
- (e) As used in this section, "religious employer" means an employer that is a "qualified church-controlled organization," as defined in 26 USC 3121 or a church-affiliated organization.

§ 38a-509 mandates the same coverage in individual health insurance policies delivered, issued for delivery, renewed or continued in Connecticut.

In April 2010, CPHHP and Ingenix Consulting (IC) requested and received 2007 and 2008 claims data related to the mandated benefit from six insurers and managed care organizations (MCOs) domiciled in Connecticut that cover approximately 90 percent of the population in fully insured group and individual health insurance plans in Connecticut (1.25 million persons). Based on that claims data, a review of the legislative history, reviews of pertinent literature and the Ingenix Consulting report, this review found the following:

### *Current coverage*

This mandate has been in effect since October 1, 2005 (P.A. 89-120; P.A. 05-196, § 2.)

### *Premium impact*

**Group plans:** On a 2010 basis, the medical cost of this mandate is estimated to be \$2.80 PMPM. Estimated total cost to insurers (insurance premium, administrative fees, and profit) of the mandated services on a 2010 basis in group plans is \$3.36 PMPM, which is approximately 0.9 percent of estimated total premium costs in group plans. Estimated cost sharing on a 2010 basis in group plans is \$0.23 PMPM.



**Individual policies:** Four of the six insurers/MCOs provided claims data for individual health insurance policies. On a 2010 basis, medical cost is estimated to be \$1.39 PMPM. Estimated total cost (insurance premium, administrative fees, and profit) of the mandated services in 2010 in individual policies is \$1.81 PMPM, which is approximately 0.7 percent of estimated total premiums in individual policies. Estimated cost sharing on a 2010 basis in individual policies is \$0.18. Individual policies data is less credible than group plans data primarily due to small sample size.

### *Self-funded plans*

Five health insurers/MCOs domiciled in Connecticut provided information about their self-funded plans, which represents an estimated 47 percent of the total population in self-funded plans in Connecticut. These five insurers/MCOs report that 75 percent of enrollees in their self-funded plans have coverage for the mandated services.

This report is intended to be read in conjunction with the General Introduction to this volume and the Ingenix Consulting Actuarial and Economic Report which is included as Appendix II.

## **II. Background**

As stated in the mandate, “infertility means the condition of a presumably healthy individual who is unable to conceive or produce conception or sustain a successful pregnancy during a one-year period.” According to the 2002 National Survey of Family Growth (NSFG), an estimated 7.3 million (11.8 percent of the population) American women aged 15–44 have an impaired ability to conceive or bring a pregnancy to term in their lifetime. Over 2 million (7.4 percent) women ages 15–44 are infertile.<sup>240</sup>

There are several tests available for men and women to help diagnose the cause of infertility and aid in treatment.<sup>241</sup> Tests for male infertility may include a general physical examination, semen analysis, hormone testing, and transrectal and scrotal ultrasound. Tests for female infertility include ovulation testing, hysterosalpingography, laparoscopy, hormone testing, ovarian reserve testing, genetic testing, pelvic ultrasound. Not every patient needs to undergo all of these procedures.

Infertility can be treated with medication, surgery, artificial insemination, and assisted reproductive technology.<sup>242</sup> Assisted reproductive technology (ART) has been medically available since 1981 and includes in vitro fertilization (IVF) and other technologies in which both the egg and sperm are handled. The procedures included but not limited to in the mandated insurance benefit are ovulation induction, intrauterine insemination, in-vitro fertilization, uterine embryo lavage, embryo transfer, gamete intra-fallopian transfer, zygote intra-fallopian transfer and low tubal ovum transfer.

According to Hammound et al., barriers to infertility treatment can be classified into three main categories: accessibility, economic cost, and cultural-societal factors.<sup>243</sup> Accessibility issues are associated with the absence of mandated insurance coverage for (IVF), low education level, and less urbanization in the state. Hammound found that IVF insurance coverage did not influence the median number of fertility centers per state but it did increase the number of physicians providing the service and the number of cycles performed

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<sup>240</sup> Centers for Disease Control and Prevention. 2005. National survey of family growth 2002. Available at: [http://www.cdc.gov/nchs/data/series/sr\\_23/sr23\\_025.pdf](http://www.cdc.gov/nchs/data/series/sr_23/sr23_025.pdf). Accessed September 20, 2010.

<sup>241</sup> Mayo Clinic. Infertility. Available at: <http://www.mayoclinic.com/health/infertility/DS00310/DSECTION=causes>. Accessed September 20, 2010.

<sup>242</sup> *Ibid.*

<sup>243</sup> Hammound AO, Gibson M, Stanford J, et al. 2009. In vitro fertilization availability and utilization in the United States: a study of demographic, social, and economic factors. *Fertility and Sterility* 91(5): 1630-5.

by each physician.<sup>244</sup> Economic variables such as low personal income, low state income, lack of private insurance and low levels of education were also related to low IVF utilization. Cultural/social barriers such as religious beliefs, the perception that parenthood is a “quality of life” issue or a socially constructed need limit infertility being viewed as a medical condition or a disability.

In 1985, the Society for Assisted Reproductive Technologies (SART), an affiliate of the American Society for Reproductive Medicine, established a voluntary reporting system for clinics providing ART to collect data on use and outcomes. Results are compiled annually by the Centers for Disease Control and Prevention (CDC). According to the CDC’s 2007 Assisted Reproductive Technology Success Rates Report, national norms of live birth rates per cycle were 40 percent in women younger than 35 years of age, 31 percent in women 35-37, 21 percent in women aged 38-40, 12 percent in women aged 41-42 years of age, and 5 percent in women aged 43-44 years.<sup>245</sup>

Numerous studies have investigated potential complications related to infertility treatment with varying findings. In a meta-analysis to determine the relationship between fertility drugs used in assisted reproductive procedures and the risk of breast cancer, Zreik et al. reviewed 23 case-control and cohort studies.<sup>246</sup> The researchers found no increased risk of breast cancer associated with fertility treatment; however, the lack of long-term follow-up and some methodological weaknesses of the studies should be taken into consideration. Research suggests an association between medications used in assisted reproductive technology and ovarian cancer. Kashyap et al. reviewed 10 cohort and case-control studies and found that women with ovarian cancer were significantly more likely to have taken fertility medications than women in the non-infertile control group.<sup>247</sup> However, women with infertility who took fertility medications had a lower incidence of ovarian cancer than untreated women with infertility. Elizur and Tulandi examined infertility medications and possible birth defects in offspring and found that clomiphene treatment, especially after several cycles, may be associated with a higher risk of neural tube defects and severe hypospadias.<sup>248</sup> Other risks include ovarian hyperstimulation syndrome, bleeding or infection, low birth weight, birth defects, perinatal mortality, neonatal morbidity, congenital abnormalities, chromosomal abnormalities, cerebral palsy and developmental delays. The increased adverse pregnancy outcomes associated with the use of ART may also be linked to complications of multiple gestations common with ART and the tendency for older women (and the contributing risk factors of maternal age) to seek ART therapy.<sup>249,250</sup>

Although the focus of infertility often addresses women’s health, about one-third of infertility cases are the result of women’s reproductive capacity, one-third are due to men’s fertility issues, and one-third are a combination or unknown problems.<sup>251</sup> Female infertility is often the result of fallopian tube damage or blockage, endometriosis, ovulation disorders, elevated prolactin, polycystic ovary syndrome, early

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<sup>244</sup> *Ibid.*

<sup>245</sup> Centers for Disease Control and Prevention, American Society for Reproductive Medicine, Society for Assisted Reproductive Technology. 2007 Assisted Reproductive Technology Success Rates: National Summary and Fertility Clinic Reports. Available at: <http://www.cdc.gov/art/ART2007>. Accessed September 20, 2010.

<sup>246</sup> Zreik TG, Mazloom A, Chen Y, et al. 2010. Fertility drugs and the risk of breast cancer: a meta-analysis and review. *Breast Cancer Research Treatment* 124(1): 13-26.

<sup>247</sup> Kashyap S, Moher D, Fung MFK, et al. 2004. Assisted reproductive technology and the incidence of ovarian cancer: A meta-analysis. *Obstetrics and Gynecology* 103(4): 785-94.

<sup>248</sup> Elizur SE, Tulandi T. 2008. Drugs in infertility and fetal safety. *Fertility and Sterility* 89(6): 1595-1602.

<sup>249</sup> Reddy UM, Wapner RJ, Rebar RW, et al. 2007. Infertility, assisted reproductive technology, and adverse pregnancy outcomes. *Obstetrics and Gynecology* 109(4): 967-77.

<sup>250</sup> Mayo Clinic. Infertility. Available at: <http://www.mayoclinic.com/health/infertility/DS00310/DSECTION=causes>. Accessed September 20, 2010.

<sup>251</sup> *Ibid.*

menopause, benign uterine fibroids and pelvic adhesions. In addition, medications, thyroid problems, athletic training, sexually transmitted diseases, and poor diet may also reduce a woman's fertility.<sup>252</sup> Causes directly related to male infertility may include: impaired production or function of sperm (impaired shape and movement of sperm), impaired delivery of sperm (blockage of epididymis), and environmental exposure (pesticides, over-heated testicles).<sup>253</sup>

Many of the risk factors for infertility are the same for men and women. For example, fertility declines with age for both sexes. Women's fertility potential begins to diminish around age 32 and men's fertility is lower after the age of 40. Other risk factors common among men and women include tobacco smoking, alcohol and drug use, cancer, cancer treatment (radiation or chemotherapy), stress, general health problems, obesity, medications, and excessive caffeine intake.

According to the National Association of Insurance Commissioners (NAIC), 21 states mandate some type of infertility diagnosis and treatment coverage with varying coverage.<sup>254</sup>

The American Society for Reproductive Medicine (ASRM) provides treatment guidelines for members. According to the ASRM the guidelines have been developed to assist physicians with clinical decisions and should not be used as a protocol to treat all patients. Clinical judgment, the needs of individual patients, advances in medical science and revisions in bio-ethics should be considered.

### III. Methods

Under the direction of CPHHP, medical librarians at the Lyman Maynard Stowe Library at the University of Connecticut Health Center (UCHC) gathered published articles and other information related to medical, social, economic, and financial aspects of the required benefit. Medical librarians conducted literature searches using PubMed, Scopus, DynaMed, Cochrane Database, EMedicine, and Web Search -Google. Search terms included: infertility, infertility treatment, assisted reproductive technology, diagnosis, social impact, insurance, insurance coverage, reimbursement, and economics.

CPHHP staff conducted independent literature searches using the Cochrane Review, Pubmed, Google, and Google Scholar using similar search terms used by the UCHC medical librarians. Where available, articles published in peer-reviewed journals are cited to support the analysis. Other sources of information may also be cited in the absence of peer-reviewed journal articles. Content from such sources may or may not be based on scientific evidence.

CPHHP staff consulted with a community provider and a faculty member of Connecticut School of Medicine on matters pertaining to medical standards of care, traditional, current and emerging practices, and evidence-based medicine related to the benefit.

Staff gathered additional information through telephone and e-mail inquiries to appropriate state, federal, municipal, and non-profit entities and from internet sources such as the State of Connecticut website, Centers for Medicare and Medicaid (CMS) website, other states' websites, professional organizations' websites, and non-profit and community-based organization websites.

With the assistance of the Connecticut Insurance Department (CID), CPHHP and Ingenix Consulting requested and received 2007 and 2008 claims data from insurance companies and MCOs domiciled in Connecticut. Six insurers/MCOs provided claims data for their fully insured group and individual plan

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<sup>252</sup> *Ibid.*

<sup>253</sup> *Ibid.*

<sup>254</sup> National Association of Insurance Commissioners (NAIC). Compendium of State Laws on Insurance Topics, 2009.

participants; five insurers/MCOs provided information about the self-funded plans they administer.

CPHHP and the CID contracted with Ingenix Consulting to provide actuarial and economic analyses of the mandated benefit. Further details regarding the insurer/MCO claims data and actuarial methods used to estimate the cost of the benefit and economic methods used to estimate financial burden may be found in Appendix II.

## IV. Social Impact

### *1. The extent to which the service is utilized by a significant portion of the population.*

Demand for infertility diagnosis and treatment has been well documented and the need for interventions to assist women who are trying to become pregnant continues to grow. Over seven million women of child-bearing age (15-44 years of age) have received infertility services at some point in their lifetime.<sup>255</sup> The percentage of women who have received infertility services by type of service include: advice (6.1 percent), medical help to prevent miscarriage (5.5 percent), test on woman or man (4.8 percent), ovulation drugs (3.8 percent), and artificial insemination (1.1 percent). According to the CDC's 2007 ART Success RATES Report, 142,435 ART cycles were performed at 430 reporting clinics in the United States during 2006, resulting in 43,412 live births (deliveries of one or more living infants) and 57,569 infants. ART continues to be relatively rare although its use has doubled over the past decade. Less than 50 percent of women who can be successfully treated will access needed infertility treatment. Approximately 1 percent of all infants born in the United States each year are conceived with the help of ART.<sup>256</sup> In Connecticut, there were 3445 completed IVF cycles and approximately 2928 (85 percent) of the cycles were covered by insurance in 2008.<sup>257</sup>

### *2. The extent to which the service is available to the population, including, but not limited to, coverage under Medicare, or through public programs administered by charities, public schools, the Department of Public Health, municipal health departments or health districts or the Department of Social Services.*

#### **Medicare**

Medicare does not currently cover infertility diagnosis and treatment. In 2005, federal legislation (H.R. 2758: Medicare Infertility Coverage Act of 2005) was introduced to amend title XVIII of the Social Security Act to provide for coverage under Medicare of infertility treatment services for individuals entitled to health insurance benefits under that program by reason of a disability.<sup>258</sup> The bill never became law.

#### **Public Programs Administered by Charities**

Several organizations provide a variety of services for individuals seeking infertility treatment. The primary purpose of these organizations is to provide support, education, advocacy and standards in the field of reproductive medicine. These organizations do not provide or fund diagnosis or treatment.<sup>259</sup>

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<sup>255</sup> Centers for Disease Control and Prevention. 2009. National Center for Health Statistics. Infertility. Available at: <http://www.cdc.gov/nchs/fastats/ferile.htm>. Accessed September 8, 2010.

<sup>256</sup> Wright VC, Chang J, Jeng G, et al. 2006. Assisted reproductive technology surveillance-United States, 2003. *MMWR* 55: 1-22.

<sup>257</sup> Society for Assisted Reproductive Technology. Available at: <http://www.sart.org/>. Accessed September 8, 2010.

<sup>258</sup> GovTrack. HR 2758: Medicare Infertility Coverage Act of 2005. Available at: <http://www.govtrack.us/congress/bill.xpd?bill=h109-2758>. Accessed September 8, 2010.

<sup>259</sup> Centers for Disease Control and Prevention. Reproductive Health. Infertility. Available at: <http://www.cdc.gov/reproductivehealth/Infertility>. Accessed September 8, 2010.

### ***Public Programs Administered by Public Schools***

No information was found that would indicate public schools would provide funding for infertility treatment.

### ***The Department of Public Health (DPH)***

No information was found regarding the availability of funding for infertility treatment through the Connecticut Department of Public Health.

### ***Municipal Health Departments***

No information was found regarding the availability of funding for infertility treatment through local and municipal health departments in Connecticut.

### ***The Department of Social Services (DSS)***

Medicaid will typically cover infertility diagnosis, so long as it is “medically necessary and not unproven, educational, social, research, experimental, or cosmetic in nature.”<sup>260</sup> However, Medicaid will not cover the cost of infertility treatment.<sup>261, 262</sup>

### ***3. The extent to which insurance coverage is already available for the service.***

State of Connecticut law requires coverage for infertility treatment and diagnosis in fully insured group and individual health insurance plans as of 2005.<sup>263</sup> 2007 and 2008 claims data from six insurers/MCOs that cover 90 percent of the population in fully insured group and individual insurance plans in Connecticut showed evidence that claims are paid for the mandated services. Information received from five insurers/MCOs domiciled in Connecticut shows that 75 percent of members in self-funded plans that have coverage for the benefit.

### ***4. If the coverage is not generally available, the extent to which such lack of coverage results in persons being unable to obtain necessary health care treatment.***

Coverage is required and generally available for persons enrolled in fully insured group and individual health insurance plans. Coverage is available to 75 percent of persons enrolled in self-funded plans; persons enrolled in fully insured and self-funded group plans represent the vast majority of the insured population under age 65 in Connecticut.

### ***5. If the coverage is not generally available, the extent to which such a lack of coverage results in unreasonable financial hardships on those persons needing treatment.***

As noted above, coverage for infertility diagnosis and treatment is required to be included in fully insured group and individual policies purchased in Connecticut. Depending on the level of cost-sharing and personal financial resources available, that coverage may or may not be sufficient for the insured’s family to avoid unreasonable financial hardship because it is a very high cost medical service often requiring repeated procedures.

### ***6. The level of public demand and the level of demand from providers for the service.***

Demand from the public and providers for appropriate infertility diagnosis and treatment is well established. According to the CDC’s Survey of Family Growth, those reporting impaired fecundity in the United States

<sup>260</sup> Personal communication. Nina Holmes, DSS Medical Policy Unit. May 21, 2010.

<sup>261</sup> *Ibid.*

<sup>262</sup> Connecticut Medicaid Summary of Services. Medical Care Administration, DSS. Page 12. Available at: <http://www.ct.gov/dss/lib/dss/pdfs/medicaidservicesv3kk.pdf>. Accessed June 23, 2010.

<sup>263</sup> Connecticut General Statutes. Revised January 1, 2010. § 38a-536 (individual insurance policies); § 38a-509 (group insurance policies).

rose nearly 21 percent from 6.1 million women in 1995 to 7.3 million in 2002.<sup>264</sup> However, an estimated 50 percent of women who need infertility diagnosis and treatment go without primarily due to not being able to afford the medical expenses without insurance coverage.<sup>265</sup> Several organizations such as the American Fertility Association, American Society for Reproductive Medicine, RESOLVE—The National Infertility Association, and Fertile Hope provide support, education, advocacy and standards in the field of reproductive medicine.

**7. *The level of public demand and the level of demand from providers for insurance coverage for the service.***

Demand for insurance coverage for infertility diagnosis and treatment can be illustrated by the over seven million women in the United States with impaired fecundity.<sup>266</sup> A substantial number of these women seek infertility diagnosis and treatment which can be a high-cost medical expense that few individuals can afford independently. To address these financial demands, advocates began lobbying state legislatures to mandate health insurance coverage for infertility services. In 1977, West Virginia became the first state to enact an infertility insurance mandate. Ongoing legislative advocacy efforts have been aided by organizations such as the American Society for Reproductive Medicine, which has defined infertility as a disease.<sup>267</sup> Similarly, the U.S. Supreme Court confirmed that conditions that prevent reproduction should be regarded as disabilities and, therefore, fall under the Americans with Disabilities Act.<sup>268</sup>

**8. *The likelihood of achieving the objectives of meeting a consumer need as evidenced by the experience of other states.***

According to the National Association of Insurance Commissioners (NAIC), 21 states mandate some type of infertility diagnosis and treatment coverage with varying coverage.<sup>269</sup> Some mandates limit coverage to certain plans or certain treatments. Arkansas, Colorado, Georgia, Hawaii, Massachusetts, Rhode Island, and West Virginia have mandates similar to Connecticut. Two additional states, Minnesota and Utah, have statutes regarding mandatory coverage for infertility diagnosis only.

Please see Table II.5.1<sup>270</sup> for details.

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<sup>264</sup> Centers for Disease Control and Prevention. 2009. National Center for Health Statistics. Infertility. Available at: <http://www.cdc.gov/nchs/fastats/fertile.htm>. Accessed September 8, 2010.

<sup>265</sup> *Ibid.*

<sup>266</sup> Centers for Disease Control and Prevention. Reproductive Health. Infertility. Available at: <http://www.cdc.gov/reproductivehealth/Infertility>. Accessed September 8, 2010.

<sup>267</sup> American Society for Reproductive Medicine. Available at: <http://www.asrm.org/>. Accessed September 8, 2010.

<sup>268</sup> Reilly, Meghan. 2008. Connecticut General Assembly, Office of Legislative Research. Infertility Coverage and Age Discrimination. 2008-R-0106. Available at: <http://www.cga.ct.gov/2008/rpt/2008-R-0106.htm>. Accessed September 28, 2010.

<sup>269</sup> National Association of Insurance Commissioners (NAIC). Compendium of State Laws on Insurance Topics, 2009.

<sup>270</sup> National Association of Insurance Commissioners. 2010 Compendium of State Laws on Insurance Topics.

<b>Table II.5.1: Women’s Health, Pregnancy, Fertility and Preventative Care</b>	
State	Mandated Benefit for Infertility
Arkansas	Requires all accident and health and disability insurers to include in vitro fertilization as a covered expense.
Colorado	Infertility treatment and counseling.
Connecticut	Coverage for medically necessary expenses for treatment of infertility. May limit coverage to individuals under age 40 and limit number of treatments of specified procedures.
Delaware	Services and supplies related to fertility testing, treatment of fertility and conception by artificial means.
Georgia	Provides services for infertility.
Hawaii	Provides one-time only benefit for outpatient in vitro fertilization expenses.
Illinois	Group policies that cover pregnancy-related care must also cover infertility services, including in vitro fertilization.
Louisiana	Prohibited exclusion of coverage of correctable medical conditions on basis of infertility.
Maryland	Health insurance policies that provide pregnancy-related benefits cannot exclude outpatient benefits for all outpatient expenses arising from in vitro fertilization procedures; Included in group benefit plans, but not mandated in limited ones.
Massachusetts	Coverage for medically necessary diagnosis and treatment of infertility to the same extent as benefits provided for pregnancy-related procedures.
Montana	For HMO’s infertility services are included in outpatient medical services, both medically necessary and preventive.
New Jersey	Large group plans and including pregnancy-related benefits must cover medically necessary expenses incurred in the diagnosis and treatment of infertility. Applies to persons age 45 and younger. Religious employer exception to in vitro fertilization.
New Mexico	Diagnosis and indicated treatment of physical conditions causing infertility except for the reversal of sterilization.
New York	Shall include coverage for diagnosis and treatment of correctable medical conditions resulting in infertility, including surgical and medical treatments and prescriptions. Coverage shall be provided for persons between 21-44 years. Subject to copayments consistent with other benefits.
North Dakota	“Preventative health services” includes infertility treatments.
Ohio	Only medically necessary infertility treatments are mandated for coverage, which means that in vitro fertilization, gamete intrafallopian transfer and zygote intrafallopian transfer are not included.
Rhode Island	Include benefits for infertility treatment the same as cover other pregnancy-related procedures.
Texas	All insurers, including HMOs and self-insurers, that provide hospital, surgical and medical insurance with pregnancy-related benefits shall provide benefits, on an expense-incurred basis, for in vitro fertilization subject to certain conditions. Group association indemnity consumer choice health benefit plan do not have to offer coverage. HMOs do not have to cover in vitro fertilization.
Utah	Diagnosis of infertility covered under HMOs, but generally excluded in other plans.
Virginia	Generally excluded from health benefit plan contracts. However, HMOs mandated coverage with co-pay the lesser of 20% or \$25.
West Virginia	Basic HMO health care services shall include infertility services.

**9. The relevant findings of state agencies or other appropriate public organizations relating to the social impact of the mandated health benefit.**

Internet searches and telephone inquiries found several studies from state agencies and public organizations related to the social impact of mandated insurance coverage for the diagnosis and treatment of infertility.

**Maine:** In October 2003, Mercer Risk, Finance and Insurance Consulting and the Maine Bureau of Insurance (MBI) reviewed LD 213, An Act to Assist Maine's Infertile Citizens. Major findings include that there are about 18,000 Maine women of childbearing age that have or will receive infertility services sometime in their life, representing approximately 1.4 percent of Maine's entire population. Further, the report found that approximately 4,000 women may require the service annually, although MBI suggested it could be more. The cost of treatment is even greater when including indirect costs such as a greater number of high risk pregnancies and an increase in multiple births. The report estimates the total cost of the mandate would be \$3.53 PMPM.<sup>271</sup>

**Maryland:** In December 2008, the Maryland Health Care Commission reviewed several mandated health insurance benefits, including Insurance Article 15-810, Coverage of *In Vitro* Fertilization. The report notes that the benefit would be used by a small portion of the population, as only 4,078 of 740,000 women with employer-based coverage used the service. The incidence of infertility in Maryland is approximately 6 per 1,000 women of child-bearing age. However, services are performed in only seven sites in Maryland; therefore availability of the service is not widespread. According to the report, carriers generally do not recognize infertility treatment as medically necessary, and question the appropriateness of mandating coverage of IVF for individuals when there is not medical evidence to suggest that treatment would result in a better outcome than other means. Similarly, the report points out that some have asserted the urgency for curing infertility is rather low compared with other medical priorities.<sup>272</sup>

**Massachusetts:** In August 2009, the Division of Health Care Finance and Policy reviewed Senate Bill 485, An Act Relative to Increasing Coverage for Infertility Treatments. The report focuses on the financial impacts of the mandate. The report estimates that the projected increase in spending ranges from 0.04 percent to 0.31 percent of premiums or \$4.4 million to \$33.1 million. The impact on PMPM premiums ranges from \$0.15 to \$1.20.<sup>273</sup>

**Pennsylvania:** In 2003, the Pennsylvania Health Care Cost Containment Council (PHC4) published a review of a proposed mandated health benefit for infertility citing a lack of sufficient evidence to support the proposed legislation. PHC4 recommended that mandates be limited to those measures which are of both proven efficacy and cost effectiveness and in their view infertility treatment did not meet these criteria. Additionally, PHC4 did not support the mandate because they considered infertility to be non-threatening to a person's well being, infertility treatments were costly, and a lack of coverage did not result in inadequate health care.<sup>274</sup>

**Virginia:** In October 2008, the Joint Legislative Audit and Review Commission reviewed SB 631, regarding

<sup>271</sup> Maine Bureau of Insurance. 2003. Report to the Joint Standing Committee on Banking and Insurance of the 121<sup>st</sup> Maine Legislature. Review and Evaluation of LD 213, An Act to Assist Maine's Infertile Citizens. Available at: <http://www.maine.gov/pfr/legislative/documents/ld213final.pdf>. Accessed December 8, 2010.

<sup>272</sup> Maryland Health Care Commission. 2008. Annual Mandated Health Insurance Services Evaluation. Available at: [http://mhcc.maryland.gov/health\\_insurance/annualmandaterpt2008.pdf](http://mhcc.maryland.gov/health_insurance/annualmandaterpt2008.pdf). Accessed December 8, 2010.

<sup>273</sup> Massachusetts Division of Health Care Finance and Policy. 2009. Review and Evaluation of Proposed Legislation Entitled: An Act Relative to Increasing Coverage for Infertility Treatments. Available at: [http://www.mass.gov/Eeohhs2/docs/dhcfp/r/pubs/09/Infertility\\_Report.pdf](http://www.mass.gov/Eeohhs2/docs/dhcfp/r/pubs/09/Infertility_Report.pdf). Accessed December 8, 2010.

<sup>274</sup> Pennsylvania Health Care Cost Containment Council. 2003. Mandated benefits review, Senate Bill 2283, Infertility. Available at: <http://www.phc4.org/reports/mandates/SB1183/executive.htm>. Accessed December 8, 2010.



mandated coverage of treatment for infertility. The report notes that approximately 12 percent of U.S. women of childbearing age have used some type of infertility services. Further, few insurance companies provide comprehensive coverage of infertility treatment, but one-third of plans indicated they offer such coverage as an option to group policyholders. The report also found that costs for IVF could range to more than a third of median annual household income per treatment cycle. In addition, pregnancies achieved through infertility treatment often lead to multiple-birth pregnancies which typically have greater medical expenses.<sup>275</sup>

States searched for which no evidence of a review was found include California, Colorado, Wisconsin, Louisiana, New Jersey, Washington and Texas.

***10. The alternatives to meeting the identified need, including but not limited to, other treatments, methods or procedures.***

Alternatives to the accepted medical diagnosis and treatment of infertility may include surrogacy, adoption, child-free living, herbs, acupuncture and other non-medical approaches. The risks, benefits, and costs of these methods remain uncertain and require serious consideration to evaluate the medical efficacy and emotional toll.

***11. Whether the benefit is a medical or broader social need and whether it is consistent with the role of health insurance and the concept of managed care.***

Having children is steeped in social, physical, emotional and societal issues. Approximately 12 percent of women of childbearing age (15 to 44 years of age) in the United States have sought treatment for infertility at some point in their lifetime.<sup>276</sup> The medical benefits of this insurance mandate can be illustrated by the 57,569 babies born in 2006 with the help of ART.<sup>277</sup> This insurance mandate also addresses social and psychological needs. For example, in a study to investigate the prevalence of psychiatric disorders in women starting a new course of assisted reproductive treatment, 112 women were administered a psychiatric assessment.<sup>278</sup> 40.2 percent of the women had some type of psychiatric disorder; most commonly anxiety disorder (23.3 percent) and major depressive disorder (17 percent). These findings are higher than what is typically found in community samples and were attributed to infertility. Infertility diagnosis and treatment can be a high-cost medical expense that few individuals could afford on an out-of-pocket basis, thus the benefit is consistent with the role of health insurance and the concept of managed care.

***12. The potential social implications of the coverage with respect to the direct or specific creation of a comparable mandated benefit for similar diseases, illnesses, or conditions.***

Infertility diagnosis and treatment as defined in the statute is for a specific condition. It is therefore difficult to anticipate any comparable mandated benefit for similar diseases, illnesses or conditions. However, some beneficiaries and providers may demand insurance coverage for alternative approaches such as surrogacy, adoption, herbs, acupuncture in light of mandated coverage for infertility treatment.

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<sup>275</sup> Virginia Joint Legislative Audit and Review Commission. 2008. Evaluation of Senate Bill 631: Mandated Coverage of Treatment for Infertility. Available at: <http://jlarc.state.va.us/reports/Rpt375.pdf>. Accessed December 15, 2010.

<sup>276</sup> Centers for Disease Control and Prevention. Reproductive Health. Infertility. Available at: <http://www.cdc.gov/reproductivehealth/Infertility>. Accessed September 8, 2010.

<sup>277</sup> Centers for Disease Control and Prevention, American Society for Reproductive Medicine, Society for Assisted Reproductive Technology. 2007 Assisted Reproductive Technology Success Rates: National Summary and Fertility Clinic Reports. Available at: <http://www.cdc.gov/art/ART2007>. Accessed September 20, 2010.

<sup>278</sup> Chen TH, Change SP, Tsai, CF, et al. 2004. Prevalence of depressive and anxiety disorders in an assisted reproductive technique clinic. *Human Reproduction* 19(10): 2313-18.

***13. The impact of the benefit on the availability of other benefits currently offered.***

Insurers and MCOs may cut costs by eliminating or restricting access to, or placing limits on other non-mandated benefits currently offered. However, the availability of any benefits to be restricted may be limited. Existing benefits may be administratively costly to restrict and insurers may be contractually obligated to provide them. Additionally, many of the benefits that could be targets for elimination are included in plans for competitive advantage.

***14. The impact of the benefit as it relates to employers shifting to self-funded plans and the extent to which the benefit is currently being offered by employers with self-funded plans.***

Despite relatively low utilization, the financial impact of infertility diagnosis and treatment is relatively significant due to high unit costs. However, it is not anticipated that employers will shift to self-funded plans as a result of this single mandate. It is also not anticipated that repeal of this single mandate would lead to a shift from self-funded plans to fully insured plans among employers. Employers cognizant of the cumulative financial effects of mandated benefits and large enough to assume the risk of employee health care costs are the more likely to consider shifting to self-funded plans.

There are several reasons for health insurance premium increases, including medical cost inflation, an aging population and an aging workforce, and required benefits or “mandates.” Employers considering a shift to self-funded plans are likely to weigh these and other factors prior to reaching a decision. Employers also may shift to plans with higher coinsurance amounts to keep premiums at a more affordable level (“benefit buy down”). This can result in employees not taking up coverage and thus being uninsured or not accessing care when it is needed because of high deductibles.

Five Connecticut carriers provided information on their self-funded plans for this mandate, which represents an estimated 47 percent of Connecticut residents covered by self-funded plans. For these five insurers, 75 percent of members in their self-funded plans have benefits at least equal to this mandate.

***15. The impact of making the benefit applicable to the state employee health insurance or health benefits plan.***

The diagnosis and treatment of infertility is a current benefit that has been included in the state employee health insurance and health benefits plans at least in part since 2005. Thus the social impact of the benefit for the approximately 134,444 covered lives in state employee plans and 30,000 state retirees not enrolled in Medicare<sup>279</sup> is expected to be the same or similar to the social impact for persons covered in non-state employee health insurance plans as discussed throughout Section IV of this report.

State employee claims are included in the 2007 and 2008 claims data provided by insurers/MCOs for their fully insured group insurance enrollees. Because the state shifted to self-funded status on July 1, 2010 (during the time this report was being written), utilization under self-funded status is unknown. All self-funded plans, including those that provide coverage for state employees, are not regulated by the state insurance department and are exempt from state health insurance required benefit statutes.

In terms of financial impact, if the state employee health insurance/benefit plans continue to provide

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<sup>279</sup> Personal communication. Scott Anderson, State of Connecticut Comptroller’s Office. September 14, 2010.

coverage for the required benefit, the IC actuarial analysis estimates the medical cost to the state employee health insurance plan will total \$5,521,622 in 2010.<sup>280</sup>

**16. *The extent to which credible scientific evidence published in peer-reviewed medical literature generally recognized by the relevant medical community determines the service to be safe and effective.***

Safeguards have been established to increase the safety and effectiveness of infertility diagnosis and treatment. The procedures recognized in the mandated benefit are not experimental or investigational. The ASRM defines an infertility diagnosis or treatment procedure as experimental or investigational “until the published medical evidence regarding their risks, benefits, and overall safety and efficacy is sufficient to regard them as established medical practice.”<sup>281</sup> In addition, the mandated benefit requires that the infertility treatment or procedures be performed at facilities that conform to the standards and guidelines developed by the American Society of Reproductive Medicine or the Society of Reproductive Endocrinology and Infertility.

Numerous studies have investigated potential complications related to infertility treatment with diverse findings. In a meta-analysis to determine the relationship between fertility drugs used in assisted reproductive procedures and the risk of breast cancer, Zreik et al. reviewed 23 case-control and cohort studies.<sup>282</sup> The researchers found no increased risk of breast cancer associated with fertility treatment. However, the lack of long-term follow-up and some methodological weaknesses of the studies should be taken into consideration. Research suggests an association between medications used in assisted reproductive technology and ovarian cancer. Kashyap et al. reviewed 10 cohort and case-control studies and found that women with ovarian cancer were significantly more likely to have taken fertility medications than women in the non-infertile control group.<sup>283</sup> However, women with infertility who took fertility medications had a lower incidence of ovarian cancer than untreated women with infertility. Elizur and Tulandi examined infertility medications and possible birth defects in offspring and found that clomiphene treatment, especially after several cycles, may be associated with a higher risk of neural tube defects and severe hypospadias.<sup>284</sup> Other risks include ovarian hyperstimulation syndrome, bleeding or infection. The increased adverse pregnancy outcomes associated with the use of ART may also be linked to complications of multiple gestations common with ART and the tendency for older women (and the contributing risk factors of age) to seek ART therapy.<sup>285, 286</sup>

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<sup>280</sup> The estimate is calculated by multiplying the estimated 2010 weighted average PMPM medical cost in fully insured plans in Connecticut by 12 to get an annual cost per insured life, and then multiplying that product by 163,334 covered lives, as reported by the State Comptroller's office. The actual cost of this mandate to the State plans may be higher or lower, based on the actual benefit design of the State plans and the demographics of the covered lives (e.g., level of cost-sharing, average age of members, etc.). Retention costs are not included in this estimate because the State is now self-funded and the traditional elements of retention do not apply. State costs for administration of this mandated benefit would be in addition to the above amount. See Appendix II, Ingenix Consulting Actuarial and Economic Report, for further discussion.

<sup>281</sup> American Society for Reproductive Medicine. 2009. Definition of “experimental procedures.” *Fertility and Sterility* 92(5): 1517.

<sup>282</sup> Zreik TG, Mazloom A, Chen Y, et al. 2010. Fertility drugs and the risk of breast cancer: a meta-analysis and review. *Breast Cancer Research Treatment* 124(1): 13-26.

<sup>283</sup> Kashyap S, Moher D, Fung MFK, et al. 2004. Assisted reproductive technology and the incidence of ovarian cancer: A meta-analysis. *Obstetrics and Gynecology* 103(4): 785-94.

<sup>284</sup> Elizur SE, Tulandi T. 2008. Drugs in infertility and fetal safety. *Fertility and Sterility* 89(6): 1595-1602.

<sup>285</sup> Reddy UM, Wapner RJ, Rebar RW, et al. 2007. Infertility, assisted reproductive technology, and adverse pregnancy outcomes. *Obstetrics and Gynecology* 109(4): 967-77.

<sup>286</sup> Mayo Clinic. Infertility. Available at: <http://www.mayoclinic.com/health/infertility/DS00310/DSECTION=causes>. Accessed September 20, 2010.

## IV. Financial Impact

### ***1. The extent to which the mandated health benefit may increase or decrease the cost of the service over the next five years.***

According to the CDC's Survey of Family Growth, those reporting impaired fecundity in the United States rose nearly 21 percent from 6.1 million women in 1995 to 7.3 million in 2002.<sup>287</sup> Fecundity impairment and infertility rates are estimated to continue to increase in the future primarily due to women postponing motherhood. However, medical costs are not expected to outpace medical cost inflation. The mandate is not expected to materially alter the availability of infertility diagnosis and treatment over the next five years.

### ***2. The extent to which the mandated health benefit may increase the appropriate or inappropriate use of the service over the next five years.***

Several studies have examined the effects of state level infertility insurance mandates and infertility treatment utilization. States with mandated IVF coverage have been shown to have the highest rates of IVF utilization.<sup>288</sup> However, clinics in these states transferred fewer embryos, between 0.21 and 0.29 fewer embryos per cycle, and were more likely to transfer fewer embryos than recommended for older women.<sup>289</sup> The reduction in embryo transfers contributes to fewer multiple births and the associated complications for mother and babies. These findings suggest that while an infertility insurance mandate may increase utilization, it also increases appropriate use. This trend is expected to continue over the next five years.

### ***3. The extent to which the mandated health benefit may serve as an alternative for more expensive or less expensive treatment, service or drug(s).***

As stated in the mandate:

(5) Limit coverage for in-vitro fertilization, gamete intra-fallopian transfer, zygote intra-fallopian transfer and low tubal ovum transfer to those individuals who have been unable to conceive or produce conception or sustain a successful pregnancy through less expensive and medically viable infertility treatment or procedures covered under such policy. Nothing in this subdivision shall be construed to deny the coverage required by this section to any individual who foregoes a particular infertility treatment or procedure if the individual's physician determines that such treatment or procedure is likely to be unsuccessful.

Therefore, individuals who access insurance coverage for infertility diagnosis and treatment have already tried less expensive treatments without success. In addition, the mandate limits more expensive treatment by specifying a maximum number of cycles that may be covered for particular procedures, thus, limiting excessive attempts and the associated costs. Non-medical alternative treatments to infertility, include surrogacy, adoption, child-free living and counseling services.<sup>290</sup>

### ***4. The methods that will be implemented to manage the utilization and costs of the mandated health benefit.***

The statute allows insurers and MCOs to employ utilization management, prior authorization, or certain

<sup>287</sup> Centers for Disease Control and Prevention. 2005. National survey of family growth 2002. Available at: [http://www.cdc.gov/nchs/data/series/sr\\_23/sr23\\_025.pdf](http://www.cdc.gov/nchs/data/series/sr_23/sr23_025.pdf). Accessed September 20, 2010.

<sup>288</sup> Jain T, Harlow BL, Hornstein MD. 2002. Insurance coverage and outcomes of in vitro fertilization. *New England Journal of Medicine* 347(9): 661-6.

<sup>289</sup> Banks NK, Norian JM, Bundorf MK, et al. 2010. Insurance mandates, embryo transfer, outcomes—the link is tenuous. *Fertility and Sterility* 94(7): 2776-9.

<sup>290</sup> Macaluso, M. 2010. A public health focus on infertility prevention, detection, and management. *Fertility and Sterility* 93(1): 16e1-16.e10.

utilization tools at their discretion. For example, women are covered by the mandate until age 40. Four cycles of ovulation induction are permitted. Three attempts are permitted for intrauterine insemination and up to two cycles of in vitro fertilization or transfer with no more than two embryo implantations per cycle.

**5. *The extent to which insurance coverage for the service may be reasonably expected to increase or decrease the insurance premiums and administrative expenses for policyholders.***

Insurance premiums include medical cost and retention costs. Medical cost accounts for medical services. Retention costs include administrative cost and profit (for for-profit insurers/MCOs) or contribution to surplus (for not-for-profit insurers/MCOs). For further discussion, please see Appendix II, Ingenix Consulting Actuarial and Economic Report, page 12-13.

**Group plans:** When the medical cost of the mandate is spread to all insureds in group plans, medical costs are estimated to be \$2.80 PMPM and retention costs are estimated to be \$0.56 PMPM in 2010. Thus the total effect on insurance premiums is estimated at \$3.36 PMPM in 2010. Insurance coverage for the mandated benefit may be reasonably expected to increase group health insurance premiums accordingly, that is, \$40.32 per year per insured.

**Individual policies:** When the medical cost of the mandate is spread to all insureds in individual policies, medical costs are estimated to be \$1.39 PMPM and retention costs are estimated to be \$0.42 PMPM in 2010. Thus the total effect on insurance premiums is estimated at \$1.81 PMPM in 2010. Insurance coverage for the mandated benefit may be reasonably expected to increase individual health insurance premiums accordingly, that is, \$21.72 per year per insured.

For further information, please see Appendix II: Ingenix Consulting Actuarial and Economic Report.

**6. *The extent to which the service is more or less expensive than an existing treatment, service or drug(s), that is determined to be equally safe and effective by credible scientific evidence published in peer-reviewed medical literature generally recognized by the relevant medical community.***

The medical procedures identified in the mandate include but are not limited to “ovulation induction, intrauterine insemination, in-vitro fertilization, uterine embryo lavage, embryo transfer, gamete intra-fallopian transfer, zygote intra-fallopian transfer and low tubal ovum transfer.” Therefore, there are no viable medical alternatives to the extensive treatments offered for infertility as specified in the mandate.

**7. *The impact of insurance coverage for the service on the total cost of health care, including potential benefits or savings to insurers and employers resulting from prevention or early detection of disease or illness related to such coverage.***

The total cost of health care is understood to be the funds flowing into the medical system, which are the medical costs of insurance premiums and cost sharing. Actuarial analysis of claims data received from insurers/MCOs in Connecticut shows an expected cost in 2010 of \$47,674,061 for infertility diagnosis and treatment for Connecticut residents covered by fully insured group and individual health insurance plans.

Infertility diagnosis and treatment may provide potential benefits or savings to insurers and employers resulting from prevention or early detection of disease or illness. For example, in the process of seeking infertility diagnosis or treatment, a patient may be diagnosed with other diseases such as pelvic inflammatory disease, asymptotically Chlamydia, other sexually transmitted diseases, or cancer.<sup>291</sup>

<sup>291</sup> Rein DB, Kassler WJ, Irwin KL, et al. 2000. Direct medical cost of pelvic inflammatory disease and its sequelae: Decreasing but still substantial. *The American College of Obstetricians and Gynecologist* 95(3): 397-401.

**8. *The impact of the mandated health care benefit on the cost of health care for small employers, as defined in § 38a-564 of the general statutes, and for employers other than small employers.***

No published literature was found regarding the effect of mandated coverage of infertility diagnosis and treatment for the designated populations on the cost of health care for small employers. Small employers have a reduced negotiating power due to a smaller number of covered lives in their insurance plans. The relatively high estimated cost of the mandate (\$ 3.36 PMPM in fully insured group plans) suggests potential differences in effects among different sized employers.

For further information regarding the differential effect of the mandates on small group vs. large group insurance, please see Appendix II: Ingenix Consulting Actuarial and Economic Report, page 28-29).

**9. *The impact of the mandated health benefit on cost-shifting between private and public payers of health care coverage and on the overall cost of the health care delivery system in the state.***

Cost-shifting between private and public payers of health care coverage generally occurs when formerly privately insured persons, after enrolling in a public program or becoming un- or underinsured, require and are provided health care services. Cost-shifting also occurs when a formerly publicly-funded service becomes the responsibility of private payers, which can result following enactment of a health insurance mandate.

Most persons formerly covered under private payers lose such coverage due to a change in employer, change in employment status, or when private payers discontinue offering health care coverage as an employee benefit or require employee contributions to premiums that are not affordable. Because this required benefit became effective on October 1, 2005, it is unlikely that the mandate, taken individually, has any impact on cost-shifting between private and public payers of health care coverage at present.

The overall cost of the health delivery system in the state is understood to include total insurance premiums (medical costs and retention) and cost sharing. The actuarial analysis of claims data received from insurers/MCOs in Connecticut shows an expected cost in 2010 of \$56,738,633 for diagnosis and treatment of infertility for Connecticut residents covered by fully insured group and individual health insurance plans.

For further information, please see Appendix II, Ingenix Consulting Actuarial and Economic Report.

# Volume II

## Chapter 6

### Autism Spectrum Disorders Therapies

Review and evaluation of Connecticut General Statutes,

Chapter 700, §§ 38a-514b and 38a-488b

Coverage for Autism Spectrum Disorder Therapies

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## I. Overview

The Connecticut General Assembly (the Committee) directed the Connecticut Insurance Department (CID) to review statutorily mandated health benefits existing on or effective on July 1, 2009, pursuant to section (b) of Public Act 09-179, An Act Concerning Reviews of Health Insurance Benefits Mandated in this State. Each review was conducted following the requirements stipulated under Public Act 09-179 (Appendix I) as a collaborative effort of CID and the University of Connecticut Center for Public Health and Health Policy (CPHHP). The CID and CPHHP contracted with the actuarial firm Ingenix Consulting (IC) to conduct a fiscal and economic analysis for each mandate.

This chapter evaluates the financial and social impact of group insurance coverage requirements for autism spectrum disorder (ASD) therapies as specified by Connecticut General Statute, Chapter 700, §38a-514b and §38a-488b. According to the statute, each fully insured individual and fully insured group policy...

...delivered, issued for delivery, renewed, amended or continued in this state on or after January 1, 2009, shall provide coverage for physical therapy, speech therapy and occupational therapy services for the treatment of autism spectrum disorders, as set forth in the most recent edition of the American Psychiatric Association's "Diagnostic and Statistical Manual of Mental Disorders," to the extent such services are a covered benefit for other diseases and conditions under such policy.<sup>292</sup>

It is important to note that a subsequent act, P.A. 09-115, repealed and substituted new language for coverage of ASD-related health care services that extend beyond the original mandate. The revised language, effective as of January 1, 2010 requires coverage for behavioral therapy, prescription drugs, psychiatric and psychological services or consultation, physical therapy (PT), occupational therapy (OT), and speech therapy (ST) on a medically necessary basis for those diagnosed with ASD. The new language also removes the ability to place limitations on the number of allowed visits or charge higher co-pays than would be charged for other conditions.

To evaluate this mandate, in March 2010, CPHHP requested and received 2007 and 2008 claims data related to the mandated benefit from six insurers and managed care organizations (carriers) domiciled in Connecticut that cover approximately 90 percent of the population in fully insured group and individual health insurance plans in Connecticut (1.25 million persons). Since 2007 and 2008 covered the pre-mandate period, claims data for 2009 was requested to supplement the analysis. Six carriers provided data for group plans and four of the six carriers provided claims data for individual policies. However, the claims data for individual policies is considered less credible than the group plan data due to the lower response rate and fewer covered lives represented by the claims. Five carriers provided complete responses about the extent to which ASD therapies are included under their self-funded plans. These carriers cover approximately 47 percent of Connecticut residents enrolled in self-funded group plans in the state. The sixth carrier reported that all Connecticut residents enrolled in their self-funded plans had coverage for ASD therapies.

### *Current coverage*

The ASD mandate went into effect on January 1, 2009 extending coverage to individuals enrolled in fully insured health plans. According to the claims data, two years prior to the mandate carriers were covering physical therapy (PT), occupational therapy (OT) and speech therapy (ST) for children with autism spectrum disorders (ASD). However, coverage for therapeutic services may be for a specified number of visits, require co-pays, or exclude certain conditions or habilitative services from reimbursement. Of the

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<sup>292</sup> Connecticut General Assembly. Public Act 08-132.

overall cost of providing PT, OT and ST for ASD, over 20 percent of ASD therapy expenditures is paid out-of-pocket by fully insured members.

### *Premium impact*

The projected 2010 average per member per month (PMPM) payments for all covered PT, OT, and ST provided to fully insured members with ASD is summarized below. Relative to 2007 and 2008, on average paid medical claims per member per month (PMPM) in 2009 did not significantly differ from the period before the mandate passed. This suggests that the ASD therapies mandate did not result in an increase in PMPM medical claims for the inaugural year of the mandate.

**Group plans:** The medical cost for ASD related claims is estimated to be \$0.03 PMPM on average. The estimated total cost (insurance premium, administrative fees, and profit) of the mandated services in 2010 in group plans is \$0.04 PMPM, which is less than 0.1 percent of the estimated total cost for group plans. Estimated cost sharing in group plans is less than \$0.01 PMPM, although it can be substantial for the individual family.

**Individual policies:** On a 2010 basis, the estimated total premium is estimated to be less than \$0.01 PMPM. Individual policies data is less credible than group plans data primarily due to small sample size. Estimated cost sharing on a 2010 basis in individual policies is less than \$0.00 PMPM, although the cost share can be substantial for the individual family.

### *Self-funded plans*

25.4 percent of members enrolled in self-funded group plans managed by five carriers were reported as having coverage for ASD therapies at least to the extent required of fully insured groups. Of the self-funded group plans managed by the five carriers, 42 percent covered ASD therapies as described by the Connecticut mandate. In addition, the sixth carrier reported all members as having coverage for ASD therapies. Therefore, it is estimated that closer to 78 percent of Connecticut residents enrolled in self-funded group plans may have coverage for ASD therapies at least to the extent described by the Connecticut mandate.

This report is intended to be read in conjunction with the General Introduction to this volume and the Ingenix Consulting Actuarial and Economic Report which is included as Appendix II.

## **II. Background**

The Centers for Disease Control and Prevention describes “Autism spectrum disorders” (ASD) as a group of developmental disabilities characterized by atypical development in socialization, communication and behavior. ASD are typically apparent before age 3 years, with associated impairments affecting multiple areas of a person’s life.<sup>293</sup>

ASD include autism disorder, Asperger’s syndrome and pervasive developmental disorder, not otherwise specified (PDD-NOS). ASD is considered a neurodevelopmental disorder.<sup>294</sup> Neurodevelopment disorders are impairments of growth and development of the brain or central nervous system which become apparent as an individual grows. Impaired neural function may affect emotion, learning ability and memory. The symptoms manifest as a range of impairments to social skills; speech, language, verbal and/or non-verbal

<sup>293</sup> Centers for Disease Control and Prevention. December 18, 2009. Prevalence of Autism Spectrum Disorders. Available at: <http://www.cdc.gov/mmwr/preview/mmwrhtml/ss5810a1.htm>. Accessed August 30, 2010.

<sup>294</sup> Condition symptoms: Autism disorder-severe and pervasive impairments in reciprocal social skills, deficits in language skills, presence of stereotypic behaviors, restricted interests or restricted activities. Asperger’s syndrome-symptoms similar to autism, with the exception that verbal and cognitive skills are higher. PDD-NOS: symptoms do not meet full criteria for autism disorder or Asperger’s syndrome but include some degree of autism disorder symptoms. (DynaMed).

communication; and repeated (often stereotypic) behaviors, narrow interests and restricted routines.<sup>295</sup> In addition, as a developmental disorder, muscle tone, motor skills, and coordination may be underdeveloped, thus complicating basic day-to-day activities. However, the cognitive, social, communication, motor, and adaptive abilities of individuals with ASD vary widely.<sup>296</sup>

Although there is heterogeneity in levels of functionality across the population with ASDs, problems with the use of language and communication, especially social communication, typify the condition. Acquiring “the form and content of language and/or assistive communication systems and appropriate social use of communication”<sup>297</sup> are often difficulties faced by individuals with an ASD. As summarized by the American Speech-Language Hearing Association (ASHA), individuals with an ASD may have difficulties with “joint attention, shared enjoyment, social reciprocity in nonverbal as well as verbal interactions, mutually satisfying play and peer interaction, comprehension of others’ intentions, and emotional regulation.”<sup>298</sup>

Associated symptoms include sensory impairments or abnormalities<sup>299</sup> and delays in gross motor skills (low muscle tone, poor coordination, motor apraxia, toe walking, and difficulties with physical play), fine motor skills or both.<sup>300</sup> Comorbidities including “epilepsy, gastrointestinal problems, anxiety and depression, and respiratory, food and skin allergies” also occur at a higher rate among children with an ASD.<sup>301</sup>

The Autism and Developmental Disabilities Monitoring (ADDM) Network, a project of the Centers for Disease Control and Prevention (CDC), estimated that in 2006, on average, 1 in every 110 children or approximately 1 percent of children (730,000) in a national sample had an ASD.<sup>302</sup> The ADDM estimate includes diagnosed and undiagnosed cases of ASD.

Based on U.S. Office of Special Education Programs’ 2008 data for the number of children with an ASD diagnosis receiving services under the Individuals with Disabilities Act, approximately 1 in 144 children (0.7 percent) between the ages of 3 to 17 received special education services.<sup>303</sup> Based on an estimate using Birth to Three Services diagnosis data (FY 2009) and applying the diagnosis rate to the child population (<18), approximately 1 in 127 children or 0.79 percent of children in Connecticut had an ASD diagnosis in 2008-2009. This estimate is consistent with the ADDM finding where only 77 percent of the children identified as having ASD had received a diagnosis of ASD from a health or education provider.<sup>304</sup>

## Treatment

The American Academy of Pediatrics (AAP) Council on Children with Disabilities defines the goals of treatment as maximizing “the child’s ultimate functional independence and quality of life by: minimizing

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<sup>295</sup> American Psychiatric Association. 2000. *Diagnostic and Statistical Manual of Mental Disorders*. 4th ed., text rev. Washington, DC: Author.

<sup>296</sup> American Speech-Language Hearing Association. 2006. Roles and responsibilities of speech-language pathologists in diagnosis, assessment, and treatment of autism spectrum disorders across the lifespan. [Position Statement]. Available from [www.asha.org/policy](http://www.asha.org/policy).

<sup>297</sup> *Ibid.*

<sup>298</sup> *Ibid.*

<sup>299</sup> Wiggins LD, Robbins DL, Bakeman R, Adamson LB. 2009. Brief report: sensory abnormalities as distinguishing symptoms of autism spectrum disorders in young children. *Journal of Autism Development Disorders* 39(7): 1087-91.

<sup>300</sup> Provost B, Lopez BR, Heimerl S. 2006. A comparison of motor delays in young children: autism spectrum disorder, developmental delay, and developmental concerns. *Journal of Autism Development Disorders* 37(2): 321-8.

<sup>301</sup> Kogan MD, Strickland BB, Blumberg SJ et al. 2008. A national profile of the health care experiences and family impact of autism spectrum disorder among children in the United States, 2005-2006. *Pediatrics* 122(6): e1149-58.

<sup>302</sup> Centers for Disease Control and Prevention. December 18, 2009. Prevalence of Autism Spectrum Disorders. Available at: <http://www.cdc.gov/mmwr/preview/mmwrhtml/ss5810a1.htm>. Accessed August 30, 2010.

<sup>303</sup> Tables Part B 1.2-1.6, 1.11, 1.13. U.S. Office of Special Education Programs. Accessed from: <http://IDEAdata.org>.

<sup>304</sup> Wyman, O. Actuarial Consulting, Inc. January 2010. Actuarial cost estimate: Virginia house bill no. 303 and senate bill no. 464. Available at: <http://www.autismvotes.org/atf/cf/%7B2A179B73-96E2-44C3-8816-1B1C0BE5334B%7D/VA%20HB%20303%20and%20SB%20464%20Actuarial%20Cost%20Analysis%201%2015%202010%20Final.pdf>. Accessed August 30, 2010.

the core autism spectrum disorder features, facilitating development and learning, promoting socialization, reducing maladaptive behaviors and educating and supporting families.” The report recommends earlier and more frequent surveillance for ASD beginning with the first visit to the pediatrician and with universal screening at 18 and 24 months.<sup>305</sup> Early identification and intensive interventions are seen as potential tools for improving some of the impairments. The second AAP report on management of ASDs recommends aggressive use of educational and behavioral interventions. The types of services provided for children with ASD range widely and may take place in the school, at a physician office, in the home or community. The theoretical approaches and related interventions available for ASDs vary widely. Therapies may focus on reducing problematic behaviors, fostering communication and social skill development, or addressing sensory problems, motor skills, emotional issues or food sensitivities.<sup>306</sup> The philosophy and coordination of treatment may focus on behavior change, modifying the environment rather than the behavior, emotional development or cognitive development.

Therapy may occur within a school setting to help a child achieve learning objectives or in an out-of-school setting. In a North Carolina study, the five most commonly used school-based therapies for children 11 and under included: ST, OT, social skills training, PT, and adaptive physical education. Conversely, outside of school common therapies included:<sup>307</sup>

- Communication therapies/systems: picture exchange communication, speech/language therapy, facilitated communication, Fast ForWord computer program;
- Social therapies: social skills training, hippotherapy/therapeutic riding, play therapy, music therapy, holding therapy, dog therapy, dolphin therapy, aversive;
- Sensory/motor therapies: sensory integration therapy, OT, auditory integration, PT, craniosacral trauma release therapy, myofascial release, squeeze machine;
- Medications and supplements;
- Other specialists: case manager, neurologist, developmental pediatrician, psychologist, psychiatrist, behavioral specialist, therapeutic support person, personal care assistant, audiologist;
- Child care services: care from family or friends, special summer camp, respite care, after school care, day care;
- Family services: parent support groups, parent training classes, family counseling, sibling support groups; and
- Complementary and alternative medicine therapies: casein free diet, gluten free diet, Feingold diet, specialized eye glasses, enzyme potentiated desensitization, immune system therapy, secretin, acupuncture, cranial electrical stimulation, Flexyx neurotherapy system.

Another approach that may include aspects of the services described above is behavior therapy. Behavior management therapy uses rewards, or positive reinforcement, to teach autistic children desirable behaviors and reduce problematic behaviors. Although there are many behavioral therapies for autism, applied behavior analysis (ABA) is the most widely accepted approach. ABA can help children with autism learn how to interact with others, play with toys, and improve their verbal and nonverbal skills. ABA is also effective for eliminating problem behaviors such as self-injury or stimming (repetitive, self-stimulatory

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<sup>305</sup> Myers SM, Johnson CP. 2007. Management of children with autism spectrum disorders. *Pediatrics* 120(5): 1162-82.

<sup>306</sup> Helpguide.org. July 2007. Autism Therapy, Treatment, and Diagnosis.

Available at: [http://www.helpguide.org/mental/autism\\_diagnosis\\_treatment.htm](http://www.helpguide.org/mental/autism_diagnosis_treatment.htm). Accessed August 30, 2010.

<sup>307</sup> Thomas KC, Ellis AR, McLaurin C, et al. 2007. Access to care for autism-related services. *Journal of Autism Development Disorders* 37(10): 1902-13.

behaviors such as twirling, finger flicking, and rocking).<sup>308</sup>

The Connecticut statute, implemented in 2009, requires “coverage for physical therapy, speech therapy and occupational therapy for the treatment of autism spectrum disorders ... to the extent such services are a covered benefit for other diseases and conditions under such policy.” The role of these therapies in the treatment of ASD is explained below.

### **Occupational Therapy**

Occupational therapists and occupational therapy assistants help people with autism find ways to adjust tasks and conditions while attending to the individual’s abilities and needs. Such help may focus on daily living skills (such as getting dressed, eating or brushing teeth), sensory integration (to address overreaction or under-reaction to stimuli such as noise or touch),<sup>309</sup> adjusting the environment to minimize distractions, and/or identifying tools to ease communication or daily living.<sup>310</sup> As explained by the American Occupational Therapy Association, occupational therapists, often in cooperation with family caregivers or teachers, can:

- “Evaluate an individual to determine whether he or she has accomplished developmentally appropriate skills needed in such areas as grooming and play or leisure skills.
- Provide intervention to help a child appropriately respond to information coming through the senses. Intervention may include developmental activities, sensory integration or sensory processing, and play activities.
- Facilitate play activities that instruct as well as aid a child in interacting and communicating with others.
- Devise strategies to help the individual transition from one setting to another, from one person to another, and from one life phase to another.
- Collaborate with the individual and family to identify safe methods of community mobility.
- Identify, develop, or adapt work or engagement in meaningful activities that enhance the individual’s quality of life.”<sup>311</sup>

### **Speech Therapy**

Speech-language pathologists address the barriers to communication faced by children with an ASD. Therapy may include exercises to improve verbal skills and language ability, address nonverbal communication skills (such as eye contact), or foster social skills.<sup>312</sup> According to the American Speech-Language Hearing Association, “speech-language pathologists should assess and enhance the following:

- Initiation of spontaneous communication in functional activities across social partners and settings;
- Comprehension of verbal and nonverbal communication in social, academic and community settings;
- Communication for a range of social functions that are reciprocal and promote the development of friendship and social networks;

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<sup>308</sup> Helpguide.org. July 2007. Autism Therapy, Treatment, and Diagnosis.  
Available at: [http://www.helpguide.org/mental/autism\\_diagnosis\\_treatment.htm](http://www.helpguide.org/mental/autism_diagnosis_treatment.htm). Accessed August 30, 2010.

<sup>309</sup> *Ibid.*

<sup>310</sup> *Ibid.*

<sup>311</sup> American Occupational Therapy Association (2006) “*Occupational Therapy’s Role with Autism.*”

<sup>312</sup> Helpguide.org. July 2007. Autism Therapy, Treatment, and Diagnosis.  
Available at: [http://www.helpguide.org/mental/autism\\_diagnosis\\_treatment.htm](http://www.helpguide.org/mental/autism_diagnosis_treatment.htm). Accessed August 30, 2010.

- Verbal and nonverbal means of communication, including natural gestures, speech, signs, pictures, written words, functional alternatives to challenging behaviors, and other augmentative and alternative communication systems; and access to literacy and academic instruction and curricular, extracurricular, and vocational activities.”<sup>313</sup>

## Physical therapy

Physical therapy, as described by the American Physical Therapy Association, involves “interventions for, and prevention of impairments, functional limitations, and disabilities related to movement, function, and health.”<sup>314</sup> Physical therapists are described as the “provider of choice for neuromusculoskeletal deficits.”

<sup>315</sup> Specific to autism, PT commonly focuses on mobility, balance, coordination, low muscle tone and under-developed motor skills. A visit with a physical therapist may involve working on basic motor skills such as sitting and rolling or more complex movements like standing, kicking, throwing, catching or other basic activities. Therapists may also develop programs tailored towards building muscle strength or coordination.<sup>316, 317</sup> “In general, the physical therapist uses standard clinical tools and functional play to identify and monitor concerns with gross motor skills among children with the aim of helping them achieve motor milestones and prevent secondary impairments.”<sup>318</sup>

## III. Methods

Under the direction of CPHHP, medical librarians at the Lyman Maynard Stowe Library at the University of Connecticut Health Center (UCHC) gathered published articles and other information related to medical, social, economic, and financial aspects of the required benefit for autism spectrum disorder therapies. Medical librarians conducted literature searches using PubMed, Scopus, UptoDate, DynaMed, Cochrane database, EMedicine, and the CDC website. Initial limits set for the search included: 5-10 years of age, articles in English, and review randomized control trials, meta-analysis articles and review articles. Search keywords included: child development disorders, utilization review, insurance coverage, autistic disorder, incidence, cost of illness, speech therapy, occupational therapy, health services accessibility, prevalence, social support, treatment outcome, healthcare costs, social skills/recreation therapy, play therapy, behavior therapy, cognitive therapy, and delivery of healthcare.

CPHHP staff consulted with administrative staff from the Connecticut Birth to Three System regarding the prevalence of and use of therapies by children diagnosed with an autism spectrum disorder. The CPHHP staff also consulted as needed with clinical faculty from the University of Connecticut’s School of Medicine on matters pertaining to medical standards of care, traditional, current and emerging practices, and evidence-based medicine related to the benefit. Staff gathered additional information through telephone and e-mail inquiries to appropriate state, federal, municipal, and non-profit entities and from internet sources such as the State of Connecticut website, Centers for Medicare and Medicaid (CMS) website, other states’ websites, professional organizations’ websites, and non-profit and community-based organization websites.

<sup>313</sup> American Speech-Language-Hearing Association. 2006. Ad Hoc Committee on Autism Spectrum Disorders. Position Statement. Roles and responsibilities of speech-language pathologists in diagnosis, assessment, and treatment of autism spectrum disorders across the life span. Available at: [http://www.commxroads.com/docs/publications/Position\\_Statement.pdf](http://www.commxroads.com/docs/publications/Position_Statement.pdf). Accessed August 30, 2010.

<sup>314</sup> APTA.org. Vision 2020. American Physical Therapy Association. Available at: [http://www.apta.org/AM/Template.cfm?Section=Vision\\_20201&Template=/TaggedPage/TaggedPageDisplay.cfm&TPLID=285&ContentID=32061](http://www.apta.org/AM/Template.cfm?Section=Vision_20201&Template=/TaggedPage/TaggedPageDisplay.cfm&TPLID=285&ContentID=32061). Accessed November 28, 2010.

<sup>315</sup> *Ibid.*

<sup>316</sup> Rudy, L. About.com Guide. 2010. Physical therapy as a treatment for autism. Available at: <http://autism.about.com/od/autismtherapy101/a/PTbasics.htm>. Accessed September 20, 2010.

<sup>317</sup> Helpguide.org. July 2007. Autism Therapy, Treatment, and Diagnosis. Available at: [http://www.helpguide.org/mental/autism\\_diagnosis\\_treatment.htm](http://www.helpguide.org/mental/autism_diagnosis_treatment.htm). Accessed August 30, 2010.

<sup>318</sup> Peranich L, Reynolds KB, O’Brien S, et al. 2010. The roles of occupational therapy, physical therapy and speech/language pathology in primary care. *The Journal for Nurse Practitioners* 6(1): 36-43.

With the assistance of the Connecticut Insurance Department (CID), CPHHP and Ingenix Consulting requested and received 2007 and 2008 claims data from insurance companies and MCOs (carriers) domiciled in Connecticut. Six carriers provided claims data for their fully insured group plan participants and four provided claims data for their fully insured individual plan participants. A similar request for claims was sent for 2009 to account for whether changes in utilization or reimbursements changed following implementation of the mandate. However, the claims data for individual policies is considered less credible than the group plan data due to the lower response rate from carriers and fewer covered lives represented by the claims. The carriers also provided information about the coverage of PT, ST, and OT for individuals with an ASD enrolled in self-funded plans they administer.

CPHHP and the CID contracted with Ingenix Consulting (IC) to provide actuarial and economic analyses of the mandated benefit. In addition to actuarial analysis of the claims data received from Connecticut domiciled health plan carriers, IC analyzed in-house claims data to assess utilization of PT, OT and ST for children with an ASD for 2007, 2008 and 2009. The full actuarial report attached as Appendix II.

## IV. Social Impact

### ***1. The extent to which speech, occupational and physical therapy are utilized by a significant portion of the ASDs population.***

Utilization of speech, occupational, and physical therapy among individuals diagnosed with an ASD decreases with age. Based on a North Carolina study, use of ST peaks by age 4 whereas OT and PT peak by age eight and social skills therapy (which may be administered by a speech pathologist, occupational therapist or other service provider) increases with age during childhood.<sup>319</sup> The numbers presented in this section are limited to the child population.<sup>320</sup>

In fall 2008, 5,404 children (0.7 percent) under 18 in Connecticut had an ASD diagnosis as reported for IDEA compliance or received services from the Birth to Three Program.<sup>321</sup> Although ST, OT, and PT utilization data is not reported in the literature for Connecticut, it is possible to estimate the number of children accessing these services based on utilization rates noted in previous research (Table II.6.1). Based on 2003-2004 findings from the National Survey Children's Health (NSCH), 76 percent of the ASD population age 3 to 17 used ST, OT and PT. Given Connecticut's diagnosis prevalence, using the NSCH utilization rate, 3,637 children 3 to 17 or 4,255 children <18 years old with an ASD diagnosis received ST, OT and PT. However, the NSCH-based estimates likely include services received through both the health care system and public education system.

Using out-of-school service utilization rates from a North Carolina-based study, the number of children with ASD under the age of 18 and using ST, OT and PT is estimated for Connecticut as 1,567 for ST and 1,155 for OT and PT combined.

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<sup>319</sup> Thomas KC, Morrissey JP, McLaurin C. 2007. Use of autism-related services by families and children. *Journal of Autism Development Disorders* 37(5): 818-829.

<sup>320</sup> Thomas KC, Ellis AR, McLaurin C, et al. 2007. Access to care for autism-related services. *Journal of Autism Development Disorders* 37(10): 1902-1913.

<sup>321</sup> Goodman L. Connecticut Birth to Three System. 2009 Annual Report. Available at: <http://www.birth23.org/aboutb23/ADR/AnnualReportFY09.pdf>. Accessed September 27, 2010.

**Table II.6.1: Estimate of Out-of-School Physical Therapy, Speech Therapy and Occupational Therapy Utilization: Connecticut Children <18 with an Autism Spectrum Disorder Diagnosis.**

	Sample	Therapy	Age	In school/ Out of School	%	Number receiving service (estimate)
NSCH (2003-2004) <sup>322</sup>	Autism	Any (ST, OT, PT)	3-17	Either	76%	3,636
			<18		78.7%**	4,255
NHIS-Disability Supplement <sup>323</sup>	Disabled with functional limitation(s)	Any (ST, OT, PT)	<18	Out of school	27.1%	1,464
Thomas, Morrissey, and McLaurin, 2007 <sup>324</sup>	Autism	Speech	<11	Out of school	37%	1,384
			<18 (adj.)		29%*	1,567
Thomas, Morrissey, and McLaurin, 2007 <sup>325</sup>		Sensory/ Motor Therapies	<11	Out of school	26%	972
			<18 (adj.)		21.4%*	1,155

\*Adjustment assumes that 11 percent of the ASD population ages 11 to 17 used the service. (11% is the level of use for 9-11 yr olds in the study by Thomas, Ellis et al).<sup>324</sup>

\*\*≤3 based on Birth to Three FY09 enrollment where it is assumed that 100% received at least of the therapies.

**2. The extent to which the speech, occupational and physical therapy, is available to the population with ASDs, including, but not limited to, coverage under:**

***The Department of Public Health (DPH)***

The federally funded Title V Children with Special Health Care Needs (CSHCN) Program is administered by DPH through grants to regional CSHCN centers with the goal of providing care coordination, support and payment for certain goods and services.

***Medicare***

No resources identified.

***The Department of Social Services (DSS)***

In general, the state Children’s Health Insurance Plan under Title XXI (referred to as HUSKY) covers “medically necessary ST, OT and PT for clients. So, if a physician deems the therapy as necessary and provides a written order for it, it can be billed to Medicaid. One important notation is that Medicaid does not enroll OT’s independently. OT is accessed through a Rehabilitation Clinic, Hospital Outpatient department, or through home health services.”<sup>326</sup> Families with incomes under 185 percent of the federal

<sup>322</sup> National Survey of Children’s Health 2003-2004 Report. Available at: <http://www.cdc.gov/nchs/slaits/nsch.htm>. Accessed September 27, 2010.

<sup>323</sup> Benedict RE. Disparities in use of and unmet need for therapeutic and supportive services among school-age children with functional limitations: a comparison across settings. *Health Serv Res.* 2006 Feb; 41(1):103-124.

<sup>324</sup> Thomas KC, Morrissey JP, McLaurin C. 2007. Use of autism-related services by families and children. *Journal of Autism Development Disorders* 37(5): 818-829.

<sup>325</sup> *Ibid.*

<sup>326</sup> Personal Communication. Nina Holmes, DSS Medical Policy Unit. June 16, 2010.



poverty level (FPL) are eligible for enrollment into HUSKY A. Eligible children (under 19 years old) and a relative caregiver may enroll. The sliding scale supplement to HUSKY A is offered under HUSKY B to uninsured children living in families with incomes above 185 percent of the FPL. Under HUSKY B, three income levels are used to determine premiums and co-payment requirements. An additional program for children with special health care needs is offered at no cost under HUSKY Plus.<sup>327</sup>

### ***Public Programs Administered by Public Schools, Health Departments, Charities***

Under the Individuals with Disabilities Act (IDEA), a child who has a disability that affects their educational progress may be eligible for occupational therapy, speech/language therapy or physical therapy if the specific therapy is determined as a means to facilitate educational progress. Part B of IDEA ensures children with disabilities ages 3 to 21 with a free and appropriate education. A high percentage of children with ASD receive ST, OT, and PT while at school. However, services provided in this context are oriented towards education-based goals as part of an individualized education plan (IEP) and may not comprehensively cover the broader spectrum of needs a child may have.

Part C of IDEA provides services to meet the educational needs of children age 0 to 3 who “develop differently, or at a slower rate than most other children.” Connecticut’s Birth to Three System, administered under the Connecticut Department of Developmental Services (DDS) is the vehicle for coordinating and administering comprehensive related services.<sup>328</sup> If a child has an ASD diagnosis and developmental delay, families may participate in one of the nine autism-specific programs or the general programs. As of March 2010, 254 children with ASD participated in the Birth-to-Three autism-specific programs. For each participating child, the intervention team includes staff with expertise in the targeted development areas. “These individuals may come from a variety of professional backgrounds such as speech pathology, occupational therapy, early childhood education, special education, or psychology.”<sup>329</sup>

Several Connecticut-based charities offer grants for ASD therapies. The amounts of the grants and the types of services allowed vary. The number of children served through these programs is unclear.

### ***Autism Spectrum Services Division***

Public Act 07-4, (§§ 105-114) created the Autism Spectrum Services Division in the Department of Mental Retardation (DMR) to research, design, and implement appropriate, necessary services and programs for residents with ASD.<sup>330</sup>

### ***3. The extent to which insurance coverage is already available for speech, occupational and physical therapy for the treatment of ASDs.***

Using the 2008 data from the Current Population Survey for the insurance payer for children <5 and children 6 through 17, the estimates for the type of insurance held by children with an ASD was calculated for Connecticut. Since children with special health care needs tend to have a substantially higher rate of enrollment in Medicaid and a lower rate of being uninsured than other children, the estimates generated may overestimate the number of children enrolled in privately funded insurance plans. However, this approach provides an upward bound estimate for the population that may gain coverage.

Figure II.6.1 displays an estimate of payer type for Connecticut children under age 18 with an ASD

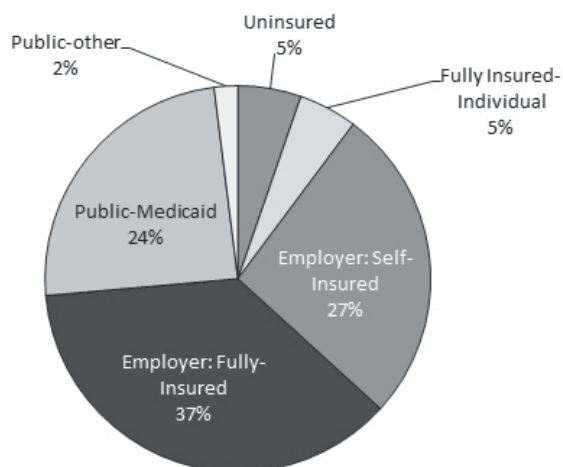
<sup>327</sup> State of Connecticut. HUSKY Health Care for Children. Available at: <http://www.huskyhealth.com/hh/site/default.asp>. Accessed September 27, 2010.

<sup>328</sup> Connecticut Birth-to-three Program. Available at: <http://www.birth23.org/programs/programs.html>. Accessed September 27, 2010.

<sup>329</sup> Connecticut Birth-to-three Providers. Available at: <http://www.birth23.org/providers/SG.html>. Accessed September 27, 2010.

<sup>330</sup> Connecticut General Assembly. Office of Legislative Research. 2009. sHB 5696. Available at: <http://cga.ct.gov/2008/BA/2008HB-05696-R000187-BA.htm>. Accessed September 27, 2010.

Figure II.6.1: Estimate of Insurance Type for Children with ASD in Connecticut



diagnosis.

For the estimated 26 percent of children covered by public sources, ST, OT and PT are covered by Medicaid or TRICARE, the health coverage system for military families. Medicaid covers a broad spectrum of treatments including ST, OT and PT “to correct or ameliorate physical or mental illnesses and conditions” as part of the EPSDT program.<sup>331</sup> According to the Department of Defense, “autistic children age three years and older often receive speech, physical, and occupational therapy provided by public or Department of Defense (DOD) Educational Activity (DoDEA) schools to the extent that they are considered educationally necessary. Additional speech, physical, or occupational therapy may be provided by the TRICARE basic program when additional therapy is considered to be medically necessary.”<sup>332</sup> However, the

extent to which additional therapy is authorized as medically necessary under TRICARE is unknown.

Conversely, plans covering privately insured children may have excluded coverage for therapy based on an ASD diagnosis prior to the mandate going into effect in 2009. Documents from both Aetna and CIGNA regarding ST, OT and PT indicate that many plans specifically exclude individuals with an ASD diagnosis. Generally, the therapies must be “restorative in nature” and cannot serve an education function.<sup>333, 334, 335, 336</sup>

A caveat to what private insurance covers exists for children under the age of three who are enrolled in fully insured employer and individual policies. Under the Birth to Three mandate, a child with an ASD may qualify for speech, physical and occupational therapy under their individualized family service plan for coverage up to \$3,200 per child per year (a maximum of \$9,600 for three years).<sup>337</sup> Overall, an estimated 33 percent had coverage for ASD-related therapies through Medicaid, TRICARE, or fully insured private plans (under the Birth to Three mandate) prior to passage of the ASD therapies mandate. Under the ASD therapies mandate, implemented in 2009, an estimated 38 percent of the child population with an ASD diagnosis would be covered provided the plan in which they are enrolled includes physical therapy or speech therapy. (Based on CGS §§ 38a-496 and 38a-524, fully insured plans must cover occupational therapy to the extent the physical therapy is covered).<sup>338</sup> According to the Insurance Department, the entity which reviews

<sup>331</sup> FamiliesUSA. November 2003. Continuing services for Children under Medicaid, IDEA. Available at: <http://www.familiesusa.org/issues/medicaid/making-it-work-for-consumers/covering-services-children.html>. Accessed September 27, 2010.

<sup>332</sup> Department of Defense. July 2007. Report and Plan on Services to Military Dependant Children with Autism. Available at: [www.bacb.com/Downloadfiles/707\\_DoD\\_TRICARE\\_rpt.pdf](http://www.bacb.com/Downloadfiles/707_DoD_TRICARE_rpt.pdf). Accessed September 27, 2010.

<sup>333</sup> Cigna Medical Coverage Policy. December 2009. Autism Spectrum Disorders/Pervasive Developmental Disorders: Assessment and Treatment. Available at: [http://www.cigna.com/customer\\_care/healthcare\\_professional/coverage\\_positions/medical/mm\\_0447\\_coveragepositioncriteria\\_autism\\_pervasive\\_developmental\\_disorders.pdf](http://www.cigna.com/customer_care/healthcare_professional/coverage_positions/medical/mm_0447_coveragepositioncriteria_autism_pervasive_developmental_disorders.pdf). Accessed September 27, 2010.

<sup>334</sup> Autism Votes. Available at: <http://www.autismvotes.org>. Accessed September 27, 2010.

<sup>335</sup> Redman, J. CNN News. Mom wins fight for Autism insurance. Available at: [http://articles.cnn.com/2008-04-01/health/autism.insurance\\_1\\_autism-therapy-health-insurance-industry?\\_s=PM:HEALTH](http://articles.cnn.com/2008-04-01/health/autism.insurance_1_autism-therapy-health-insurance-industry?_s=PM:HEALTH). Accessed September 27, 2010.

<sup>336</sup> Aetna. Clinical Policy Bulletin, Speech Therapy. Available at: [http://www.aetna.com/cpb/medical/data/200\\_299/0243.html](http://www.aetna.com/cpb/medical/data/200_299/0243.html). Accessed September 27, 2010.

<sup>337</sup> Connecticut General Statutes. Revised January 1, 2010. § 38a-490a and § 38a-516a.

<sup>338</sup> Connecticut General Statutes. Revised January 1, 2010. 38a-496 and 38a-524.

and approves health plans for Connecticut, “most health plans include physical therapy.”<sup>339</sup> A study by Fox et al. (2002) reviewed the most common PPO and HMO health plan selected by employers in each state. The study found that 90 percent of the plans covered speech therapy, 87 percent covered occupational therapy and 98 percent covered physical therapy. Although research indicates that most plans covered these therapies, limitations to coverage also existed in a variety of forms.<sup>340</sup> Therefore, insurance coverage for ST, OT and PT does not necessarily resolve whether or not an unmet need for a given ASD therapy exists.

**4. If the coverage is not generally available, the extent to which such lack of coverage results in persons being unable to obtain necessary health care treatment.**

Children with an ASD are eligible to access therapeutic services under the “free and appropriate education” standards specified under both the Individuals with Disabilities Education Act and Section 504 of the Rehabilitation Act of 1973. If receiving services through school, the services must be offered in pursuit of educational goals specified in a child’s Individualized Education Program (IEP). For Birth to Three, services are prescribed to meet the developmental goals of the child specified in the Individualized Family Services Plan (IFSP). An audit of approximately 41 percent of IFSPs for Connecticut children with ASDs indicates that 91 percent received ST, 65 percent received OT and 12 percent received PT on either a weekly or monthly basis.<sup>341</sup>

Although a majority (up to three-quarters<sup>342</sup>) of children with ASD access some therapeutic services through the education system, research and ASD-related advocacy organizations well-document that caregivers of children with ASD often perceive their child’s need for therapy as not being met.

An analysis of the National Survey of Children with Special Health Care Needs conducted by Dusing, *et al.* found that the odds of reporting an unmet therapy need was three times higher among those affected by chronic diseases or functional limitations.<sup>343</sup> Given findings indicating caregiver perceptions that children with ASDs have substantial functional limitations and/or chronic conditions, it is possible that about one out of three children with ASD diagnoses are perceived by the caregiver as having unmet therapy needs.<sup>344</sup>

**5. If the coverage is not generally available, the extent to which such a lack of coverage results in unreasonable financial hardships on those persons needing treatment.**

A national study of children with special health care needs found that compared to those with mental retardation or other special health care needs, children with ASD were more likely to face access problems. Among those with ASD, 13.8 percent experienced health plans that would not pay for services and 11.2 percent faced problems with the amount the family had to pay for services.<sup>345</sup> As explained by Benedict (2006), “Families must pay for uncovered services out of pocket or find other alternatives. This is particularly problematic for families with limited financial resources or for children requiring long-term or ongoing therapies to maintain or improve their functional status.”<sup>346</sup>

<sup>339</sup> Personal Communication with Paul Lombardo. September 29, 2010.

<sup>340</sup> Fox HB, McManus MA, Reichman MB. 2002. The strengths and weaknesses of private health insurance coverage for children with special health care needs. U.S. Department of Health and Human Services Administration Maternal and Child Health Bureau. Washington, DC.

<sup>341</sup> Personal Communication. Linda Goodman. September 24, 2010.

<sup>342</sup> Benedict RE. Disparities in use of and unmet need for therapeutic and supportive services among school-age children with functional limitations: a comparison across settings. *Health Services Research*, 2006 Feb; 41(1):103-124.

<sup>343</sup> Dusing SC, Skinner AC, Mayer ML. 2004. Unmet need for therapy services, assistive devices, and related services: data from the national survey of children with special health care needs. *Ambul Pediatr*. 2004 Sep-Oct; 4(5): 448-54.

<sup>344</sup> *Ibid.*

<sup>345</sup> Krauss MW, Gulley S, Sciegai M, Wells N. Access to specialty medical care for children with mental retardation, autism, and other special health care needs. *Ment Retard*. 2003 Oct; 41(5): 329-39.

<sup>346</sup> Benedict RE, 2006.

### ***Financial Hardship Estimates***

Specific to Connecticut, the actuarial report conducted by Ingenix Consulting (IC) assumes the average annual cost of therapeutic services at \$600 per year for children with ASD. IC compared the impact of \$600 for therapeutic services by varying levels of insurance coverage for a family with an annual income of \$50,000. The family would pay 0.24 percent of their income under a 20 percent cost-sharing arrangement or 1.2 percent of their annual income if the insurance plan does not cover the service. Alternatively, an analysis of the national Medical Expenditures Panel Survey found that the top 10 percent of PT, ST and OT users incurred substantial therapy expenditures and also had far higher out-of-pocket expenses than children with lower utilization of specialized therapy. It may be realistic to assume that some of the ASD population falls within this top 10 percent of therapy users. The mean expenditure for the top 10 percent of therapy users was \$1,624, approximately 0.6 percent of a \$50,000 annual family income under a 20 percent cost share plan or 3.2 percent of a \$50,000 annual family income without coverage.<sup>347</sup>

### ***6. The level of public demand and the level of demand from providers for speech, occupational and physical therapy related to the treatment of ASDs.***

Demand for services, as shown through public hearing testimony, primarily highlights the need for insurance coverage for children with ASD rather than focusing specifically on the availability of services. National surveys reflect a high level of public demand for increased access to services among ASD families. The national professional organizations for speech, physical and occupational therapy all note the role of their respective profession in the treatment of ASDs.<sup>348, 349, 350</sup>

### ***7. The level of public demand and the level of demand from providers for insurance coverage for speech, occupational and physical therapy related to the treatment of ASDs.***

Provider and public demand for individuals with ASD receiving and having insurance coverage for physical, occupational and speech therapy is reflected in public hearing testimony for House Bill 5696 and its unanimous bipartisan approval during the 2008 legislative session. The Connecticut State Medical Society and an occupational therapist testified in support of the bill. The Connecticut State Medical Society supported the bill based on “the need to provide medically necessary treatments to those who need it most, and not excluding anyone because of ‘pre-existing conditions.’”<sup>351</sup> Further support came from the Office of Health Care Access, parents,<sup>352</sup> educators, social workers and members of the advocacy organizations Autism Speaks and Stamford Education4Autism. The OHCA considered the bill “a reasonable attempt to ensure coverage of therapies medically necessary for those with autism;” while parents and other providers noted that the bill could “provide relief to working families” and end insurer policies to “exclude people with known autism from coverage.”<sup>353</sup>

<sup>347</sup> Kuhlthau K, Hill K, Fluet C et al. 2008. Correlates of therapy use and expenditures in children in the United States. *Developmental Neurorehabilitation* 11(2): 115-23.

<sup>348</sup> American Occupational Therapy Association. Autism Fact Sheet. Available at: <http://www.aota.org/Practitioners/Resources/Docs/FactSheets/Children/38517.aspx>. Accessed September 27, 2010.

<sup>349</sup> American Speech-Hearing-Learning Association. Autism: benefits of speech-language pathology services. Available at: <http://www.asha.org/public/speech/disorders/autismSLPbenefits.htm>. Accessed September 27, 2010.

<sup>350</sup> American Physical Therapy Association. Treating Kids with Autism. Available at: <http://www.apta.org/AM/Template.cfm?Section=Home&TEMPLATE=/cm/htmldisplay.cfm&CONTENTID=53380>. Accessed September 27, 2010.

<sup>351</sup> Insurance and Real Estate Committee. Join Favorable Report HB-5696. March 25, 2008. Available at: <http://cga.ct.gov/2008/JFR/H/2008HB-05696-R00INS-JFR.htm>. Accessed September 27, 2010.

<sup>352</sup> Knall, S. Autism Speaks. Testimony to the Connecticut General Assembly. Available at: <http://www.cga.ct.gov/KID/Autism/testimony/Shannon%20Knall%20%20Autism%20Speaks.pdf>. Accessed September 27, 2010.

<sup>353</sup> Insurance and Real Estate Committee. Join Favorable Report HB-5696. March 25, 2008. Available at: <http://cga.ct.gov/2008/JFR/H/2008HB-05696-R00INS-JFR.htm>. Accessed September 27, 2010.

Testimonies in support of a more comprehensive bill raised in 2009, included 21 families each sharing about the “struggle trying to manage their child’s illness medically and financially.”<sup>354</sup> During this same hearing, the Connecticut Medical Society testified that “this bill addresses an issue regarding medical necessity. Insurance companies need to provide comprehensive coverage for autism spectrum disorders, and currently they have been unwilling to handle the routine costs of medically necessary treatments claiming that these individuals had ‘pre-existing conditions’ or any other exclusion, making this bill a necessity for families dealing with autism.”<sup>355</sup>

***8. The likelihood of achieving the objectives of meeting a consumer need as evidenced by the experience of other states.***

According to the National Conference of State Legislatures (NCSL), 35 states and the District of Columbia “have laws related to autism and insurance coverage.”<sup>356</sup> At least 23 states (Arizona, Colorado, Connecticut, Florida, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Massachusetts, Montana, Nevada, New Hampshire, New Jersey, New Mexico, Pennsylvania, South Carolina, Texas, Vermont and Wisconsin) specify that insurers must provide coverage for the treatment of autism while the remaining states may require limited coverage for autism under mental health coverage, parity or other laws.<sup>357</sup> Similar to Connecticut, 16 states specify that insurers cover ST, OT and PT or rehabilitative/habilitative services as treatments for ASD (The states with these mandates include Colorado, Florida, Illinois, Iowa, Kentucky, Louisiana, Maine, Massachusetts, Missouri, Montana, Nevada, New Hampshire, New Jersey, New Mexico, Texas, and Vermont).<sup>358-359</sup>

Among the states requiring insurers to provide coverage for the treatment of autism, specifications of coverage vary in terms of maximum benefits, age of eligibility and services covered.

***9. The relevant findings of state agencies or other appropriate public organizations relating to the social impact of the mandated health benefit.***

A number of states (Colorado, Maryland, Massachusetts, New Jersey, Virginia and Wisconsin), have published either prospective or retrospective mandated benefit reviews regarding the financial cost of the respective state mandate. However, no state agency or public organization reports on the social impact of ASD-related health insurance mandates were identified. States searched included those with a mandated benefit review requirement and those with an ASD-related health insurance mandate.

***10. The alternatives to meeting the identified need, including but not limited to, other treatments, methods or procedures.***

The background section provides an overview of approaches to minimize or manage symptoms and comorbidities related to ASDs. Since the manifestations of ASDs vary in breadth and severity across the diagnosed population, treatment is tailored to the individual’s specific needs. The ASD conditions most frequently treated include development of speech or language, the ability to carry out activities of daily living, social skills, motor skills and coordination. ST, OT, and PT therapy are the respective fields for

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<sup>354</sup> *Ibid.*

<sup>355</sup> *Ibid.*

<sup>356</sup> National Conference of State Legislatures. Insurance coverage for autism. Available at: <http://www.ncsl.org/?tabid=18246>. Accessed September 27, 2010.

<sup>357</sup> *Ibid.*

<sup>358</sup> Kaminski JL. Insurance coverage for autism. December 27, 2006. OLR Research Report. 2006-R-0793. Available at: <http://www.cga.ct.gov/2006/rpt/2006-R-0793.htm>. Accessed September 27, 2010.

<sup>359</sup> National Conference of State Legislatures. Insurance coverage for autism. Available at: <http://www.ncsl.org/?tabid=18246>. Accessed September 27, 2010.

addressing many common ASD concerns.

Additional approaches are also used. For example, applied behavior analysis (ABA) has been used to help facilitate skill development while diet modifications or nutrition supplements are recommended by some to address intolerances or imbalances. However, ABA, diet modifications, and other approaches are not considered substitutes but rather complementary to needed speech, occupational or physical therapy.

***11. Whether the benefit is a medical or broader social need and whether it is consistent with the role of health insurance and the concept of managed care.***<sup>360</sup>

It is possible to conceive of speech, occupational and physical therapy as meeting either a medical or broader social need when treating ASDs. Some insurers and managed care plans opt to provide speech, occupational and physical therapy as habilitative care, rather than restricting the therapy to rehabilitative purposes. Ultimately, whether the mandate is consistent with the concept of health insurance or managed care is defined largely by how a person conceptualizes medical care. Ascribing to the traditional, biomedical perspective of health care, habilitative services are not likely to be considered medical care. However, under the modern perspective of health care, habilitative services become an important component for medical care. These conflicting sentiments were echoed during the period preceding passage of the ASD mandate.

***12. The potential social implications of the coverage with respect to the direct or specific creation of a comparable mandated benefit for similar diseases, illnesses, or conditions.***

Pre-existing comparable mandates range from requiring coverage based on a certain medical condition (mental or nervous condition per CGS §§ 38a-488a and 38a-514), early intervention services offered under Birth-to-Three (CGS §§ 38a-490a and 38a-516a) and establishing occupational therapy as a treatment option in plans (§§ 38a-496 and 38a-524).<sup>361</sup> The ASD coverage mandate described in this report removes the ability of insurers to deny claims for ST, OT or PT based on a patient's ASD diagnosis under fully insured plans. The language of the mandate requires insurers to cover ST, OT and PT "to the extent such services are a covered benefit for other diseases and conditions under such policy" which is a clause similar to the OT mandate which requires each plan which provides "coverage for expenses incurred for physical therapy shall provide coverage for occupational therapy ... on an exchange basis." The ASD coverage mandate is also similar to the Birth-to-Three mandate which requires insurers to pay up to \$3,600 per year towards early intervention services for a medically and socially at risk population.

Both the ASD and Birth-to-Three mandate cover ST, OT and PT as a habilitative service. The possibility could exist to introduce future mandates that cover habilitative activities such as ST, OT and PT or there is a potential to expand to other potentially habilitative activities. During the subsequent legislative session, the Connecticut legislature passed a second health insurance mandate requiring coverage for a broader spectrum of services for children with ASDs. Similar to the Birth-to-Three mandate, the coverage specified the dollar amount that insurers would be required to reimburse up to for ASD related care.

***13. The impact of the benefit on the availability of other benefits currently offered.***

The size of the population eligible to use the mandated benefit is small compared to the fully insured population as a whole. The eligible population is small due to the low population prevalence of ASD in Connecticut, the number of children enrolled in public plans, and the number of children with self-funded or no insurance plans which are not subject to the mandate. The impact on the type of benefits currently

<sup>360</sup> Speechville. Speech-therapy for school aged children. Available at: <http://www.speechville.com/diagnosis-destinations/articulation-disorder/insurance-public-schools.html>. Accessed September 27, 2010.

<sup>361</sup> Connecticut General Assembly. Office of Legislative Research. 2009. sHB 5696. Available at: <http://cga.ct.gov/2008/BA/2008HB-05696-R000187-BA.htm>. Accessed September 27, 2010.

offered is expected to be minimal due to the lack of a significant change to PMPM medical claims and cost sharing when comparing 2009 to 2008 and 2007.<sup>362</sup>

**14. *The impact of the benefit as it relates to employers shifting to self-funded plans and the extent to which the benefit is currently being offered by employers with self-funded plans.***

The impact of the ST, OT, and PT coverage requirement for ASD may play a minimal role, if any, on employers shifting from fully insured to self-funded plans. The employer impact is expected to be minimal due to the lack of a significant change to PMPM medical claims and cost sharing when comparing 2009 to 2008 and 2007.

**15. *The impact of making the benefit applicable to the state employee health insurance or health benefits plan.***

The state employee health insurance/benefit plans were subject to the ASD therapies requirement from the mandate implementation date of January 1, 2009 up until July 1, 2010 when Connecticut transitioned from fully insured group plans to self-funded. As a self-funded group, the State of Connecticut is exempt from state health insurance mandates under the federal Employee Retirement Income Security Act (ERISA). Assuming Connecticut continues to cover the mandated benefits, the social impact of the benefit for the approximately 134,344 covered lives in state employee plans and 30,000 state retirees not enrolled in Medicare<sup>363</sup> is expected to be the same or similar to the social impact for persons covered in non-state employee health insurance plans as discussed throughout Section IV of this report. In terms of financial impact, if the state employee health insurance/benefit plans continue to provide coverage for the required benefit, the IC actuarial analysis estimates the medical cost to the state employee health insurance plan will total \$59,160 in 2010.<sup>364</sup> However, this amount reflects the total medical cost of providing ASD-related therapies rather than the amount of the medical costs attributable to the mandate. Claims data suggests that when compared to 2007 and 2008, no significant change in total medical costs PMPM was observed in 2009 when the ASD therapies mandate was implemented.

**16. *The extent to which credible scientific evidence published in peer-reviewed medical literature generally recognized by the relevant medical community determines the treatment, service or equipment, supplies or drugs, as applicable, to be safe and effective.***

The clinical report “Management of Children with Autism Spectrum Disorders” summarizes the scientific evidence available for treating children with ASDs.<sup>365</sup> The AAP concludes that “a variety of [speech and language therapy] approaches have been reported to be effective in producing gains in communication skills in children with ASDs.” For occupational therapy and sensory integration therapy, the AAP concludes that research regarding the efficacy of both OT and sensory integration therapy for the treatment of individuals with ASDs is lacking. The AAP further states that, “people with ASDs have deficits in social communication, and treatment by a speech-language pathologist usually is appropriate. Most children

<sup>362</sup> Ingenix Consulting. Actuarial Report for the State of Connecticut on Set Two of the Health Insurance Mandates Covered by Public Act Number 09-179. December 10, 2010. Located in Appendix II.

<sup>363</sup> Personal communication. Scott Anderson, State of Connecticut Comptroller’s Office. September 14, 2010.

<sup>364</sup> Ingenix Consulting. Actuarial Report for the State of Connecticut on Set Two of the Health Insurance Mandates Covered by Public Act Number 09-179. December 10, 2010. Located in Appendix II. This estimate has been calculated by multiplying the 2010 PMPM medical cost in table 1.3A by 12 to get an annual cost per insured life, and then multiplying that product by 163,334 covered lives, as reported by the State Comptroller’s office. This estimate is calculated using weighted averages for all claims paid by Connecticut-domiciled insurers and health maintenance organizations in the State. The actual cost of this mandate to the State plans may be higher or lower, based on the actual benefit design of the State plans and the demographics of the covered lives (e.g., level of cost-sharing, average age of members, etc.). Retention costs are not included in this estimate because the State is now self-funded and the traditional elements of retention do not apply. State costs for administration of this mandated benefit would be in addition to the above amount.

<sup>365</sup> Myers SM, Johnson CP. 2007. Management of children with autism spectrum disorders. *Pediatrics* 120(5): 1162-82.

with ASDs can usually develop useful speech, and chronologic age, lack of typical prerequisite skills, failure to benefit from previous language intervention and lack of discrepancy between language and IQ scores should not exclude a child from receiving speech-language services.” With regard to OT, the AAP notes that traditional occupational therapy is provided to promote the development of self-care skills, academic skills and play skills and also plays a role in modifying materials and routines to improve the ability of a patient to carry out daily activities.<sup>366</sup> Neither speech, occupational nor physical therapy is considered to be an unsafe intervention.

## V. Financial Impact

### ***1. The extent to which the mandated health benefit may increase or decrease the cost of the treatment, service or equipment, supplies or drugs, as applicable, over the next five years.***

The mandate is not expected to materially alter the availability of ST, OT and PT for treatment of ASDs over the next five years. Relative to 2007 and 2008, for the first year of the mandate (2009) no significant changes in PMPM cost were observed for ASD-related claims. This may be a result of the applicability of the mandate to a relatively small proportion of the fully insured population. In addition, the impact of the mandate on cost may also be constrained by the legislative caveat that coverage for ASD-related ST, OT, and PT exist “to the extent such services are a covered benefit for other diseases and conditions under such policy.” Generally speaking, many policies cover these therapies for other conditions but with utilization management requirements such as cost-sharing, limits to the number of allowed visits, documentation of improvement and refusal for covering “education” related services.

The cost of the PT, OT and ST is likely to increase (or decrease) at the same rate as any other medical service. It is also possible that the unit cost of services may increase due to increased demand for PT,<sup>367</sup> OT<sup>368</sup> and ST from the growing aging population and potential provider shortages. The trend of increasing prevalence of ASD in the child population may also lead to an increase in demand for therapeutic services.

### ***2. The extent to which the mandated health benefit may increase the appropriate or inappropriate use of the treatment, service or equipment, supplies or drugs, as applicable, over the next five years.***

Under the mandate, use of PT, OT and ST for the treatment of ASD would likely increase within the segment of the fully insured population with ASD if the plan previously denied coverage based on an ASD diagnosis. However, to the extent that utilization of PT, OT and ST was limited by maximum visit, cost sharing, or other utilization management strategies, appropriate use of the therapies may not occur for the ASD population. Data available for this analysis show mixed results. An analysis of Ingenix Consulting data reflected increases of rehabilitative services among the fully insured ASD population whereas the analysis of Connecticut-domiciled carrier claims data submitted to CPHHP did not reflect a significant difference in utilization (See Appendix II, page 23). For those who use out-of-pocket funds to cover service or get them from other sources such as Medicaid, a mandated benefit may not increase appropriate use.

### ***3. The extent to which the mandated health benefit may serve as an alternative for more expensive or less expensive treatment, service or equipment, supplies or drugs, as applicable.***

Physical therapy, occupational therapy and speech therapy are prescribed selectively for habilitation

<sup>366</sup> *Ibid.*

<sup>367</sup> Bureau of Labor and Statistics. Occupational Outlook Handbook 2010. Physical Therapists. Available at <http://www.bls.gov/oco/ocos080.htm>.

<sup>368</sup> Bureau of Labor and Statistics. Occupational Outlook Handbook 2010. Occupational Therapists. Available at <http://www.bls.gov/oco/ocos078.htm>.



or rehabilitation of specific functions such as gross motor skills, language use or ability to adapt to the environment. As noted in the background section, a variety of other treatment methods exist for individuals with an ASD. These measures may include applied behavior analysis (ABA), dietary interventions or medications. In general, ABA is regarded as much more expensive, whereas dietary interventions and medications may be less expensive. However, neither policy statements from medical professional organizations nor the medical literature appear to indicate that one treatment approach should be substituted for another. Instead, policy statements appear to support a team approach where different treatments are integrated as needed to address the medical and social needs of an individual diagnosed with an ASD.

#### ***4. The methods that will be implemented to manage the utilization and costs of the mandated health benefit.***

Statutory language and related health mandates influence how utilization and costs of the mandated health benefit can be managed. As noted by a legislator following the passage of the bill, “We tried to incorporate what was already in place in the [existing health insurance] plans.”<sup>369</sup> Specifically, the language of the statutes requires coverage “to the extent such services are a covered benefit for other diseases and conditions under such policy.”<sup>370,371</sup> Additional language influencing the strategies for managing utilization and cost include the Connecticut’s occupational therapy mandate which requires insurers who offer physical therapy to cover “on an exchange basis” expenses incurred for OT.<sup>372</sup> In addition, the Birth-to-Three mandate requires insurers to cover up to \$3,600 per year for enrolled children or \$9,600 for three years.

Since statutory language allows insurers and MCOs to maintain the same utilization and cost control methods used prior to the mandate, it is expected that the same methods continued following implementation of the new mandate. As noted in a national review of health plans, the provision of speech, occupational and physical therapy often requires adequate progress, co-pays, and benefit limits.<sup>373</sup>

#### ***5. The extent to which insurance coverage for the treatment, service or equipment, supplies or drugs, as applicable, may be reasonably expected to increase or decrease the insurance premiums and administrative expenses for policyholders.***

In the 2009 claims data received from Connecticut-domiciled carriers, no significant change in PMPM premiums was observed (relative to the two years prior to the mandate).

The therapy cost estimates presented below do not capture the increase in cost attributable to the mandate (which was not significant) but rather the cost of providing the service. Insurance premiums include medical cost and retention costs. Retention costs include administrative cost and profit (for for-profit carriers) or contribution to surplus (for not-for-profit carriers). Utilization of ST, OT and PT to treat ASD accounts for, on average, an estimated \$0.04 PMPM for group plans and less than \$0.01 PMPM for individual health plan premiums in 2010. For fully insured group policyholders, the average paid medical claims account for \$0.03 PMPM while retention (administrative costs and profit) accounts for \$0.01 PMPM.<sup>374</sup> This cost estimate does not include any savings for potential medical costs avoided, but only estimates the cost of PT, OT and ST for individuals with an ASD.

<sup>369</sup> Kaminski JL. Insurance coverage for autism. July 31, 2008. OLR Research Report. 2008-R-0427. Available at: <http://www.cga.ct.gov/2008/rpt/2008-R-0427.htm>. Accessed September 27, 2010.

<sup>370</sup> Connecticut General Assembly. Public Act 08-132.

<sup>371</sup> Connecticut General Statutes. Revised January 1, 2010. §38a-514b and §38a-488b.

<sup>372</sup> Connecticut General Statutes. Revised January 1, 2010. Section 700, §38a-496 and §38a-524.

<sup>373</sup> Fox HB, McManus MA, Reichman MB. 2002. The strengths and weaknesses of private health insurance coverage for children with special health care needs. U.S. Department of Health and Human Services Administration Maternal and Child Health Bureau. Washington, DC.

<sup>374</sup> Ingenix Consulting. Actuarial Report for the State of Connecticut on Set Two of the Health Insurance Mandates Covered by Public Act Number 09-179. December 10, 2010. p.6 (Located in Appendix II).

**6. *The extent to which the treatment, service or equipment, supplies or drugs, as applicable, is more or less expensive than an existing treatment, service or equipment, supplies or drugs, as applicable, that is determined to be equally safe and effective by credible scientific evidence published in peer-reviewed medical literature generally recognized by the relevant medical community.***

As discussed under Section V-3, guidelines for the treatment tend to advocate for an interdisciplinary team approach which may incorporate a variety of treatments. Substitution of one treatment for another is not necessarily appropriate. Comparing costs of specific treatments, ABA is regarded as much more expensive than PT, OT, or ST whereas dietary interventions and medications may be less expensive.

**7. *The impact of insurance coverage for physical, occupational and speech therapy for autism spectrum disorders on the total cost of health care, including potential benefits or savings to insurers and employers resulting from prevention or early detection of disease or illness related to such coverage.***

Holding the mandate language and population constant, the projected 2010 cost of covering PT, OT and ST for the ASD population is \$585,264 of which \$441,972 is paid in medical claims and \$143,292 is paid by the insured as cost-sharing. However, based on a comparison of pre-mandate and post-mandate data, the mandate does not significantly change PMPM premiums (relative to the premiums in the two years prior to the mandate). Therefore, \$585,264 may better reflect the cost of providing the specified therapeutic services to those with an ASD regardless of whether or not a mandate is in place.

Although it is expected that the mandate implemented in 2009 has minimal costs, following revision of the statute, the mandate covers behavioral therapy as of January 2010. Since behavioral therapy is more expensive per unit than PT, OT and ST combined and is a therapy often excluded from coverage plans, the cost burden for carriers and employers is expected to increase.

The total health cost estimates (above) do not include any potential benefits or savings that may result from functionality improvements that may occur as a result of PT, OT or ST. Although some savings may be expected, it is difficult to accurately estimate the cost of averted illnesses or conditions.

**8. *The impact of the mandated health care benefit on the cost of health care for small employers, as defined in section 38a-564 of the general statutes, and for employers other than small employers.***

Ingenix Consulting estimates that on average, the total premium paid for ASD-related PT, OT, and ST is less than 0.1 percent (\$0.04) of the average premium paid for group health insurance plans. Based on 2009 carrier claims data, the change in premium after the mandate went into effect is not significantly different than PMPM costs for the same type of care during the two years prior to the mandate. Therefore, it appears reasonable to expect that the impact of the ASD mandate implemented in 2009 was minimal regardless of employer size.

Although the net new cost is not significant, generally, the impact of changes to health costs may vary based on employer size. Small employers typically purchase lower cost, leaner benefit plans than large employers and employees tend to pay a larger share of the premium when members of small group benefit plans. Since the overall cost for small group plans tends to be lower than large group plans, as a percentage of total paid medical cost, the cost of this mandate will be somewhat greater for small employers. Regardless of size, strategies for offsetting health insurance premium costs include increasing cost-sharing, reducing the number of non-mandated benefits covered or no longer offering health insurance plans. In turn, plan participants may opt to drop coverage if their cost burden is too great.

***9. The impact of the mandated health benefit on cost-shifting between private and public payers of health care coverage and on the overall cost of the health care delivery system in the state.***

The overall cost of the health delivery system in the state is understood to include total insurance premiums (medical costs and retention) and cost sharing. The projection for the overall cost to the health care delivery system for the coverage of ASD-related PT, OT and ST for the fully insured population is \$673,912 of which \$441,972 is attributed to medical claims, \$143,292 to cost sharing, and \$88,648 to retention. Of the overall spending, over 21 percent is paid for out-of-pocket. As mentioned throughout the document, this amount captures the aggregate amount of PT, OT and ST services for the fully insured ASD population. The amount presented is not the direct impact of the mandated health benefit on cost. Based on claims data, it is expected that the impact of the mandate on cost is not significant.

The provision for fully insured plans to cover the mandated benefit may or may not result in a shift of costs between the private and public payers of health care. Cost-shifting between private and public payers of health care coverage generally occurs when formerly privately insured persons, after enrolling in a public program or becoming un- or underinsured, require and are provided health care services. Most persons formerly covered under private payers lose such coverage due to a change in employer, change in employment status, or when private payers discontinue offering health care coverage as an employee benefit or require employee contributions to premiums that are not affordable. Conversely, if PT, OT and ST obtained through private insurance plans replace visits that would otherwise be covered by public dollars, then a shift in cost to the private sector would occur. In the case of PT, OT and ST to treat ASDs, public schools often provide therapy services free of cost to the child as required by the federal Individuals with Disabilities Education Act (IDEA). However, to the extent that PT, OT and ST visits offered under private plans are additive to those offered through public funds (i.e.: public education system) or were covered prior to the benefit being mandated, a shift in cost between sectors is not occurring. Since the comparison of medical costs PMPM did not differ in 2009 (post-mandate) relative to 2007 and 2008 (pre-mandate), cost-shifting between sectors is unlikely to have taken place.



## **Volume II**

### **Chapter 7**

#### **Coverage for Newborn Infants in Health Insurance Policies**

Review and Evaluation of Connecticut Statute

Chapter 700, §§ 38a-516 and 38a-490

Mandatory Coverage for Newborn Infants

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## I. Overview

The Connecticut General Assembly directed the Connecticut Insurance Department to review the health benefits required by Connecticut law to be included in group and individual health insurance policies as of July 1, 2009. The review was conducted following the requirements stipulated under Public Act 09-179. Reviews of required health insurance benefits are a collaborative effort of Connecticut Insurance Department and the University of Connecticut Center for Public Health and Health Policy.

Connecticut General Statutes, §§ 38a-516 and 38a-490 state that each group or individual health insurance policy that provides coverage for a family member of an insured or subscriber shall provide coverage for newborn children for a minimum of 31 days and shall continue coverage for such child if notification of the birth is given and premium is paid within the 31 day period.

Specifically, § 38a-516 provides that:

(a) Each group health insurance policy providing coverage of the type specified in subdivisions (1), (2), (4), (6), (11) and (12) of § 38a-469 for a family member of the insured or subscriber shall also provide as to such family members' coverage, that the health insurance benefits applicable for children shall be payable with respect to a newly born child of the insured or subscriber from the moment of birth.

(b) Coverage for such newly born child shall consist of coverage for injury and sickness including necessary care and treatment of medically diagnosed congenital defects and birth abnormalities within the limits of the policy.

(c) If payment of a specific premium fee is required to provide coverage for a child, the policy may require that notification of birth of such newly born child and payment of the required premium or fees shall be furnished to the insurer, hospital or medical service corporation or health care center within thirty-one days after the date of birth in order to continue coverage beyond such thirty-one-day period, provided failure to furnish such notice or pay such premium shall not prejudice any claim originating within such thirty-one-day period.

(d) The provisions of this section shall apply with respect to health insurance policies delivered or issued for delivery in this state on or after October 1, 1974, and to any health insurance policies which are thereafter amended to substantially alter or change benefits or coverages.

(P.A. 90-243, S. 100.)

§ 38a-490 mandates the same coverage in individual health insurance policies delivered, issued for delivery or renewed in Connecticut.

In March 2010, the University of Connecticut Center for Public Health and Health Policy (CPHHP) and Ingenix Consulting (IC) requested and received 2007 and 2008 claims data related to the mandated benefit from six insurers and managed care organizations (MCOs) domiciled in Connecticut that cover approximately 90 percent of the population in fully insured group and individual health insurance plans in Connecticut (1.25 million persons). Based on that claims data, a review of the legislative history, reviews of pertinent literature and the Ingenix Consulting report, this review found the following:

### *Current coverage*

This mandate has been in effect since 1974 (P.A. 74-6, P.A. 90-243).

### *Premium impact*

**Group plans:** On a 2010 basis, the medical cost of this mandate is estimated to be \$4.96 PMPM. Estimated total cost to insurers (insurance premium, administrative fees, and profit) of the mandated services on a 2010 basis in group plans is \$5.95 PMPM, which is approximately 1.7 percent of estimated total premium costs in group plans. Estimated cost sharing on a 2010 basis in group plans is \$0.13 PMPM.

**Individual policies:** Four of the six insurers/MCOs provided claims data for individual health insurance policies. On a 2010 basis, medical cost is estimated to be \$3.96 PMPM. Estimated total cost (insurance premium, administrative fees, and profit) of the mandated services in 2010 in individual policies is \$5.14 PMPM, which is 1.9 percent of estimated total premiums in individual policies. Estimated cost sharing on a 2010 basis in individual policies is \$0.17 PMPM. Individual policies data is less credible than group plans data primarily due to small sample size.

### *Self-insured plans*

Information received from five insurers/MCOs domiciled in Connecticut representing an estimated 47 percent of the total self-funded population in Connecticut shows that 89 percent of members in self-funded plans have coverage for this benefit.

This report is intended to be read in conjunction with the General Introduction to this volume and the Ingenix Consulting Actuarial and Economic Report which is included as Appendix II.

## **II. Background**

The health care needs of newborns can be divided into four broad categories: 1) the normal postpartum care of a healthy infant, 2) neonatal and specialized care for sick, pre-term, low birth weight (LBW) or infants with birth defects, 3) screenings for a number of conditions, and 4) readmissions or treatment of infections, injuries or conditions such as jaundice and congenital disorders. All of these service categories are covered by this mandate.

The Connecticut Department of Public Health (DPH) reported that there were 40,930 births in Connecticut in 2008.<sup>375</sup> About 10.7 percent of Connecticut's newborns are born prematurely, with a gestational age of less than 37 weeks.<sup>376</sup> Additionally, 3825 low or very low birth weight babies (<1000 grams) were born in Connecticut in 2008.<sup>377</sup>

According to the Centers for Disease Control and Prevention (CDC), about 120,000 babies (one in 33) in the United States are born each year with birth defects.<sup>378</sup> In a report on the expanded health data from 19 states<sup>379</sup> which had implemented the 2003 revision of the U.S. standard Certificate of Live Birth, the

<sup>375</sup> Connecticut Department of Public Health. 2010. Vital Statistics. Available at: [http://www.ct.gov/dph/cwp/view.asp?a=3132&q=394598&dphNav\\_GID=1601&dphPNavCtr=#46987](http://www.ct.gov/dph/cwp/view.asp?a=3132&q=394598&dphNav_GID=1601&dphPNavCtr=#46987). Accessed on: Nov. 10, 2010.

<sup>376</sup> CDC Wonder. Vital Statistics. Available at: <http://wonder.cdc.gov/controller/datarequest/D27;jsessionid=EC2A3AD075731D225F7AD8D89A4B759E>. Accessed on November 10, 2010.

<sup>377</sup> Connecticut Department of Public Health. 2010. Vital Statistics. Available at: [http://www.ct.gov/dph/cwp/view.asp?a=3132&q=394598&dphNav\\_GID=1601&dphPNavCtr=#46987](http://www.ct.gov/dph/cwp/view.asp?a=3132&q=394598&dphNav_GID=1601&dphPNavCtr=#46987). Accessed on November 10, 2010.

<sup>378</sup> US Department of Health and Human Services, Centers for Disease Control and Prevention. 2010. Birth Defects. Available at: <http://www.cdc.gov/ncbddd/bd/default.htm>. Accessed on December 22, 2010.

<sup>379</sup> The states include: California, Delaware, Florida, Idaho, Kansas, Kentucky, Nebraska, New Hampshire, New York (excluding New York City), North Dakota, Ohio, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Vermont, Washington and Wyoming.



National Center for Health Statistics found that 6 percent of all infants in those states were admitted to the neonatal intensive care unit (NICU).<sup>380</sup>

Premature birth, low birth weight, and presence of birth defects are all predictors of high medical need immediately after birth. If the parent(s) of the newborn already have family insurance coverage, either through employment or individually, the newborn is covered immediately for the expenses associated with any birth condition. If the parents themselves have no insurance or are covered only for themselves (self or self-plus-one coverage) at the time of the child's birth, conditions present at birth could be considered to be pre-existing conditions if they then seek to enroll the child in an insurance plan after it is born.

The Institutes of Medicine, in its 2009 report entitled "*America's Uninsured Crisis: Consequences for Health and Health Care*," evaluated changes in children's health status before and after their enrollment in Medicaid and SCHIP programs. It found that children benefit considerably from health insurance. It gives them a usual source of medical care, access to immunizations and well-child care, monitoring of developmental milestones, prescriptions medications and basic dental services. It results in fewer hospitalizations and missed days from school.<sup>381</sup>

The Health Insurance Portability and Accountability Act of 1996 (HIPAA), P.L. 104-191, considers the birth of a child to be a "life event" which entitles the child to a special enrollment opportunity.<sup>382</sup> Under special enrollment, newborns may be enrolled in employer group insurance plans without regard to open enrollment periods or penalties for late enrollment. In addition, a newborn cannot have a pre-existing condition exclusion, as long as the child is enrolled in health coverage within 30 days of the event, without a subsequent significant break in coverage (63 days or more). The parent must request special enrollment within the 30-day limit. When a parent makes a timely request for special enrollment as a result of a birth, coverage begins no later than the day of the birth. HIPAA applies to all employer-based health plans, whether fully insured or self-funded. It does not apply to individually purchased health insurance policies.

### III. Methods

CPHHP staff consulted with medical librarians at the Lyman Maynard Stowe Library at the University of Connecticut Health Center (UCHC). Medical librarians conducted literature searches under search terms including newborn, neonatal, health insurance, uninsured, costs and cost analysis.

Types of studies considered for inclusion included clinical trials, meta-analysis, randomized controlled trials, evaluation studies, multicenter studies, and technical reports published from 2000-2010. More information was supplemented from available texts, government reports, and non-profit organization reports.

Resources searched include:

- PubMed
- Google.com
- Agency for Health Care Research and Quality Medical Expenditure Panel Survey (MEPS)
- U.S. Census Current Population Survey

<sup>380</sup> US Department of Health and Human Services, National Center for Health Statistics. 2009. National Vital Statistics Reports: Expanded Health Data From the New Birth Certificate, 2006. p.1.

<sup>381</sup> Institutes of Medicine. 2009. *America's Uninsured Crisis: Consequences for Health and Health Care*. National Academies Press. P. 8. Available at: [http://books.nap.edu/openbook.php?record\\_id=12511&page=1](http://books.nap.edu/openbook.php?record_id=12511&page=1). Accessed on December 22, 2010.

<sup>382</sup> US Department of Labor. 2010. FAQs About Portability Of Health Coverage And HIPAA. Available at: [http://www.dol.gov/ebsa/faqs/faq\\_consumer\\_hipaa.html](http://www.dol.gov/ebsa/faqs/faq_consumer_hipaa.html). Accessed on December 22, 2010.

([http://www.census.gov/hhes/www/cpstc/cps\\_table\\_creator.html](http://www.census.gov/hhes/www/cpstc/cps_table_creator.html))

- PsycInfo
- Scopus
- UptoDate
- Cochrane Reviews
- UCHC Library's LYMAN catalog
- Center for Disease Control (Vital Statistics) ([wonder.cdc.gov](http://wonder.cdc.gov))
- Connecticut General Assembly Archives ([cga.ct.gov](http://cga.ct.gov))
- Prostate Cancer Foundation <http://www.pcf>.
- Council for Affordable Health Insurance ([http://www.cahi.org/cahi\\_contents/resources/](http://www.cahi.org/cahi_contents/resources/))

CPHHP staff conducted independent literature searches using the Cochrane Review, Pubmed, Google, and Google Scholar using similar search terms used by the UCHC medical librarians. Where available, articles published in peer-reviewed journals are cited to support the analysis. Other sources of information may also be cited in the absence of peer-reviewed journal articles. Content from such sources may or may not be based on scientific evidence.

CPHHP staff consulted with clinical faculty and staff from the University of Connecticut School of Medicine and University of Connecticut School of Pharmacy on matters pertaining to medical standards of care, current and traditional practices, and evidence-based medicine related to the benefit. Additionally, staff may have consulted practitioners in the community for additional and specialized information.

Staff gathered additional information through telephone and e-mail inquiries to appropriate state, federal, municipal, and non-profit entities and from internet sources such as the State of Connecticut website, Centers for Medicare and Medicaid Services (CMS) website, other states' websites, and non-profit and community-based organization websites.

With the assistance of the Connecticut Insurance Department (CID), CPHHP and Ingenix Consulting requested and received 2007 and 2008 claims data from insurance companies and MCOs domiciled in Connecticut. Six insurers/MCOs provided claims data for their fully insured group and individual plan participants. Five insurers/MCOs also provided information about coverage for newborn infants in the self-funded plans they administer.

CPHHP and the CID contracted with Ingenix Consulting (IC) to provide actuarial and economic analyses of the mandated benefit. Further details regarding the insurer/MCO claims data and actuarial methods used to estimate the cost of the benefit and economic methods used to estimate financial burden may be found in Appendix II.

## IV. Social Impact

### ***1. The extent to which the treatment, service or equipment, supplies or drugs, as applicable, is utilized by a significant portion of the population.***

The Connecticut Department of Public Health reported 40,930 births in Connecticut in 2008.<sup>383</sup> Based on 2010 survey data, the Census reports there are 682,430 women ages of 15-44 in Connecticut. Of these,

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<sup>383</sup> Connecticut Department of Public Health. 2010. Vital Statistics. Available at: [http://www.ct.gov/dph/cwp/view.asp?a=3132&q=394598&dphNav\\_GID=1601&dphPNavCtr=#46987](http://www.ct.gov/dph/cwp/view.asp?a=3132&q=394598&dphNav_GID=1601&dphPNavCtr=#46987). Accessed on: Nov. 10, 2010.

about 506,706 have private health insurance.<sup>384</sup> These individuals represent the portion of the population most likely to utilize the services specified by this mandate based on current recommendations. The CDC estimates a fertility rate of 58.8 births per 1000 women ages 15-44.<sup>385</sup> Women who have family coverage that does not limit the number of dependents (i.e., one or more dependents) would have their newborns automatically covered by their current insurance. Based on the Medical Expenditure Panel Survey (MEPS) about 68 percent of employees who insure through their workplace have either single or single-plus-one insurance. It is unknown how many women of child-bearing age are in this group, but this mandate would affect women with these types of health insurance.

The health care needs of newborns can be divided into four broad categories: 1) the normal postpartum care of a healthy infant, 2) neonatal and specialized care for sick, pre-term, low birth weight (LBW) infants or infants with birth defects, 3) screenings for a number of conditions, and 4) readmissions or treatment of infections, injuries or conditions such as jaundice and congenital disorders. All of these service categories are covered by this mandate.

***2. The extent to which the treatment, service or equipment, supplies or drugs, as applicable, is available to the population, including, but not limited to, coverage under Medicare, or through public programs administered by charities, public schools, the Department of Public Health, municipal health departments or health districts or the Department of Social Services.***

### ***Medicaid***

Medicaid covers “medically necessary inpatient stays including maternity and newborn care.”<sup>386</sup> Medicaid also provides presumptive eligibility for children and a facilitated enrollment process for uninsured newborns through the hospital where the child is born.<sup>387, 388</sup>

### ***Public Programs Administered by Charities***

None were found that provide insurance for newborns.

### ***The Department of Public Health (DPH)***

The DPH monitors birth defects through the Connecticut Birth Defects Registry (CTBDR), a passive surveillance system developed to collect information about birth defects that occur among state residents. The mission of the CTBDR is to: (1) maintain statewide surveillance through collecting information on birth defects in Connecticut; (2) monitor trends and patterns in birth defects; (3) conduct analyses to identify risk factors for birth defects; and (4) promote education activities for the prevention of birth defects.<sup>389</sup>

Pursuant to CGSA § 19a-55, the Connecticut Department of Public Health administers the Newborn Screening Program.<sup>390</sup> This program requires institutions providing care to newborns less than 28 days old

<sup>384</sup> US Census Bureau. Current Population Survey. Available at: [http://www.census.gov/hhes/www/cpstc/cps\\_table\\_creator.html](http://www.census.gov/hhes/www/cpstc/cps_table_creator.html). Accessed on Sept. 1, 2010.

<sup>385</sup> CDC Wonder. Vital Statistics. Available at: <http://wonder.cdc.gov/controller/datarequest/D27;jsessionid=EC2A3AD075731D225F7AD8D89A4B759E>. Accessed on Nov. 10, 2010.

<sup>386</sup> Connecticut Department of Social Services, Medical Care Administration. 2010. Connecticut Medicaid Summary of Services. P. 7. Available at: <http://www.ct.gov/dss/lib/dss/pdfs/medicaidservicesv3kk.pdf>. Accessed June 6, 2010.

<sup>387</sup> CGSA § 17b-292(f).

<sup>388</sup> State of Connecticut. Governor’s letter to parents of newborns. Available at: <http://www.ct.gov/hh/lib/hh/pdf/letternewbornsenglish.pdf>. Accessed on December 21, 2010.

<sup>389</sup> Connecticut Department of Public Health. 2008. January if Birth Defect Prevention Month. Available at: <http://www.ct.gov/dph/cwp/view.asp?A=3294&Q=401926>. Accessed on December 22, 2010.

<sup>390</sup> Connecticut Department of Public Health. 2010. Newborn Screening Program. Available at: [http://www.ct.gov/dph/cwp/view.asp?a=3138&q=387742&dphNav\\_GID=1601&dphPNavCtr=|47013|#47017](http://www.ct.gov/dph/cwp/view.asp?a=3138&q=387742&dphNav_GID=1601&dphPNavCtr=|47013|#47017). Accessed on December 22, 2010.

to provide a blood sample for screening for metabolic disorders. Abnormal results are reported to the DPH Tracking Unit who reports the results to the primary care providers and assures referrals are made to the State funded Regional Treatment Centers.

No programs were found to insure newborns through the Connecticut Department of Public Health.

### ***Municipal Health Departments***

No programs were found to insure newborns through the municipal health departments.

#### ***3. The extent to which insurance coverage is already available for the treatment, service or equipment, supplies or drugs, as applicable.***

Connecticut General Statutes, §§ 38a-516 and 38a-490 require fully insured private insurance to cover newborn health care for the first 31 days of life, provided that members enroll their newborn within that time frame. This mandate has been in effect since Jan. 1, 1974 for individual policies and since 1990 for group policies. As such, fully insured private health insurance plans must cover newborn health care.

Connecticut's public insurance programs also cover newborn care.

Connecticut hospitals, especially tertiary care centers, are likely to treat urgent newborn needs even if the care is largely uncompensated.<sup>391</sup> Hospitals may provide additional staff such as social workers to help families with insurance and payment issues.

In addition, the Health Insurance Portability and Accountability Act of 1996 (HIPAA), a federal law, provides that the birth of a child is considered to be a "special enrollment" event. Special enrollment allows individuals who previously declined health coverage to enroll for coverage. Special enrollment rights arise regardless of a plan's open enrollment period. The employee must request enrollment in the insurance plan within 30 days of the birth of the child. Pre-existing condition exclusions do not apply to a newborn child who is enrolled during that 30-day period, provided there is not a subsequent significant break in coverage of sixty-three days or more.<sup>392</sup>

#### ***4. If the coverage is not generally available, the extent to which such lack of coverage results in persons being unable to obtain necessary health care treatment.***

Many newborn health care needs are urgent in nature. Common practice in these cases is to provide care first and worry about payment later. Services are generally available to low-income families through free or low-cost clinics in cases where care is less urgent, such as routine newborn post-partum needs. Federal regulations supplement the Connecticut mandate for those with employers who offer insurance, allowing for the timely purchase of health insurance.

#### ***5. If the coverage is not generally available, the extent to which such a lack of coverage results in unreasonable financial hardships on those persons needing treatment.***

The cost of intensive care for very sick newborns can run into the hundreds of thousands of dollars. For families without insurance to cover these services, the burden can be substantial<sup>393</sup>

#### ***6. The level of public demand and the level of demand from providers for the treatment, service or equipment, supplies or drugs, as applicable.***

<sup>391</sup> Personal Communication. Naveed Hussein, MD, University of Connecticut Health Center, July 2010.

<sup>392</sup> US Department of Labor. 2010. FAQs About Portability Of Health Coverage And HIPAA. Available at: [http://www.dol.gov/ebsa/faqs/faq\\_consumer\\_hipaa.html](http://www.dol.gov/ebsa/faqs/faq_consumer_hipaa.html). Accessed on December 22, 2010.

<sup>393</sup> Ingenix Consulting report, Appendix II, page 46.

The Connecticut Department of Public Health reported 40,930 births in Connecticut in 2008. Based on 2010 survey data, the Census reports there are 682,430 women ages of 15-44 in Connecticut. Of these, about 506,706 have private health insurance.<sup>394</sup> About 74 percent of these mothers likely have private health insurance. They may or may not need to extend their insurance to cover their newborn depending on what level of insurance they currently have.

In their first 31 days, healthy newborns require routine postpartum care, including important health screenings. Premature newborns, gestational age less than 37 weeks at birth, will often need specialized care immediately after birth. About 10.7 percent of Connecticut’s newborns fall into this category.<sup>395</sup> Additionally, 3,825 low or very low birth weight babies (<1000 grams) were born in Connecticut in 2008.<sup>396</sup> These newborns will need extensive and specialized neonatal care. A Connecticut hospital reported neonates stay an average of 22 days in the NICU unit.<sup>397</sup> Newborns begin at the highest level of care; often with one specially trained nurse per baby and are stepped down to lower levels of care as soon as possible. Birth defects affect 3 percent of newborns. Many of these newborns will require specialized health care in the first 31 days of their lives.<sup>398</sup>

As the table shows below, not all newborns born in Connecticut are at equal risk for complications. An infant’s race or the economic circumstances of its mother can put the infant at increased risk for low birth weight (BWT) babies or inadequate prenatal care. Black non-hispanic children are three times more likely to be born at very low birth weights than white non-hispanic children. Hispanic and black non-hispanic mothers are 1½ times more likely to receive inadequate care prenatal care than other races. These differences reflect deep socioeconomic divides in Connecticut.

Ethnicity	Total Births	Very Low birth weight	Low birth weight	Late or No Prenatal Care	Non-Adequate Prenatal Care (APNCU Index)
	Number	Percent	Percent	Percent	Percent
White, non-Hispanic	23,411	1.1	6.6	8.1	16.5
Black, non-Hispanic	5,019	3.3	13.6	19.8	27.4
Other, non-Hispanic	2,810	1.7	9.1	12.7	19.7
Hispanic	8,662	1.5	8.2	19.9	27.2
Unknown Race/ Ethnicity	486	-	7.1	11.5	16.9

Other risk factors include psychosocial factors such as tobacco, alcohol or drug use. The health of the mother plays an important role in newborn needs. Older mothers are more likely to have complications at birth. The social trend toward delaying child-bearing is increasing the number of at-risk newborns. Teenage

<sup>394</sup> US Census Bureau. Current Population Survey. Available at: [http://www.census.gov/hhes/www/cpstc/cps\\_table\\_creator.html](http://www.census.gov/hhes/www/cpstc/cps_table_creator.html). Accessed on Sept. 1, 2010.

<sup>395</sup> CDC Wonder. Vital Statistics. Available at: <http://wonder.cdc.gov/controller/datarequest/D27;jsessionid=EC2A3AD075731D225F7AD8D89A4B759E>. Accessed on November 10, 2010.

<sup>396</sup> Connecticut Department of Public Health. 2010. Vital Statistics. Accessible at: [http://www.ct.gov/dph/cwp/view.asp?a=3132&q=394598&dphNav\\_GID=1601&dphPNavCtr=|46987](http://www.ct.gov/dph/cwp/view.asp?a=3132&q=394598&dphNav_GID=1601&dphPNavCtr=|46987). Accessed on November 10, 2010.

<sup>397</sup> Personal Communication. 2010 with Naveed Hussein at the University of Connecticut (July 2010).

<sup>398</sup> Institute of Medicine 2007. Preterm Birth: Causes, Consequences, and Prevention. Washington (DC): National Academies Press.

mothers are also at risk for low birth weight babies. Other maternal health conditions affecting the health of the newborn include: high blood pressure, diabetes, anemia, cardiac disease, lung disease, incompetent cervix or eclampsia. Multiple births also place newborns at higher risk for needing intensive neonatal treatment. In summary, these factors suggest a high level of public and provider demand for the mandated services.

***7. The level of public demand and the level of demand from providers for insurance coverage for the treatment, service or equipment, supplies or drugs, as applicable.***

Some form of this mandate exists in every state<sup>399</sup> and, as mentioned above, is also included in federal HIPAA regulations related to employer-sponsored health insurance.

The American Academy of Pediatrics (AAP) issued a policy statement in 2006 calling for access to comprehensive health care benefits through federal, state and private health insurance for children from birth to age twenty-one.<sup>400</sup> It calls for coverage of the full array of medical services recommended by the AAP. For newborns, this includes (a) attendance and management at high-risk deliveries or those mandated by hospital regulations, (b) health supervision, (c) treatment of congenital anomalies and other medical and surgical conditions, (d) newborn intensive care services, (e) newborn hearing screening, (f) newborn screening for metabolic and genetic disorders, (g) a follow-up visit in the child's home or in the physician's office within 48 hours of discharge when indicated by the infant's physician, (h) lactation counseling to increase successful breastfeeding initiation and duration, and (i) a reasonable pediatric length of stay to allow for identification of early problems and to ensure that the family is able and prepared to care for the infant at home if the mother has to remain hospitalized because of complications.

The Institutes of Medicine, in its 2009 report<sup>401</sup> on the crisis of uninsurance in America, stated that health insurance is integral to personal well-being and health. The IOM found that despite the availability of some safety net services, there is a chasm between health care needs and access to effective health care services for uninsured children, adolescents, and adults. It urged policymakers to achieve health insurance for everyone.

***8. The likelihood of achieving the objectives of meeting a consumer need as evidenced by the experience of other states.***

According to the Council for Affordable Health Insurance (CAHI), "A newborn is included under a parents' individual insurance policy for 31 days, as long as the policy already provides coverage for dependents"<sup>402</sup> in all 50 states.<sup>403</sup> CAHI identifies newborn children as the only class of persons for whom every state mandates coverage.<sup>404</sup> Extensive research revealed no other mandated benefit reviews evaluating newborn infant mandates in other states.

## ***Relevant Federal Law***

<sup>399</sup> Counsel for Affordable Health Insurance (CAHI). 2009. Health Insurance Mandates in the States 2009. Available at: [http://www.cahi.org/cahi\\_contents/resources/pdf/HealthInsuranceMandates2009.pdf](http://www.cahi.org/cahi_contents/resources/pdf/HealthInsuranceMandates2009.pdf). Accessed on August 15, 2010.

<sup>400</sup> American Academy of Pediatrics. 2006. *Pediatrics* 117(3):979-982. Available at: <http://aappolicy.aappublications.org/cgi/content/full/pediatrics;117/3/979>. Accessed on December 22, 2010.

<sup>401</sup> Institutes of Medicine. 2009. *America's Uninsured Crisis: Consequences for Health and Health Care*. National Academies Press. p. 11. Available at: [http://books.nap.edu/openbook.php?record\\_id=12511&page=11](http://books.nap.edu/openbook.php?record_id=12511&page=11). Accessed on December 22, 2010.

<sup>402</sup> Council for Affordable Health Insurance. January, 2009. "Mandate Benefit Definition Memo." [http://www.cahi.org/cahi\\_contents/resources/pdf/MandateBenefitMemoJan09.pdf](http://www.cahi.org/cahi_contents/resources/pdf/MandateBenefitMemoJan09.pdf).

<sup>403</sup> Council for Affordable Health Insurance. 2009. Health Insurance Mandates in the States 2009. p. 22, 47. Available at: [http://www.cahi.org/cahi\\_contents/resources/pdf/MandatesintheStates2010.pdf](http://www.cahi.org/cahi_contents/resources/pdf/MandatesintheStates2010.pdf). Accessed on December 17, 2010.

<sup>404</sup> Council for Affordable Health Insurance. 2009. Health Insurance Mandates in the States 2009. p. 22. Available at: [http://www.cahi.org/cahi\\_contents/resources/pdf/MandatesintheStates2010.pdf](http://www.cahi.org/cahi_contents/resources/pdf/MandatesintheStates2010.pdf). Accessed on December 21, 2010.

Under federal law, an individual may enroll their newborn child as a dependent on their health insurance policy during a special dependent enrollment period of no less than 30 days, which begins the day the child is born.<sup>405</sup> Further, “[i]f an individual seeks to enroll a dependent during the first 30 days of such a dependent special enrollment period, the coverage of the dependent shall become effective” on the newborn child’s date of birth.<sup>406</sup>

***9. The relevant findings of state agencies or other appropriate public organizations relating to the social impact of the mandated health benefit.***

According to Connecticut DPH Vital Statistics reports, 3,985 infants were born at low or very low birthweight in 2007 in Connecticut. This represents 9.1 percent of all births that year. 4,341 infants, or 10.5 percent, were born prematurely.<sup>407</sup> These are the infants who are most likely to need substantial medical care in the first 31 days after birth.

***10. The alternatives to meeting the identified need, including but not limited to, other treatments, methods or procedures.***

The alternative to mandating that private health insurance and health care contracts cover newborns for a minimum of 31 days, and that they permit parents to enroll such infants for coverage beyond that period regardless of medical condition, is to provide coverage under a public program such as Medicaid for those infants who are born with significant medical needs when their parents are unable to pay for the necessary care to address those needs.

***11. Whether the benefit is a medical or broader social need and whether it is consistent with the role of health insurance and the concept of managed care.***

This mandate covers the medical needs of newborn infants. It is consistent with the other types of benefits offered in health insurance policies and managed care contracts. It is an exception to current underwriting guidelines and benefit limitations dealing with pre-existing conditions.

***12. The potential social implications of the coverage with respect to the direct or specific creation of a comparable mandated benefit for similar diseases, illnesses, or conditions.***

This mandate is a form of “guaranteed issue,” which does not allow the insurer/MCO to reject or limit coverage for pre-existing conditions for newborn children. It may have implications for the creation of other mandates dealing with pre-existing conditions.

***13. The impact of the benefit on the availability of other benefits currently offered.***

Mandates generally increase the cost of insurance in conjunction with medical trends. Individuals and groups may respond at time of renewal by purchasing a lower level of coverage with increased member cost-sharing, rather than by dropping coverage altogether. High levels of member cost-sharing can act as a barrier to access, especially for low-income members.

This mandate is of such long standing and is included in so many self-funded plans that it is unlikely to affect other benefits currently offered, by itself. However, increases in the cost of intensive care for a small number of very sick newborns, as technology makes it possible to save ever smaller and sicker babies, may potentially affect the employer’s or the individual insured’s ability to continue the same levels of coverage and

<sup>405</sup> Health Insurance Portability and Accountability Act (HIPAA), § 701(F)(2)(B)(ii).

<sup>406</sup> Health Insurance Portability and Accountability Act (HIPAA), § 701(F)(2)(C)(ii).

<sup>407</sup> Connecticut Department of Public Health. 2007. Vital Statistics (Registration Reports), table 11. Available at:

[http://www.ct.gov/dph/cwp/view.asp?a=3132&q=394598&dphNav\\_GID=1601&dphPNavCtr=#46987](http://www.ct.gov/dph/cwp/view.asp?a=3132&q=394598&dphNav_GID=1601&dphPNavCtr=#46987). Accessed on December 17, 2010.

member cost-sharing.

***14. The impact of the benefit as it relates to employers shifting to self-funded plans and the extent to which the benefit is currently being offered by employers with self-funded plans.***

Information received from five insurers/MCOs domiciled in Connecticut representing an estimated 47 percent of the total self-funded population in Connecticut shows that 89 percent of members in self-funded plans allow enrollment of newborn children on the same terms as this mandate imposes on fully insured plans.

***15. The impact of making the benefit applicable to the state employee health insurance or health benefits plan.***

Because the State plans were fully insured in 2007 and 2008, claims data from the carriers and cost projections based on that data include the data from the State plans. Assuming that the State plans will continue to comply with this mandated health benefit, the total annual medical cost for this mandate in 2010 is estimated to be \$9,781,160. This has been calculated by multiplying the 2010 PMPM cost by 12 to get an annual cost per insured life, and then multiplying that product by 163,334 covered lives, as reported by the State Comptroller's office. (This includes those retirees and their dependents who are not receiving Medicare.)<sup>408</sup>

**Caveat:** This estimate is calculated using weighted averages for all claims paid by Connecticut-domiciled insurers and health maintenance organizations in the State. The actual cost of this mandate to the State plans may be higher or lower, based on the actual benefit design of the State plans and the demographics of the covered lives (e.g., level of cost-sharing, average age of members, etc.).

Retention costs are not included in this estimate because the State is now self-funded and the traditional elements of retention do not apply.

***16. The extent to which credible scientific evidence published in peer-reviewed medical literature generally recognized by the relevant medical community determines the treatment, service or equipment, supplies or drugs, as applicable, to be safe and effective.***

This mandate does not apply to any particular treatment, service or equipment, supplies or drugs.

## **IV. Financial Impact**

***1. The extent to which the mandated health benefit may increase or decrease the cost of the treatment, service or equipment, supplies or drugs, as applicable, over the next five years.***

This mandate has been in effect since 1974 for individual policies and since 1990 for group plans. It is unlikely to affect the cost of services for the newborn population in and of itself. However, as technology improves and the gestational age or weight at which newborns are considered viable decreases, the cost of these services is likely to increase.

***2. The extent to which the mandated health benefit may increase the appropriate or inappropriate use of the treatment, service or equipment, supplies or drugs, as applicable, over the next five years.***

This mandate has been in effect for more than 30 years. It is difficult to assess at this point the extent to

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<sup>408</sup> Personal Communication with Scott Anderson, Connecticut State Comptroller's Office, September 14, 2010.



which it might increase use of medical services by newborns. Healthy babies have a fairly standard regimen of screenings and immunizations in the first year. Babies who are born with medical needs will probably get treatment whether or not they are insured. However, it is possible that the availability of insurance makes it possible to pursue more costly treatments than the family would otherwise authorize if they had no insurance. Advances in medical technology allow more low-weight and very low-weight babies to survive, but at very high cost.<sup>409</sup> If the health insurance mandate did not exist, families might not pursue very costly means of saving these babies.

***3. The extent to which the mandated health benefit may serve as an alternative for more expensive or less expensive treatment, service or equipment, supplies or drugs, as applicable.***

This mandate does not apply to any treatment, service or equipment, supplies or drugs. It guarantees insurance coverage for at least the first 31 days for newborn infants for whatever health care services are covered by the parent's policy.

***4. The methods that will be implemented to manage the utilization and costs of the mandated health benefit.***

It is anticipated that insurers and MCOs will employ the same utilization management methods and cost controls that are used for other covered benefits. The legislation does not prohibit insurers and MCOs from employing utilization management, prior authorization, or other utilization tools at their discretion.

***5. The extent to which insurance coverage for the treatment, service or equipment, supplies or drugs, as applicable, may be reasonably expected to increase or decrease the insurance premiums and administrative expenses for policyholders.***

Insurance premiums include medical cost and retention costs. Medical cost accounts for medical services. Retention costs include administrative cost and profit (for for-profit insurers/MCOs) or contribution to surplus (for not-for-profit insurers/MCOs). (For further discussion, please see Appendix II, Ingenix Consulting Actuarial and Economic Report, page 12)

**Group plans:** When the medical cost of the mandate is spread to all insureds in group plans, medical costs are estimated to be \$4.96 PMPM and retention costs are estimated to be \$0.99 PMPM in 2010. Thus the total effect on insurance premiums is estimated at \$5.95 PMPM in 2010, which is 1.7 percent of premium.

**Individual policies:** When the medical cost of the mandate is spread to all insureds in individual policies, medical costs are estimated to be \$3.96 PMPM and retention costs are estimated to be \$1.18 PMPM in 2010. Thus the total effect on insurance premiums is estimated at \$5.14 PMPM in 2010, which is 1.9 percent of premium.

It is unclear how much of this cost would be covered by employers and insurance carriers even without the mandate since coverage for newborns is provided by a large percentage of self-funded plans which are not subject to the mandate.

For further information, please see Appendix II: Ingenix Consulting Actuarial and Economic Report.

***6. The extent to which the treatment, service or equipment, supplies or drugs, as applicable, is more or less expensive than an existing treatment, service or equipment, supplies or drugs, as applicable, that is determined to be equally safe and effective by credible scientific evidence published in peer-reviewed medical literature generally recognized by the relevant medical***

<sup>409</sup> Ingenix Consulting report, Appendix II, p. 32.

*community.*

This mandate extends coverage for medically necessary health care to a particular population: i.e., newborn children. It does not mandate any specific treatment, service or equipment, supplies or drugs.

***7. The impact of insurance coverage for the treatment, service or equipment, supplies or drugs, as applicable, on the total cost of health care, including potential benefits or savings to insurers and employers resulting from prevention or early detection of disease or illness related to such coverage.***

The total cost of health care is understood to be the funds flowing into the medical system, which are the medical costs portion of insurance premiums and the cost-sharing payments by the insureds. Actuarial analysis of claims data received from insurers/MCOs in Connecticut shows an expected impact in 2010 of \$83,171,804 for newborn coverage for the first 31 days after birth for Connecticut residents covered by fully insured group and individual health insurance plans.

***8. The impact of the mandated health care benefit on the cost of health care for small employers, as defined in § 38a-564 of the general statutes, and for employers other than small employers.***

The estimated medical cost for this mandate is \$4.96 per member per month. In general, the cost of mandates may be part of a premium increase or a redesign of benefits. If the premium increases, the employer may decide to absorb that cost or increase the employee's payments toward the premium. If benefits are redesigned, coverage for other benefits that are not mandated may be dropped. Alternatively, firms may increase employee cost-sharing at the point of service level with increased co-payments or deductibles. To some degree, both the employer and the employee are sensitive to increasing prices. As health insurance costs rise, the employer and/or the employee may opt out of offering/purchasing health insurance.

Small businesses tend to be more sensitive to price changes than large businesses. Also, small businesses are more likely to offer less comprehensive insurance coverage at lower cost. As a result, mandates constitute a larger portion of the health insurance premium. Any increase in mandates constitutes a higher percentage rise for small businesses compared to large businesses. This particular benefit is not likely to be a large enough increase to change firm behavior, but the combined expense of all mandates may cause small businesses to discontinue providing health insurance to their employees.

***9. The impact of the mandated health benefit on cost-shifting between private and public payers of health care coverage and on the overall cost of the health care delivery system in the state.***

In 2006, more than 33 percent of all births in Connecticut were covered by Medicaid.<sup>410</sup> Connecticut provides an expedited enrollment process to uninsured newborns for Medicaid, through the hospital where the child is born, and provides presumptive eligibility for the newborn. If the family must pay a premium, the state will pay it for the first four months.<sup>411</sup> Connecticut also provides "uncompensated care" payments to hospitals that provide care that is not paid by self-pay, insurance benefits or public payments such as Medicare and Medicaid. To the extent that the expenses of intensive care for very sick newborns are not paid by private insurance or the parents, they are shifted to the public sector under these programs.

The overall cost of the health delivery system in the state is understood to include total insurance premiums

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<sup>410</sup> National Governors Association. 2010. Maternal and Child Health Statistics, FY 2008. Available at: <http://www.nga.org/Files/pdf/1001MCHFY2008.PDF>. Accessed on December 17, 2010.

<sup>411</sup> State of Connecticut. Governor's letter to parents of newborns. Available at: <http://www.ct.gov/hh/lib/hh/pdf/letternewbornsenglish.pdf>. Accessed on December 21, 2010.

(medical costs and retention) and cost sharing. Actuarial analysis of claims data received from insurers/MCOs in Connecticut shows an expected cost in 2010 of \$100,154,997 for health services associated with coverage for newborn infants for Connecticut residents covered by fully insured group and individual health insurance plans.

For further information, please see Appendix II, Ingenix Consulting Actuarial and Economic Report.



## **Volume II**

### **Chapter 8**

#### **Blood Lead Screening and Risk Assessment**

Review and evaluation of Connecticut General Statutes,  
Chapter 700, §§ 38a-535 and 38a-490d  
Mandatory Blood Lead Screening and Risk Assessment

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## I. Overview

The Connecticut General Assembly directed the Connecticut Insurance Department (CID) to review the health benefits required by Connecticut law to be included in fully insured health insurance policies. The review was conducted following the requirements stipulated under Public Act 09-179 (Appendix I). This review was a collaborative effort of Connecticut Insurance Department and the University of Connecticut Center for Public Health and Health Policy (CPHHP). The CID and CPHHP contracted with Ingenix Consulting (IC) to conduct an actuarial and economic analysis for each mandate.

This chapter evaluates the financial and social impact of the blood lead screening (BLS) and risk assessment components pursuant of Connecticut General Statutes, Chapter 700, §38a-490d and §38a-535. Although §38a-535 also requires coverage for preventive pediatric care, the financial and social aspects for this requirement is discussed under Volume II, Chapter 11. The BLS-related statutory language specifies that fully insured health insurance policies “shall provide coverage for blood lead screening and risk assessments ordered by a primary care provider pursuant to §19a-111g.” Per §38a-535, for group policies “such benefits shall be subject to any policy provisions which apply to other services covered by such policy.”

Under §19a-111g(a):

Each primary care provider giving pediatric care in this state, excluding a hospital emergency department and its staff: (1) Shall conduct lead screening at least annually for each child nine to thirty-five months of age, inclusive, in accordance with the Childhood Lead Poisoning Prevention Screening Advisory Committee recommendations for childhood lead screening in Connecticut; (2) shall conduct lead screening for any child thirty-six to seventy-two months of age, inclusive, who has not been previously screened or for any child under seventy-two months of age, if clinically indicated as determined by the primary care provider in accordance with the Childhood Lead Poisoning Prevention Screening Advisory Committee recommendations for childhood lead screening in Connecticut; (3) shall conduct a medical risk assessment at least annually for each child thirty-six to seventy-one months of age, inclusive, in accordance with the Childhood Lead Poisoning Prevention Screening Advisory Committee recommendations for childhood lead screening in Connecticut; (4) may conduct a medical risk assessment at any time for any child thirty-six months of age or younger who is determined by the primary care provider to be in need of such risk assessment in accordance with the Childhood Lead Poisoning Prevention Screening Advisory Committee recommendations for childhood lead screening in Connecticut.

To evaluate this mandate, in March 2010, CPHHP and IC requested and received 2007 and 2008 claims data related to the mandated benefit from six insurers and managed care organizations (carriers) domiciled in Connecticut that cover approximately 90 percent of the population in fully insured group and individual health insurance plans in Connecticut (1.25 million persons). Six carriers provided data for group plans and four of the six carriers provided claims data for individual policies.

### *Current coverage*

The mandate went into effect on January 1, 2009 (P.A. 07-2, S. 52). Children enrolled in private or public health plans have coverage for BLS.

### *Premium impact*

The projected 2010 average per member per month (PMPM) premium for all BLS provided to fully insured members through their health plan is summarized below. Although providing BLS to the covered

population contributes to premiums, in an analysis of claims data housed at IC, no significant changes in BLS-related costs were found when comparing total annual claim amounts before and after implementation of the mandate. It appears that the introduction of BLS as a mandated benefit has not resulted in significant changes to premium costs.

**Group plans:** The estimated total premium (carrier-paid medical claims, administrative fees, and profit) for providing BLS to fully insured group members in 2010 is \$0.01 PMPM, which is about 0.01 percent of the estimated total cost for group plans.

**Individual policies:** The weighted average total premium cost of BLS claims is estimated to be less than \$0.01 PMPM, which is less than 0.01 percent of the total premium cost for the average individual health plans. Individual policies data is less credible than group plans data primarily due to small sample size.

### *Self-funded plans*

Five health plan carriers provided information about BLS coverage under self-funded plans. These carriers account for approximately 47 percent of Connecticut residents enrolled in self-funded group plans. Responses indicate that 100 percent of self-funded groups, covering all self-funded members, provide BLS to an equal or greater extent than the Connecticut mandate requires of fully insured groups.

This report is intended to be read in conjunction with the General Introduction to this volume and the Ingenix Consulting Actuarial and Economic Report that is included as Appendix II.

## II. Background

### Lead Poisoning, Screening and Risk Assessment

In the United States (US), an estimated 250,000 children younger than five years of age have elevated blood lead levels (BLL).<sup>412</sup> Connecticut Department of Public Health (DPH) surveillance data from 2008 identified 1,047 children under age 6 with elevated BLLs, with an estimated prevalence of 1.4 percent.<sup>413</sup> At levels greater than 10 micrograms of lead per deciliter of blood (mg/dL), the Centers for Disease Control and Prevention (CDC) consider a BLL elevated and recommend treatment for lead poisoning.<sup>414</sup> Lead poisoning can cause damage to the nervous system and kidneys, lowered intelligence, slow growth, and learning and behavioral complications.<sup>415, 416</sup> Other lifelong complications in the absence of medical treatment include shortened attention spans, reading problems, attention deficit/hyperactivity disorder, school failure, delinquency and criminal behavior.<sup>417</sup> Increased susceptibility to coma, convulsion and death among children can also occur from severely elevated BLLs (> 70 mg/dL).<sup>418</sup>

The most common source of child exposure to lead is from deteriorating lead-based paint in the form of

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<sup>412</sup> Centers for Disease Control and Prevention. Lead: topic home. Available at: <http://www.cdc.gov/lead/>. Accessed June 24, 2010.

<sup>413</sup> Hung T. Connecticut Department of Health. 2009. 2008 Lead Surveillance Report, CY 2008. Available at: [http://www.ct.gov/dph/lib/dph/environmental\\_health/lead/pdf/CY\\_2008\\_Lead\\_Surveillance\\_Report.pdf](http://www.ct.gov/dph/lib/dph/environmental_health/lead/pdf/CY_2008_Lead_Surveillance_Report.pdf). Accessed November 4, 2010.

<sup>414</sup> Centers for Disease Control and Prevention. Interpreting and Managing Blood Lead Levels. Recommendations from the Advisory Committee on Childhood Lead Poisoning Prevention. November 2007. Available at: <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5608a1.htm>. Accessed November 4, 2010.

<sup>415</sup> United States Department of Environmental Protection. Health Specialist: Lead Poisoning Prevention. Lead Awareness Program. Available at: [www.epa.gov/lead/pubs/chancehealth.pdf](http://www.epa.gov/lead/pubs/chancehealth.pdf). Accessed June 24, 2010.

<sup>416</sup> Landrigan PJ, Rauh VA, Galvez MP. 2010. Environmental Justice and the Health of Children. *Mount Sinai Journal of Medicine* 77(2): 178-187.

<sup>417</sup> Bellinger DC, Stiles KM, Needleman HL. 1992. Low-level exposure, intelligence and academic achievement: a long-term follow-up study. *Pediatrics* 90(6): 855-61.

<sup>418</sup> *Ibid.*



dust and paint chips located on surfaces inside a child's home, daycare or school.<sup>419,420,421</sup> Other common sources of exposure include contaminated soil or water, imported goods (candy, cosmetics, jewelry and toys), mini-blinds, caregiver "take-home" exposures, and folk remedies.<sup>422</sup> For children, the primary source of exposure is lead paint in houses built prior to the 1977 ban of paint with lead. The American Academy of Pediatrics (AAP) estimates that one out of four homes where children under age six live are contaminated with lead.<sup>423</sup>

## At-risk populations

Markers of increased risk for lead poisoning include age, race, insurer type and recent arrival in the United States. The brain and nervous system develops most rapidly in children younger than six years of age. During this time, lead poisoning poses added risk for irreversible, long-term damage to body systems. Children under the age of three have the most rapidly developing nervous systems and are more likely to participate in oral-exploratory, hand-to-mouth behavior which has been shown to increase rates of lead ingestion.<sup>424</sup> In the US and Connecticut, child populations at highest risk for elevated BLLs (EBLL) include children who are non-Hispanic black, Hispanic, or Medicaid-eligible.<sup>425, 426</sup> Several studies also document excess risk among recent refugees, immigrants or adoptees.<sup>427</sup>

## Screening Tests

Despite the severity of potential health impacts, lead poisoning often remains undetected due to the indistinct nature of symptoms, if and when they do present. Gastrointestinal issues, increased dental caries, neurological impairments and decreased growth are lead poisoning symptoms but also are distinct conditions commonly seen by pediatricians. Due to the inconclusive nature of symptoms associated with lead poisoning, reliance on patient history or physical examinations alone is described by the AAP Committee on Environment as inadequate and screening of blood is recommended.<sup>428</sup> According to the CDC, "the primary purpose of childhood blood lead screening has been to identify asymptomatic children with EBLLs so they can promptly receive services to reduce lead exposure and improve health outcomes."<sup>429</sup> Standard practices for blood lead tests include capillary tests for screening and venipuncture for diagnostic confirmation. The most effective method of detecting elevated BLLs is by venipuncture. To qualify for the CDC definition of a blood lead sample, the blood must be drawn, produce a quantifiable result, and

<sup>419</sup> Warniment C, Tsang K, Galazka SS. 2001. Lead poisoning in children. *American Family Physician* 81(6): 751-57.

<sup>420</sup> American Academy of Pediatrics Committee on Environmental Health. 2005. Lead exposure in children: prevention, detection and management. *Pediatrics* 116(4): 1036-46.

<sup>421</sup> Centers for Disease Control and Prevention. Screening Young Children for Lead Poisoning: Guidance for State and Local Public Health Officials. November 1997. Available at: <http://www.cdc.gov/nceh/lead/publications/screening.htm>. Accessed June 24, 2010.

<sup>422</sup> Centers for Disease Control and Prevention. Managing Elevated Blood Lead Levels Among Young Children: Recommendations from the Advisory Committee on Childhood Lead Poisoning Prevention. March 2002. Available at: [http://www.cdc.gov/nceh/lead/CaseManagement/caseManage\\_main.htm](http://www.cdc.gov/nceh/lead/CaseManagement/caseManage_main.htm). Accessed June 24, 2010.

<sup>423</sup> US Food and Drug Administration. Rapid Lead Screening Test. April 2009. Available at: <http://www.fda.gov/MedicalDevices/ProductsandMedicalProcedures/InVitroDiagnostics/LabTest/ucm126101.htm>. Accessed June 24, 2010.

<sup>424</sup> Center for Disease Control and Prevention. National Center for Environmental Health. Preventing Lead Poisoning in Children. Chapter 6: Screening. Available at: <http://www.cdc.gov/nceh/lead/publications/books/plpyc/chapter6.htm#Summary>. Accessed June 24, 2010.

<sup>425</sup> Hung T. Connecticut Department of Health. 2009. 2008 Lead Surveillance Report, CY 2008. Available at: [http://www.ct.gov/dph/lib/dph/environmental\\_health/lead/pdf/CY\\_2008\\_Lead\\_Surveillance\\_Report.pdf](http://www.ct.gov/dph/lib/dph/environmental_health/lead/pdf/CY_2008_Lead_Surveillance_Report.pdf). Accessed November 4, 2010.

<sup>426</sup> Jones RL, Homa DM, Meyer PA, et al. 2009. Trends in blood lead levels and blood lead testing among us children aged 1 to 5 years, 1988–2004. *Pediatrics* 123(3): e376-e385.

<sup>427</sup> Center for Disease Control and Prevention. Elevated Blood Lead Levels in Refugee Children --- New Hampshire, 2003--2004. January 2005. Available at: <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5402a4.htm>. Accessed June 24, 2010.

<sup>428</sup> Warniment C, Tsang K, Galazka SS. 2001. Lead poisoning in children. *American Family Physician* 81(6): 751-57.

<sup>429</sup> Wengrovitz AM, Brown MJ. Advisory Committee on Childhood Lead Poisoning. Recommendations for Blood Lead Screening of Medicaid-Eligible Children Aged 1—5 Years: An Updated Approach to Targeting a Group at High Risk. Available at: <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5809a1.htm>. Accessed June 24, 2010.

be analyzed at a CLIA-certified facility or with an approved portable device. The LeadCare II Blood Test System, an FDA and CLIA-certified portable device is used in approximately 40 physician offices in Connecticut to measure lead in blood samples while providing results onsite within three minutes.<sup>430</sup>

The initial test typically used is a capillary test. The capillary specimen is drawn into a capillary tube or onto filter paper by sticking the finger, heel or earlobe.<sup>431</sup> Capillary blood draws are used for screening and if positive, the test is followed up with a venous specimen because false positive test results can occur if the needle stick location is contaminated with external sources of lead.<sup>432</sup> Despite these drawbacks, the CDC Advisory Committee on Childhood Lead Poisoning (ACCLP) 2009 report states: “In areas where the benefits (e.g., increased screening rates) of capillary sample collections outweigh the drawbacks, CDC encourages use of capillary sampling, following recommended protocols, to encourage increased screening.”<sup>433</sup>

An elevated capillary test--a test with a BLL of  $\geq 10$  mg/deciliter (dL)--is followed by a diagnostic venipuncture test. For venipuncture, a certified phlebotomist draws 0.2 milliliter (mL) of blood from the child’s arm. Known risks of the blood draw include hematoma; swelling, tenderness and inflammation at the site; persistent bleeding; and vasovagal responses. In rare cases, vein trauma may lead to blood clots and inflammation, increasing the risk of potentially lethal problems such as a pulmonary embolism. Precautions include using sterile equipment for all blood draws and keeping a physician on call in case of adverse affect.<sup>434, 435, 436</sup>

## Treatment

Evaluations of the efficacy of lead-related interventions show mixed reviews. Intervention measures are limited to BLL exposure reduction techniques including eliminating sources of lead from the child’s environment and nutrition therapy. For children with high BLLs ( $> 44$  mg/dL, chelation therapy (ChT) is the standard medical practice. ChT is a process during which a chemical agent is introduced to the blood stream, attaches to lead molecules that in turn leave the body through urination.<sup>437</sup> ChT is used to reduce EBLs in children. This process is recommended only for symptomatic children or those with high BLLs. Although useful for reducing BLLs, clinical trials for ChT (using succimer) found positive associations with stunting and no measurable differences in neurologic, behavioral, and cognitive developmental outcomes.<sup>438</sup> In many cases, long-term therapy is required to reduce the total body burden of lead for those who are chronically exposed.<sup>439</sup> Furthermore, ongoing medical, educational and social interventions will often continue to be necessary to manage any lasting results of lead poisoning (e.g.: behavioral, learning or nervous system effects) even after BLLs return to normal.

<sup>430</sup> Personal Communication. Tsui-Min Hung, Department of Public Health. August 16, 2010.

<sup>431</sup> Minnesota Department of Health. February 2008. Blood lead testing methods report to the legislature. Available at: <http://www.health.state.mn.us/divs/eh/lead/reports/legislative rept07.pdf>. Accessed June 24, 2010.

<sup>432</sup> *Ibid.*

<sup>433</sup> Wengrovitz AM, Brown MJ. Advisory Committee on Childhood Lead Poisoning. Recommendations for Blood Lead Screening of Medicaid-Eligible Children Aged 1—5 Years: An Updated Approach to Targeting a Group at High Risk. Available at: <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5809a1.htm>. Accessed June 24, 2010.

<sup>434</sup> Centers for Disease Control and Prevention. Blood and Urine Collection. Available at: <http://www.cdc.gov/nchs/data/nhanes/blood.pdf>. Accessed June 24, 2010.

<sup>435</sup> Hung T. Connecticut Department of Health. 2009. 2008 Lead Surveillance Report, CY 2008. Available at: [http://www.ct.gov/dph/lib/dph/environmental\\_health/lead/pdf/CY\\_2008\\_Lead\\_Surveillance\\_Report.pdf](http://www.ct.gov/dph/lib/dph/environmental_health/lead/pdf/CY_2008_Lead_Surveillance_Report.pdf). Accessed November 4, 2010. (24).

<sup>436</sup> Wengrovitz AM, Brown MJ. Advisory Committee on Childhood Lead Poisoning. Recommendations for Blood Lead Screening of Medicaid-Eligible Children Aged 1—5 Years: An Updated Approach to Targeting a Group at High Risk. Available at: <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5809a1.htm>. Accessed June 24, 2010.

<sup>437</sup> Committee on Drugs, Pediatrics. 1995. Treatment guidelines for lead exposure in children. *Pediatrics* 96(1): 155-159.

<sup>438</sup> Warniment C, Tsang K, Galazka SS. 2001. Lead poisoning in children. *American Family Physician* 81(6): 751-57.

<sup>439</sup> Committee on Drugs, Pediatrics. 1995. Treatment guidelines for lead exposure in children. *Pediatrics* 96(1): 155-159.

The U.S. Preventive Services Task Force (USPSTF) 2006 review of the medical literature found a lack of good quality evidence that interventions successfully achieve sustained decreases in BLLs. The same evaluation also found no studies evaluating the impact of residential lead hazard control or nutritional interventions on neurodevelopmental outcomes in children with mild to moderately elevated BLLs.<sup>440</sup>

## Guidelines for Screening and Risk Assessment

### *Federal and Provider Organization Guidelines*

The USPSTF, CDC, AAP, American College of Preventive Medicine, and the Medicaid EPSDT Program put forth varying recommendations or guidelines for blood lead risk assessment and screening for children. Based on their 2006 evidence review, the USPSTF does not recommend lead screening for children at average risk and concludes that data is insufficient to recommend for or against screening for children at increased risk for elevated BLLs.<sup>441</sup> According to the USPSTF evidence review, potential harms of treatment and residential lead hazard abatement exist, no evidence of treatment benefits are documented and insufficient evidence exists to weigh potential benefits against the harms of routine screening among child populations at increased risk.

Conversely, the CDC recommends universal screening in a community if  $\geq 12$  percent of children aged 1-3 years old have elevated BLLs, or if  $\geq 27$  percent of housing in a community was built before 1950. In states without community-level BLL data, the CDC recommends screening at age 9-12 months and again at 24 months.<sup>442</sup> For the remainder of the population, targeted screening is recommended based on individual risk assessments that include factors such as whether the child is eligible for various forms of government assistance. The CDC also provides guidelines, training and technical support for proper capillary sampling. Per the CDC, venous blood testing and sound analytic methods are required to confirm elevated BLLs initially detected through capillary testing.<sup>443</sup>

These CDC parameters have been endorsed by the American College of Preventive Medicine (2001), the American Academy of Pediatrics (reaffirmed in 2005),<sup>444</sup> and the American Public Health Association. As of 2009, the CDC parameters have been expanded. It is now recommended for refugee children to be tested for lead upon arrival to the US until age 16 and for children age 6 and under to be retested at 3-6 months after they are resettled.<sup>445</sup> In 2009, the CDC Advisory Committee on Childhood Lead Poisoning Prevention (CDC ACCLPP) updated recommendations for lead screening under the Medicaid Early Periodic Screening, Diagnostic, and Treatment Services (EPSDT) program, departing from support of universal screening for all Medicaid-eligible children. The revision reflects CDC recommendations for state and local officials to target screening towards “specific groups of children in their area at higher risk for EBLs.”<sup>446</sup> Historically, the Centers for Medicare and Medicaid Services (CMS) under which EPSDT is funded required participating

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<sup>440</sup> US Preventive Services Task Force. Screening for elevated blood lead levels in childhood and pregnant women. Recommendation Statement. December 2006. Available at: <http://www.uspreventiveservicestaskforce.org/uspstf06/lead/leadrs.pdf>. Accessed June 24, 2010.

<sup>441</sup> *Ibid.*

<sup>442</sup> Centers for Disease Control and Prevention. Screening Young Children for Lead Poisoning: Guidance for State and Local Public Health Officials. November 1997. Available at: <http://www.cdc.gov/nceh/lead/publications/screening.htm>. Accessed June 24, 2010.

<sup>443</sup> Wengrovitz AM, Brown MJ. Advisory Committee on Childhood Lead Poisoning. Recommendations for Blood Lead Screening of Medicaid-Eligible Children Aged 1—5 Years: An Updated Approach to Targeting a Group at High Risk. Available at: <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5809a1.htm>. Accessed June 24, 2010.

<sup>444</sup> American Academy of Pediatrics Committee on Environmental Health. 2005. Lead exposure in children: prevention, detection and management. *Pediatrics* 116(4): 1036-46.

<sup>445</sup> Centers for Disease Control and Prevention. Tool Kit. Recommendations for lead poisoning prevention in newly arrived refugee children. Available at: <http://www.cdc.gov/nceh/lead/Publications/RefugeeToolKit/pdfs/CDCRecommendations.pdf>. Accessed June 24, 2010.

<sup>446</sup> Wengrovitz AM, Brown MJ. Advisory Committee on Childhood Lead Poisoning. Recommendations for Blood Lead Screening of Medicaid-Eligible Children Aged 1—5 Years: An Updated Approach to Targeting a Group at High Risk. Available at: <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5809a1.htm>. Accessed June 24, 2010.

Medicaid states to incorporate established risk assessment criteria and universal screening for Medicaid-eligible children.

### *Connecticut's Approach to Screening*<sup>447</sup>

The DPH Lead Poisoning Prevention and Control Program supplies physicians with the document, “Requirements and Guidance for Childhood Lead Screening by Health Care Professionals in Connecticut,” which details the State’s schedule for and approach to blood lead screening (BLS) and risk assessment for children. The guidelines are consistent with those specified within the CDC’s “Screening Young Children for Lead Poisoning: Guidance for State and Local Public Health Officials.”<sup>448</sup> The parameters for Connecticut physicians include timetables for the age at which and conditions under which a child should receive a blood lead test. Timeframes are also articulated for confirmatory venous blood tests (used when a capillary blood screening test yields a positive) and for follow-up activities if tests indicate blood lead poisoning.

Connecticut General Statutes, §19a-111 specifies each primary care provider in this state shall conduct:

- lead screening at least annually for each child nine to thirty-five months of age;
- lead screening for any child thirty-six to seventy-two months of age, inclusive, who has not been previously screened or for any child under seventy-two months of age, if clinically indicated as determined by the primary care provider;
- shall conduct a medical risk assessment at least annually for each child thirty-six to seventy-one months of age;” and “may conduct a medical risk assessment at any time for any child thirty-six months of age or younger who is determined by the primary care provider to be in need of such risk assessment.

Furthermore, these specified duties of primary care providers should be carried out in accordance with the “Childhood Lead Poisoning Prevention Screening Advisory Committee recommendations for childhood lead screening in Connecticut.”<sup>449</sup>

As specified in §19a-111, Connecticut takes a universal approach to blood lead screening. In public hearing testimony, the high prevalence of housing built before 1950 offers one reason for the universal approach. As mentioned previously, lead in paint is a primary source of lead exposure. Since the federal ban on lead in house paint did not occur until 1977, the houses built prior to this period and especially prior to 1950 are at high risk for contamination from lead paint. According to the 2000 US Census, 31.5 percent of Connecticut’s housing is pre-1950 and just 21.8 percent of housing was built after 1979. The high risk of lead-contamination in housing and the inadequacy of community-level data that could be used to design a targeted screening approach are among the reasons cited for the current universal screening policy. In future years, the new screening data collected may inform Connecticut’s approach. If adequate amounts of data exist, community-level or population-targeted approaches may be generated as a result.<sup>450</sup>

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<sup>447</sup> Prior to the passage of the Connecticut mandate, CMS required that all children receive a blood lead test at ages 12 months and 24 months; children aged 36-72 months must receive a blood lead test if not previously tested. Furthermore, states were not permitted to adopt a statewide plan for screening children for EBLs that did not require universal screening for all Medicaid eligible children.

<sup>448</sup> Centers for Disease Control and Prevention. Screening Young Children for Lead Poisoning: Guidance for State and Local Public Health Officials. November 1997. Available at: <http://www.cdc.gov/nceh/lead/publications/screening.htm>. Accessed June 24, 2010.

<sup>449</sup> Connecticut General Statutes. Revised January 1, 2010. §19a-111.

<sup>450</sup> Personal Communication. Hilda Slivka, MD. August 4, 2010.

### III. Methods

Under the direction of CPHHP, medical librarians at the Lyman Maynard Stowe Library at the University of Connecticut Health Center (UCHC) gathered published articles and other information related to medical, social, economic, and financial aspects of the required benefit. Medical librarians conducted literature searches using PubMed, Scopus, UptoDate, DynaMed, Cochrane database, EMedicine, CINAHL, and a web search using Google. Search keywords included: blood lead, lead screening, lead poisoning, and blood lead level. Terms added included: social impact, insurance, insurance coverage, Medicaid, reimbursement, economic, effective, and cost.

CPHHP staff conducted independent literature searches using the Cochrane Review, Scopus, and Google Scholar using similar search terms used by the UCHC medical librarians. Where available, articles published in peer-reviewed journals are cited to support the analysis. Other sources of information may also be cited in the absence of peer-reviewed journal articles. Content from such sources may or may not be based on scientific evidence.

CPHHP staff consulted with clinical faculty from the University of Connecticut School of Medicine on matters pertaining to medical standards of care, traditional, current and emerging practices, and evidence-based medicine related to the benefit.

Staff gathered additional information through telephone and e-mail inquiries to appropriate state, federal, municipal, and non-profit entities and from internet sources such as the State of Connecticut website, Centers for Medicare and Medicaid (CMS) website, other states' websites, professional organizations' websites, and non-profit and community-based organization websites.

With the assistance of the Connecticut Insurance Department (CID), CPHHP and Ingenix Consulting requested and received 2007 and 2008 claims data from insurance companies and carriers domiciled in Connecticut. Six carriers provided claims data for their fully insured group and individual plan participants. However, the claims data for individual policies is considered less credible than the group plan data due to the lower response rate and fewer covered lives represented by the claims. Five carriers also provided information about coverage for BLS for the self-funded plans they administer. It is anticipated that the self-funded plans managed by the sixth carrier offer coverage comparable to the other five carriers.

CPHHP and the CID contracted with Ingenix Consulting to provide actuarial and economic analyses of the mandated benefit. A description of the methods used for the actuarial analysis is available in the Ingenix Consulting report located in Appendix II.

### IV. Social Impact

#### *1. The extent to which blood lead screening and risk assessment is utilized by a significant portion of the population.*

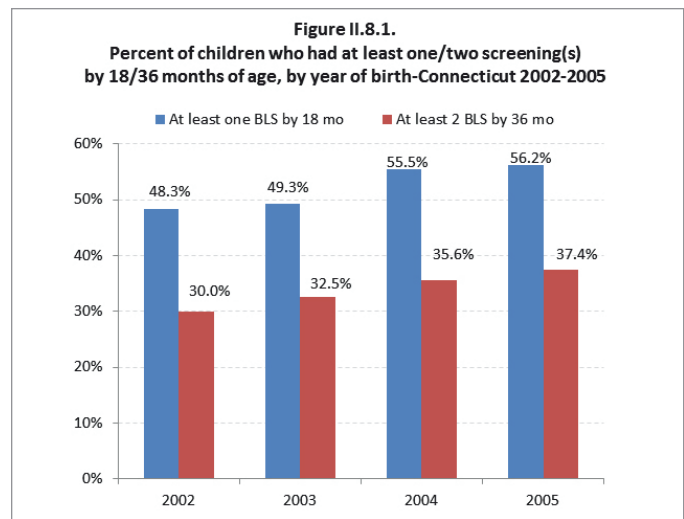
The Connecticut Department of Public Health Lead Surveillance Report documents 76,722 (28.4 percent<sup>451</sup>) children less than six years of age as being screened for BLL during 2008.<sup>452</sup> Compared to 2007, the number of children screened increased by 4,634, a 1.7 percent increase which is the highest increase in

<sup>451</sup> The DPH report uses data from the 2000 Census as the population denominator. Depending on the data source, population estimates are as much as 16,000 less than the 2000 Census level or 60,000 higher than the 2000 Census population size for children 0-6 years old. As a result, the percentages shown may underestimate or overestimate the percent of the population receiving screening if the population in a given year was higher or lower than the 2000 Census level.

<sup>452</sup> Hung T. Connecticut Department of Health. 2009. 2008 Lead Surveillance Report, CY 2008. Available at: [http://www.ct.gov/dph/lib/dph/environmental\\_health/lead/pdf/CY\\_2008\\_Lead\\_Surveillance\\_Report.pdf](http://www.ct.gov/dph/lib/dph/environmental_health/lead/pdf/CY_2008_Lead_Surveillance_Report.pdf). Accessed November 4, 2010.

screening rate since 1999. Nearly three-quarters (72 percent) of children screened were under the age of three.

Prior to BLS becoming a statutory duty of providers, the proportion of each birth cohort receiving recommended screenings by 18 months old and again by 36 months of age was trending upward even prior to 2009 (Figure II.8.1).<sup>453</sup> Comparing children born in 2005 to those born in 2004, the percent of children screened at least once by 18 months of age increased by 0.7 percent while the percent of children screened twice by 36 months of age increased by 1.8 percent.



Source: DPH Surveillance Report, CY 2008

**2. The extent to which blood lead screening and risk assessment is available to the population, including, but not limited to, coverage under: Medicare, the Department of Social Services, the Department of Public Health, Municipal Health Departments and public programs run by public schools or charities.**

**Department of Social Services (DSS)**

The DSS coordinates the HUSKY program via Medicaid and the State Children’s Health Insurance Program (SCHIP), Refugee Medical Assistance, and Head Start, and distributes funding to lead treatment centers for the Hartford and New Haven regions.<sup>454</sup> Under federal regulations, children enrolled in Medicaid receive EPSDT which includes risk assessment and lead screening for children identified as at risk. Based on the age of Connecticut’s housing stock, all children are considered at risk by the State and thus under law should be provided screening.<sup>455</sup> Medicaid also covers the cost of a laboratory test for lead if it is ordered by a physician and considered medically necessary.<sup>456</sup> The screening is either included in Medicaid Managed Care contracts or the state pays the cost. Eligibility for Medicaid benefits for children is based on family-income, medical condition or refugee status.<sup>457</sup> Head Start, a national school readiness program, provides education health, nutrition, and parent involvement services for low-income children and their families. When a child enters the program, a blood test for lead is required.<sup>458</sup>

**Department of Public Health (DPH)**

The statewide Lead Poisoning and Prevention Control Program (LPPCP) coordinates blood tests, prevention policy, surveillance, environmental assessments and case management.<sup>459</sup> The DPH Laboratory provides

<sup>453</sup> *Ibid.*

<sup>454</sup> Connecticut Department of Public Health. Lead Poisoning Prevention and Control Program. July 2010. Available at: <http://www.ct.gov/dph/cwp/view.asp?a=3140&q=387550>. Accessed November 4, 2010.

<sup>455</sup> Centers for Medicare and Medicaid Services. Medicaid Early and Periodic Screening and Diagnostic Treatment Benefit. EPSDT Benefits. December 2005. Available at: [https://www.cms.gov/MedicaidEarlyPeriodicScrn/02\\_Benefits.asp](https://www.cms.gov/MedicaidEarlyPeriodicScrn/02_Benefits.asp). Accessed November 4, 2010.

<sup>456</sup> Personal Communication. Nina Holmes, DSS Medical Policy Unit. April 29, 2010.

<sup>457</sup> HUSKY, State of Connecticut. October 2010. Available at: <http://www.huskyhealth.com/hh/cwp/view.asp?a=3573&q=421548&hhNav=|>. Accessed November 4, 2010.

<sup>458</sup> US Department of Health and Human Services. Administration for Children and Families. Informational Memoranda March 2008. Lead Screening. (ACF-IM-HS-08-07). Available at: [http://eclkc.ohs.acf.hhs.gov/hslc/Program%20Design%20and%20Management/Head%20Start%20Requirements/IMs/2008/resour\\_ime\\_007\\_031208.html](http://eclkc.ohs.acf.hhs.gov/hslc/Program%20Design%20and%20Management/Head%20Start%20Requirements/IMs/2008/resour_ime_007_031208.html). Accessed November 4, 2010.

<sup>459</sup> Connecticut Department of Public Health. Lead Poisoning Prevention and Control Program. July 2010. Available at: <http://www.ct.gov/dph/cwp/view.asp?a=3140&q=387550>. Accessed November 4, 2010.

testing of BLLs.

### ***Municipal Health Departments***

Many local health departments provide free lead screenings. The US Department of Health and Human Services reports that 17 local health departments in Connecticut provided BLS in 2005, with most located in southwestern and central Connecticut.<sup>460</sup>

### ***Other Public Agencies/Programs***

Under the direction of DSS and DPH, local WIC offices order free lead screening for child participants, if needed, when collecting blood samples required for medical and nutritional needs assessments.<sup>461</sup> Some public schools also offer BLS through school based health centers.<sup>462</sup>

### ***3. The extent to which insurance coverage is already available for blood lead screening and risk assessment.***

It appears that all children under age six, except those who lack a health plan, are enrolled in plans that cover BLS.

### ***4. If the coverage is not generally available, the extent to which such lack of coverage results in persons being unable to obtain necessary health care treatment.***

Based on DPH surveillance and IC BLS-related claims data, it appears that a substantial portion of the non-Medicaid population who received screening in 2008 (prior to the mandate) did not pay for the screening using insurance. Based on IC estimates of the proportion of the population enrolled in varying types of health plans in Connecticut, of the 40,683 children receiving BLS but not enrolled in Medicaid, an estimated 22 percent had claims paid for by a fully insured plan, 17.4 percent had claims paid for by a self-funded plan, and 60.6 percent received screening without medical claims being paid for by a private health plan. For the latter group, BLS may have been obtained using out of pocket payments or through one of the free or discounted options described under Section IV-2.

Although over 24,000 non-Medicaid enrolled children obtained BLS in 2008 without claims paid by a fully insured or self-funded plan, nearly half of children ages 1 to 2 did not obtain BLS prior to the mandate. Compared to Medicaid-enrolled children, non-Medicaid enrolled children obtained BLS at a lower rate. This lower rate may be explained by the mandate for Medicaid providers to screen all enrolled children for BLS or a lack of private plan coverage for BLS. However, regardless of Medicaid enrollment, a sizeable population does not obtain BLS. For example when comparing rates of screening for children 1-2 years old in 2008, the difference between Medicaid and non-Medicaid enrolled children is only 10.1 percent (61.3 vs. 51.2, respectively).<sup>463</sup> The finding that 38.7 percent of Medicaid-enrolled children do not obtain BLS, despite it being a reimbursable benefit that providers are required to conduct, could be an indicator that a number of other factors may be at play. These factors could range from a lack of primary care office visits, the initiation of BLS by the physician, or caregiver opposition to BLS.

<sup>460</sup> US Department of Health and Human Services. Early Childhood Learning & Knowledge Center. County Health Departments that Perform Blood Lead Level Screening. 2005. Available at: <http://eclkc.ohs.acf.hhs.gov/hslc/ecdh/Health/Health%20Care%20and%20Social%20Service%20Professionals/Health%20Care%20and%20Social%20Service%20Professionals%20Program%20Staff/CountyHealthDep.htm>. Accessed November 4, 2010.

<sup>461</sup> Connecticut Medicaid Managed Care Council. Quality Assurance Subcommittee. Meeting Summary April 10, 2008. Available at: [www.cga.ct.gov/ph/medicaid](http://www.cga.ct.gov/ph/medicaid). Accessed August 10, 2010.

<sup>462</sup> US Department of Health and Human Services. Administration for Children and Families. Informational Memoranda March 2008. Lead Screening. (ACF-IM-HS-08-07). Available at: [http://eclkc.ohs.acf.hhs.gov/hslc/Program%20Design%20and%20Management/Head%20Start%20Requirements/IMs/2008/resour\\_ime\\_007\\_031208.html](http://eclkc.ohs.acf.hhs.gov/hslc/Program%20Design%20and%20Management/Head%20Start%20Requirements/IMs/2008/resour_ime_007_031208.html). Accessed November 4, 2010.

<sup>463</sup> Hung T. Connecticut Department of Health. 2009. 2008 Lead Surveillance Report, CY 2008. Available at: [http://www.ct.gov/dph/lib/dph/environmental\\_health/lead/pdf/CY\\_2008\\_Lead\\_Surveillance\\_Report.pdf](http://www.ct.gov/dph/lib/dph/environmental_health/lead/pdf/CY_2008_Lead_Surveillance_Report.pdf). Accessed November 4, 2010.

**5. If the coverage is not generally available, the extent to which such a lack of coverage results in unreasonable financial hardships on those persons needing treatment.**

The estimated direct costs for screening could be as high as \$52 for drawing the blood sample and performing the laboratory test<sup>464</sup> plus an additional \$42 for the doctor's office visit if the visit is not covered as part of a routine well-care visit.<sup>465</sup> If the sample is processed at the DPH Laboratory and the test is drawn as part of a routine pediatric care visit, there are no associated charges. The DPH Laboratory absorbs the cost of processing venipuncture and capillary specimens (\$16.91), providing the service for free for those under eighteen years of age.<sup>466</sup> Several avenues for accessing discounted or free BLS in Connecticut also exist, as described under Section IV-4.

**6. The level of public demand and the level of demand from providers for blood lead screening and risk assessment.**

Public demand for screening children for BLLs is reflected by BLS utilization during the years preceding the mandate (Section IV-1). Further evidence of demand is documented by the committee report on Public Act 07-02. According to the committee reports for the BLS-related bills raised during legislative sessions from 2005 to 2007, no opposition to the screening mandate was documented.

Supporters included the Connecticut Commission on Children as well as medical providers, public health providers, state commissions and offices, local nonprofits, and several members of the general public. Testimony was submitted from the Connecticut Chapter of the American Academy of Pediatrics, Connecticut Children's Medical Center, the Lead Clinic at Saint Francis Hospital, Regulatory Services Branch at the DPH, the Connecticut Association of Directors of Health, Inc., the Clinical Nursing and Supportive Supervisor at Hartford Public Schools, the Medical Coordinator for the Hartford Regional Lead Treatment Center, the Chief State's Attorney, representatives from the African-American Affairs Commission, the Office of the Child Advocate, the Office of Protection and Advocacy for Persons with Disabilities the Lead Action for Medicaid Primary Prevention program, and the Connecticut Citizen Action Group.<sup>467, 468, 469</sup>

Provider demand for screening is also reflected in the AAP Policy Statement: Lead Exposure in Children: Prevention, Detection and Management, which charges pediatricians with the task of investigating city or State health department guidance for screening children who are not eligible for Medicaid and suggesting the consideration of screening all children at one and two years of age in the absence of recommendations.<sup>470</sup>

**7. The level of public demand and the level of demand from providers for insurance coverage for blood lead screening and risk assessment.**

<sup>464</sup> Personal Communication. Dr. Hilda Slivka, MD. August 4, 2010.

<sup>465</sup> City of Omaha. "The Cost of Lead Poisoning: Omaha." Omaha, NE. August 2009. Available at: <http://www.cityofomaha.org/planning/hcd/images/stories/053535-OMAHA-FINAL1.pdf>. Accessed November 4, 2010.

<sup>466</sup> Personal Communication. Harriette Clark, Administration-Billing, State of Connecticut Department of Public Health Laboratory. August 24, 2010.

<sup>467</sup> Connecticut General Assembly. Senate Bill 05-1178: An act concerning lead screening for children. Report on bills favorably reported by committee. Select Committee on Children. Reported March 28, 2005. Available at: <http://www.cga.ct.gov/2005/jfr/s/2005SB-01178-R00KID-JFR.htm>. Accessed November 4, 2010.

<sup>468</sup> Connecticut General Assembly. House Bill 07-6723: An act concerning the prevention of childhood lead poisoning. Reported March 14, 2007. Available at: <http://www.cga.ct.gov/2007/JFR/H/2007HB-06723-R00KID-JFR.htm>. Accessed November 4, 2010.

<sup>469</sup> Connecticut General Assembly Senate Bill 06-396: An act implementing a comprehensive plan to eradicate childhood lead poisoning in the state. Select Committee on Children. Reported February 28, 2006. Available at: <http://www.cga.ct.gov/2006/JFR/S/2006SB-00396-R00KID-JFR.htm>. Accessed November 4, 2010.

<sup>470</sup> American Academy of Pediatrics Committee on Environmental Health. Lead exposure in children: prevention, detection, and management. *Pediatrics* 116(4): 1036-46.



Public Act 07-02 also instituted the mandate for insurance plans to cover BLS. The blood lead screening provisions in the act were supported by the range of stakeholders listed in Section IV-6. A review of public hearing documents, proposed bills and statute language between the 2002 and 2007 legislative sessions does not indicate public or provider support or opposition specific to insurance coverage for the newly mandated tests.

**8. *The likelihood of achieving the objectives of meeting a consumer need as evidenced by the experience of other states.***

As of July 2010, in addition to Connecticut, at least nine states require insurance coverage for lead screening. The states with mandates include: California, Delaware, Maryland, Massachusetts, Missouri, New Jersey, New York, Rhode Island, and Wisconsin.

**9. *The relevant findings of state agencies or other appropriate public organizations relating to the social impact of the mandated health benefit.***

CPHHP staff identified BLS mandate reviews conducted by Maryland<sup>471</sup> and Massachusetts.<sup>472</sup> Both reports estimated the PMPM attributable to BLS coverage but neither discussed social impact. No mandate reviews were found for the other seven states where BLS is a mandated health benefit.

**10. *The alternatives to meeting the identified need, including but not limited to, other treatments, methods or procedures.***

Additional methods for preventing childhood lead poisoning include targeted screening, a variety of lead screening alternatives, and the use of environmental interventions. Screening alternatives include risk assessment questionnaires and screening for lead biomarkers in blood, plasma, serum, feces, hair or urine.<sup>473</sup> Environmental interventions such as lead abatement can also be used to prevent lead poisoning among children.

## **Targeted Screening**

The CDC and AAP recommend targeted screening as a means for identifying children with elevated BLLs. The primary tradeoff between universal and targeted screening is that targeted screening is more sensitive (yielding fewer false positives) but identifies fewer cases than universal screening. In cases of inadequate community-level data on BLLs the recommendation is to screen the entire population.

## **Biomarkers<sup>474, 475</sup>**

The limitation to blood tests is that lead is stored throughout the body. A curvilinear relationship exists between BLL and exposure. BLL is a better reflection of recent exposure to lead whereas long-term exposure can manifest in a “total body burden” where lead is stored throughout the body and may not be as detectable through blood samples. In addition to blood lead tests, blood samples can be analyzed for erythrocyte (zinc) protoporphyrin (EP). However, EPs cannot be analyzed in doctor’s offices; tests lack specificity and

<sup>471</sup> Maryland Health Care Commission. 2008. Study of Mandated Health Insurance Services: A Comparative Evaluation. Available at: [http://mhcc.maryland.gov/health\\_insurance/mandated\\_1207.pdf](http://mhcc.maryland.gov/health_insurance/mandated_1207.pdf). Accessed November 4, 2010.

<sup>472</sup> Massachusetts Department of Health and Human Services. Division of Health Care Finance and Policy. Comprehensive Review of Mandated Benefits in Massachusetts. July 2008. Available at: [http://www.mass.gov/Eeohhs2/docs/dhcfp/r/pubs/mandates/comp\\_rev\\_mand\\_benefits.pdf](http://www.mass.gov/Eeohhs2/docs/dhcfp/r/pubs/mandates/comp_rev_mand_benefits.pdf). Accessed November 4, 2010.

<sup>473</sup> Skerving IA. 2008. Biomonitoring of lead exposure--alternatives to blood. *Journal of Toxicology and Environmental Health*, Part A 71: 1235-43.

<sup>474</sup> US Department of Health and Human Services. Agency for Toxic Substances and Disease Registry. Lead. August 2007. ToxFAQs. CAS #7439-92-1. August 2007. Available at: <http://www.atsdr.cdc.gov/ToxProfiles/tp13-c1-b.pdf>. Accessed November 4, 2010.

<sup>475</sup> US Preventive Services Task Force. Screening for elevated blood lead levels in childhood and pregnant women. Recommendation Statement. December 2006. Available at: <http://www.uspreventiveservicestaskforce.org/uspstf06/lead/leadrs.pdf>. Accessed June 24, 2010.

cannot be used to detect modestly elevated BLLs (<25 mg/dL). Thus, the CDC recommends screening for lead rather than EP.

Alternatively, x-rays allow detection of lead concentrations throughout the body, in teeth or bones.<sup>476</sup> Although useful, the Agency for Toxic Substances and Disease Registry notes that the use of x-ray techniques for determining lead exposure is not widely available.<sup>477</sup> Other alternatives include identifying excess gastrointestinal exposure as it occurs through fecal analyses. When complemented with blood tests and urine, it can be used to measure current exposure to organic lead.<sup>478</sup> Currently, these alternative approaches lack quantifiable supportive evidence.

## Risk Assessment Questionnaires

Risk assessment questionnaires can be used to screen populations. The CDC provides guidelines on questions to ask. Screenings should be validated to the local community because prior research has found wide variation in the sensitivity and specificity of screening methods, especially when detecting varying BLLs.

### ***11. Whether the benefit is a medical or broader social need and whether it is consistent with the role of health insurance and the concept of managed care.***

According to the CDC, “the primary purpose of childhood BLS has been to identify asymptomatic children with EBLs so they can promptly receive services to reduce lead exposure and improve health outcomes.”<sup>479</sup> Lead poisoning often remains undetected due to the indistinct nature of symptoms, if and when they do present. Due to the inconclusive nature of symptoms associated with lead poisoning, reliance on patient history or physical examinations alone is described by the Committee on Environment as inadequate and screening of blood is recommended.<sup>480</sup> The adverse medical consequences of lead poisoning can be as severe as death and include damage to the nervous system and kidneys, slow growth, and behavioral complications.<sup>481</sup> From a social perspective, EBLs have been associated with lowered intelligence, shortened attention spans, reading problems, school failure, delinquency and criminal behavior.<sup>482-483</sup> Detecting EBLs in early childhood and at lower levels is believed to be helpful in reducing the potential severity of negative medical and social outcomes and also to potentially meet the social need for enclosure or abating lead from the environment where children live or play.

As highlighted in the IC report, “The function of insurance, health insurance included, has been to provide financial security to those who are faced with economic uncertainty due to premature death, disease, accident, disability, [etc.]. Insureds believe there is greater utility in paying a certain monthly premium than

<sup>476</sup> Skerving IA. 2008. Biomonitoring of lead exposure--alternatives to blood. *Journal of Toxicology and Environmental Health*, Part A 71: 1235-43.

<sup>477</sup> US Department of Health and Human Services. Agency for Toxic Substances and Disease Registry. Lead. August 2007. ToxFAQs. CAS #7439-92-1. August 2007. Available at: <http://www.atsdr.cdc.gov/ToxProfiles/tp13-c1-b.pdf>. Accessed November 4, 2010.

<sup>478</sup> Skerving IA. 2008. Biomonitoring of lead exposure--alternatives to blood. *Journal of Toxicology and Environmental Health*, Part A 71: 1235-43.

<sup>479</sup> Wengrovitz AM, Brown MJ. Advisory Committee on Childhood Lead Poisoning. Recommendations for Blood Lead Screening of Medicaid-Eligible Children Aged 1—5 Years: An Updated Approach to Targeting a Group at High Risk. Available at: <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5809a1.htm>. Accessed June 24, 2010.

<sup>480</sup> Warniment C, Tsang K, Galazka SS. 2001. Lead poisoning in children. *American Family Physician* 81(6): 751-57.

<sup>481</sup> Landrigan PJ, Rauh VA, Galvez MP. 2010. Environmental Justice and the Health of Children. *Mount Sinai Journal of Medicine* 77(2): 178-187.

<sup>482</sup> United States Department of Environmental Protection. Health Specialist: Lead Poisoning Prevention. Lead Awareness Program. Available at: [www.epa.gov/lead/pubs/chancehealth.pdf](http://www.epa.gov/lead/pubs/chancehealth.pdf). Accessed June 24, 2010.

<sup>483</sup> Bellinger DC, Stiles KM, Needleman HL. 1992. Low-level exposure, intelligence and academic achievement: a long-term follow-up study. *Pediatrics* 90(6): 855-61.

potentially sustaining the uncertain loss that could occur.”<sup>484</sup> Some carriers opt to provide preventive services such as screenings, immunizations, and well-care exams as a means of potentially improving or maintaining the health of the insured population and reducing the need for more costly procedures or care. Prior to the mandate to cover BLS, as indicated by claims data and screening surveillance data, private insurers offered coverage for BLS under some plans. Similarly, the public sector covers BLS for all children enrolled in Medicaid.

***12. The potential social implications of the coverage with respect to the direct or specific creation of a comparable mandated benefit for similar diseases, illnesses, or conditions.***

Preceding the 2009 implementation of the mandate covering lead screening, Connecticut required fully insured plans to cover screening procedures for prostate cancer, colorectal cancer, and breast cancer. Insurance mandates also existed for neuropsychological testing for children diagnosed with cancer and the diagnosis and treatment of mental or nervous conditions. The requirement of lead screening is comparable to the previously mandated benefits. Given the history of mandates to screen for diseases or conditions, the potential continues to exist for future screening and diagnostic services mandates. The extent to which BLS may be extended to additional groups of beneficiaries depends on demand from uncovered groups. Screenings for toxic levels of environmental substances that lead to adverse health effects may also be demanded in the future. For example, manganese was highlighted in recent research by Kim et al. (2009) that explored the interactive effects of lead and manganese exposure on child intelligence.<sup>485</sup>

***13. The impact of the benefit on the availability of other benefits currently offered.***

In the years prior to passage of the insurance mandate for BLS, some private insurers opted to cover BLS during early childhood. Given the low unit cost for conducting the screening and the existence of BLS coverage prior to instituting the mandate, the impact of this mandate on the availability of other benefits seems limited.

***14. The impact of the benefit as it relates to employers shifting to self-funded plans and the extent to which the benefit is currently being offered by employers with self-funded plans.***

An analysis of IC claims data for BLS suggests that utilization of screening marginally increased among the fully insured population once implemented but the cost of BLS did not change significantly. If the impact on premiums continues not to be significant, it is unlikely that BLS would be a motivating factor for employers shifting to self-funded plans. Furthermore, the CPHHP survey of carriers suggests that coverage for BLS is a standard benefit for self-funded employer groups. (For the five carriers responding to the survey, 100 percent of self-funded employer group plans covered BLS.) Even though an employer shifting to self-funded may have the option of not covering BLS, standard practice is to include BLS coverage.

***15. The impact of making the benefit applicable to the state employee health insurance or health benefits plan.***

The state employee health insurance/benefit plans were subject to the BLS benefit requirement from the mandate implementation date of January 1, 2009 up until July 1, 2010 when Connecticut transitioned from fully insured group plans to self-funded. It appears that Connecticut continues to include mandated benefits in the health plans offered to state employees even though as a self-funded group the state employee plans

<sup>484</sup> Ingenix Consulting. Actuarial Report for the State of Connecticut on Set Two of the Health Insurance Mandates Covered by Public Act Number 09-179. December 10, 2010. Located in Appendix II.

<sup>485</sup> Kim Y, Kim BN, Hong YC, et al. 2009. Co-exposure to environmental lead and manganese affects the intelligence of school-aged children. *Neurotoxicology* 30(4): 564-71.

would be exempt from state mandates under the federal Employee Retirement and Income Security Act (ERISA). The IC projected 2010 total medical cost estimate for state employee BLS claims is \$152,049.

**16. *The extent to which credible scientific evidence published in peer-reviewed medical literature generally recognized by the relevant medical community determines lead screening to be safe and effective.***

**Blood Lead Screening and Screening Initiatives**

As highlighted in the background (section II), the relevant medical community offers contradicting opinions based on reviews of the scientific evidence regarding whether BLS is a safe and effective means for addressing the issue of child lead poisoning. Reviews by USPSTF, AAP and CDC concur that in practice the act of obtaining a venous or capillary specimen is relatively safe although adverse reactions may occur. In addition, the effectiveness of BLS has some limitations. Capillary specimens can be contaminated by surface lead and have been criticized for higher rates of false positives, especially when used for populations where the prevalence of elevated BLLs is low.<sup>486, 487, 488</sup> Venous tests are more sensitive than capillary tests for the detection of BLLs as low as 10 mg/dL (the CDC and Connecticut threshold) but are equally as effective in the detection of BLLs >15 mg/dL (the level at which treatment is pursued).<sup>489</sup>

Protocols for capillary blood draws are provided through the CDC in an effort to minimize contamination. Although capillary tests have high rates of false positives (4.5 to 6.8 percent), positive tests are confirmed with venous blood tests that substantially reduce false positives. Even with the limitations of capillary blood draws, the CDC recommends the use of capillary blood draws to achieve increased screening for BLLs.

**Treatment**

The CDC and AAP justify the need for targeted screening as a means for detecting children exposed to lead when the symptoms would be otherwise undetected. The AAP Committee on Environment 1993 article published in *Pediatrics* states, “it is the role of the pediatrician to give realistic reassurance that early detection and source control can minimize intellectual and behavioral consequences for the individual child” and “that the toxicity of lead is dependent on the duration and dosage of the exposure.”<sup>490</sup> The importance of early detection as a mechanism for effective medical and environmental interventions is echoed by the CDC. Conversely, the USPSTF assessment of the literature does not find compelling evidence for successful treatment of lead poisoning or reduction of BLLs. The USPSTF also raises concerns about the documented risks associated with lead hazard abatement and chelation therapy. Another reason for the USPSTF opposition to screening average risk children is the lack of evidence that treatments for exposure reverse the cognitive/neuropsychological effects from lead exposure.

**Risk Assessment Questionnaires**

Risk assessment questionnaires can be used to screen populations. The CDC provides guidelines on questions to ask. A comparison of studies evaluating risk assessment questionnaires indicates a wide

<sup>486</sup> Parsons P J, Reilly A A, Esernio-Jenssen D. 1997. Screening children exposed to lead: an assessment of the capillary blood lead fingerstick test. *Clinical Chemistry* 43(2): 302-11.

<sup>487</sup> Schonfeld DJ, Rainey PM, Cullen MR, et al. 1995. Screening for lead poisoning by finger stick in suburban pediatric practices. *Archives of Pediatrics and Adolescent Medicine* 149(4): 447-50.

<sup>488</sup> Schlenker TL, Fritz CJ, Mark D, et al. 1994. Screening for pediatric lead poisoning. *Journal of the American Medical Association* 271(71): 1346-48.

<sup>489</sup> Kemper A, Bordley W, Downs S. 1998. Cost-effectiveness analysis of lead poisoning screening strategies following the 1997 guidelines of the Centers for Disease Control and Prevention. *Archives of Pediatrics and Adolescent Medicine* 152(12): 1202-8.

<sup>490</sup> American Academy of Pediatrics Committee on Environmental Health. 2005. Lead exposure in children: prevention, detection and management. *Pediatrics* 116(4): 1036-46.

variation in the sensitivity and specificity of questions, especially when detecting varying BLLs.<sup>491,492, 493, 494</sup> Questionnaires achieve improved results when validated to the local community. However, the usefulness of questionnaires in communities with higher rates of EBLs has been questioned. A test of a CDC-based screening questionnaire found that in communities where more than 17 percent of the population has EBLs, false negatives can reach 19 percent.<sup>495</sup>

## V. Financial Impact

### ***1. The extent to which the mandated health benefit may increase or decrease the cost of the treatment, service or equipment, supplies or drugs, as applicable, over the next five years.***

The requirement for BLS to be included as a health benefit for fully insured plans came into effect as of January 1, 2009. Theoretically, the impact on cost over the next five years would be driven by subsequent changes in utilization and the available supply of BLS tests and test processing capacity. If a jump in demand materializes and outweighs current supply of tests or processing capacity, the cost per BLS may increase in the short-term until market efficiencies in processing tests or economies of scale may be realized.

Provided that the maximum number of eligible children received the recommended level of screening, the initial year of implementation would have the highest demand, potentially the highest unit cost and the highest overall cost. Assuming that all children under six who had not been screened by 36 months received a screening during the initial year, demand would drop in the second year of the mandate. For subsequent years, demand would remain level so long as the child population growth remained relatively constant.

IC observational data for the initial year of the mandate (2009) shows evidence of a small increase in BLS utilization but no significant difference in total medical claims or premiums when compared to the two years prior. Notably, the processing of BLS free of charge by the DPH Laboratory may offset BLS-related medical claims. Regardless of insurance status or type, the DPH Laboratory processes tests for children without charging a fee. The DPH Laboratory absorbs the \$16.90 cost for processing each test. In 2009, the DPH Laboratory processed approximately 53 percent of the tests completed for Connecticut children. In the case that the DPH Laboratory begins to charge the cost of the test, the unit cost of the laboratory processing fees could increase from \$0 to \$16.90. The laboratory fees charged for BLS by other entities can be substantially higher than the state. At least one laboratory, which is frequently used by a major medical health center, charges a \$52 processing fee.<sup>496</sup>

### ***2. The extent to which the mandated health benefit may increase the appropriate or inappropriate use of blood lead screening over the next five years.***

If everyone eligible received the recommended screening and child population growth remained constant, after the initial year of implementation (2009) the rate of screening would be relatively constant. Assuming a fully insured cohort size of 13,653 per birth year for children up to 72 months old and cohort screenings at 9-12 months of age, 24 months old and again for children deemed at-risk (1 in 3 children 36 to 72 months

<sup>491</sup> Haan M, Gerson M, Zishka B. 1996. Identification of children at risk for lead poisoning: an evaluation of routine pediatric blood lead screening in an HMO-insured population. *Pediatrics* 97(1): 79-83.

<sup>492</sup> Schaffer S, Kincaid M, Endres N, et al. 1996. Lead poisoning risk determination in a rural setting. *Pediatrics* 97(1): 84-90.

<sup>493</sup> Striph, K. 1994. Prevalence of lead poisoning in a suburban practice. *Journal of Family Practice* 41(1): 65-71.

<sup>494</sup> Schaffer SJ, Szilagyi PG, Weitzman M. 1994. Lead poisoning risk determination in an urban population through the use of a standardized questionnaire. *Pediatrics* 93(2): 159-63.

<sup>495</sup> American Academy of Pediatrics Committee on Environmental Health. 2005. Lead exposure in children: prevention, detection and management. *Pediatrics* 116(4): 1036-46.

<sup>496</sup> Personal Communication. Harriette Clark, Administration-Billing, State of Connecticut Department of Public Health Laboratory. August 24, 2010.

old), 45,326 children would be screened annually.

The degree to which the newly mandated health benefit increases appropriate utilization depends on how many fully insured children gained BLS coverage under the mandate and start accessing BLS when they otherwise had not. Pre-mandate, 10,895 BLS claims (time-trend adjusted)<sup>497</sup> were submitted to fully insured plans and an additional 24,410 privately insured or uninsured children obtained screening without a medical claim. It is unclear how many of the 24,410 children were in a fully insured plan. The potential increase in utilization hinges on the degree to which the fully insured population are among the 24,410 children who obtained a BLS without a medical claim.

Varying scenarios of changes in BLS utilization among the fully insured are illustrated in Figure II.8.2. The top stacks indicate the potential increase in children receiving BLS following the mandate. The bottom stacks capture the pre-mandate or baseline level of children receiving BLS and the middle stack adjusts for time-trends in BLS.

The first scenario, “Alternative BLS Source (0 percent),” assumes no fully insured child would obtain BLS through an alternative means in the absence of the mandate (0 out of the 24,410) and each eligible child is screened. If this is the case, a three-fold increase in utilization equaling an estimated 34,432 children receiving BLS would occur.

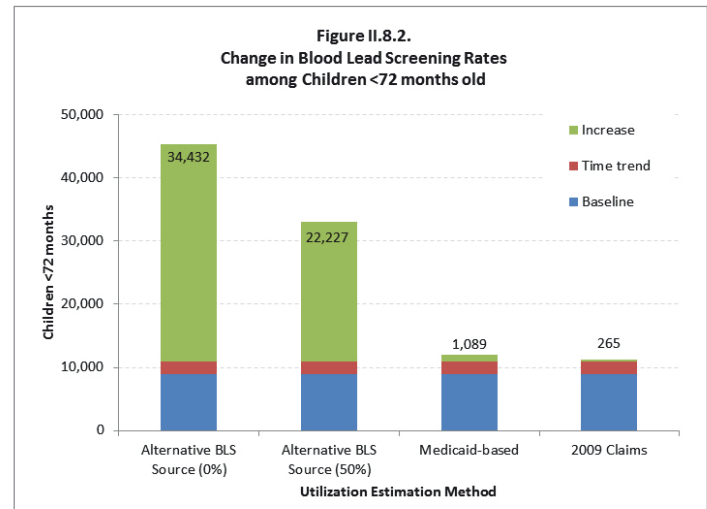
For the second scenario, “Alternative BLS Source (50%),” it is assumed that all children are screened but 50 percent (12,205 of the 24,410) would have received screening in the absence of the mandate. In this scenario, rather than the three-fold increase seen under the first scenario there would be a nearly two-fold increase in BLS (22,227).

However, the mandate may have a much smaller impact on utilization if the fully insured population behaves similarly to the Medicaid population. Similar to Medicaid EPSDT parameters, as of January 1, 2009 Connecticut legislated BLS as a “duty of the physician” and fully insured plans must cover BLS. The third scenario explores the change in utilization expected if the fully insured population obtains BLS at a rate similar to the Medicaid-enrolled population. The expected increase in BLS for the fully insured children should be the proportionate difference in BLS utilization between fully insured and Medicaid covered children at baseline which was an approximate 10 percent difference in the year prior to the mandate.<sup>498</sup> The resulting increase in screening of children in fully insured plans would be approximately 1,090 children. Compared to the maximum utilization estimates, the Medicaid-based estimate is closer to the actual 11,160 reported claims observed for 2009 in IC data. The 2009 change in claims suggest that the increase in utilization that may be attributable to the combined passage of the insurance coverage requirement and the provider mandate is a modest 2.4 to 3.0 percent increase.

### ***3. The extent to which the mandated health benefit may serve as an alternative for a more expensive***

<sup>497</sup> Numbers reflect a pre-mandate annual utilization increase rate of 22 percent among fully insured claims.

<sup>498</sup> Hung T. Connecticut Department of Health. 2009. 2008 Lead Surveillance Report, CY 2008. Available at: [http://www.ct.gov/dph/lib/dph/environmental\\_health/lead/pdf/CY\\_2008\\_Lead\\_Surveillance\\_Report.pdf](http://www.ct.gov/dph/lib/dph/environmental_health/lead/pdf/CY_2008_Lead_Surveillance_Report.pdf). Accessed November 4, 2010.



*or less expensive approach.*

BLS can serve as an alternative to environmental interventions to the extent that screening can identify children with EBLLs, the child can receive treatment, and the child's environment (often the household) can be assessed and potentially remediated or encapsulated to control lead risks. While BLS identifies children with exposures, strictly environmental interventions do not. Lead abatement interventions focus on removing lead-based paint and lead-contaminated dust. Contaminated areas may be addressed by removal, permanent enclosure or encapsulation, replacing lead-painted fixtures, windows, doors or other surfaces, and the removal or covering of lead contaminated soil. These measures can help eliminate the future risk of lead poisoning from the property. While environmental interventions address the primary sources of lead poisoning, such approaches do not focus on whether the child has lead poisoning nor does it focus on medical treatments. Thus the potential negative health effects that may be occurring at present may not be detected or addressed medically.

Universal screening can serve as an alternative to targeted screening (refer to Sections IV-10, and IV-16). Screening all children meeting the requirements is more expensive and more likely to yield false positives, whereas targeted screening is less expensive (because fewer tests are conducted) and more reliable. If risk assessment questionnaires are not validated for the population of interest or if community-level data is weak, targeted screening may not be more effective than universal screening.

***4. The methods that will be implemented to manage the utilization and costs of the mandated health benefit.***

The mandate for BLS during early childhood may result in negotiation with makers of lead screening kits and certified laboratories to reduce costs. It is assumed that health plan carriers will continue to use the same utilization management methods and cost controls used for other covered benefits with the exception of requiring prior authorization. It is also possible that carriers may set parameters for the type and method of test that can be conducted and reimbursed for or define where tests results can be processed. During the research conducted for this report, it was noted through the Connecticut chapter of the AAP that complaints had surfaced from providers regarding carriers denying BLS claims. It is unconfirmed whether the claims denied were for children covered by fully insured plans. However, some payers, although the payer-type is unknown, do not reimburse for the handheld device used in physician offices. Furthermore, since the DPH Laboratory does not charge the \$16.90 cost of processing a blood lead specimen for children under eighteen, it is possible that payers may require use of the state laboratory for this service.

***5. The extent to which insurance coverage for blood lead screening and risk assessment, may be reasonably expected to increase or decrease the insurance premiums and administrative expenses for policyholders.***

Insurance premiums are comprised of medical claims, administrative expenses and profit/reserves. Based on projections by Ingenix Consulting, for BLS coverage in 2010, employers enrolled in fully insured group plans will pay an average \$0.01 PMPM while individuals will pay less than \$0.01 PMPM. The majority of the \$0.01 consists of the medical claim whereas administrative expenses account for a small proportion of \$0.01. The PMPM premium is not expected to change significantly when compared to the period before the mandate.

***6. The extent to which blood lead screening and risk assessment is more or less expensive than an existing approach that is determined to be equally safe and effective by credible scientific evidence published in peer-reviewed medical literature generally recognized by the relevant medical community.***

The safety and effectiveness of blood lead screening methods and existing alternatives is discussed under Section IV-16, Section IV-10, and Section V-3 respectively. Three main types of alternatives to BLS exist for addressing lead poisoning in children: biomarker screening (excluding blood lead), eliminating lead from the environment and targeted screening. (For additional details on these alternatives please refer to Section IV-10.) Each of these methods has a different range of associated costs. The BLS schedule and risk assessment for children serves as a less costly short-term alternative to addressing childhood lead poisoning when compared to environmental remediation approaches.

The total cost of BLS completed as part of a routine pediatric visit would be free of charge if processed at the State DPH Blood Laboratory or charges may reach approximately \$52 when using private laboratories.<sup>499</sup> In some cases, insurers have denied claims for BLS when the test is completed and read at the physician's office using one of the CLIA-approved devices. Environmental assessment and intervention costs for pre-1978 housing vary and associated costs would not be covered by health insurers. Detection of lead-related issues in homes can be done through clearance tests (\$140-180), lead inspections (\$350-450), or more extensive risk assessments (\$450-550).<sup>500</sup> If lead is detected, encapsulation (estimated at \$0.50 per square foot) can be done. Quotes for abatement vary depending on whether contaminated areas such as windows, doors and trim are stripped, removed or replaced. Including contributions from tenants or landlords, the Lead Action for Medicaid Primary Prevention program in Connecticut funds up to \$7,000 towards abatement and remediation of affected properties occupied by eligible residents. The EPA estimates that the abatement cost per square foot is between \$8 and \$15.

According to the 2000 Census, there are 1,385,975 housing units in Connecticut of which 78.2 percent (1,083,491) were built prior to the lead paint ban and 31.5 percent (435,884) were built prior to 1950 when lead paint use was most prevalent. The cost of identifying areas of concern in each pre-1950s household, encapsulating 40 percent of pre-1950s houses and abating the remaining houses may cost \$4.59 billion.<sup>501</sup> Alternatively, if each house were inspected and had lead contaminated areas encapsulated the cost would be substantially less at \$612.4 million. To inspect and encapsulate lead in all pre-1950 properties within thirty years would cost \$20.4 million each year. To investigate and encapsulate all houses built prior to the lead ban, the length of time it would take to fund the program would be more than twice as long. The total annual cost (including administrative costs and profit) for the BLS mandate is much lower, estimated at \$452,188 (which assumes 100 percent utilization and that 50 percent of the non-Medicaid children screened were in fully insured plans). Thus BLS is 2 percent the cost of encapsulating all pre-1950 houses and less than 1 percent the cost of abating all pre-1950 houses in Connecticut.

Another alternative to Connecticut's approach is targeted screening. Although universal screening detects more cases of lead poisoning, using universal screening is more expensive except in populations where the prevalence of BLLs  $\geq 10$  exceeds 44 percent. In Connecticut, between 2002 and 2008, the prevalence of EBLs was 1.0 percent or less during each year for the children not enrolled in Medicaid. However, use of targeted screening depends in part on having quality community level data to determine which children or what neighborhoods are at high-risk and would benefit from screening.

### ***7. The impact of insurance coverage for blood lead screening and risk assessment on the total cost of health care, including potential benefits or savings to insurers and employers resulting from***

<sup>499</sup> Personal Communication. Harriette Clark, Administration-Billing, State of Connecticut Department of Public Health Laboratory. August 24, 2010.

<sup>500</sup> Fixr. Lead Pain Removal costs. Tigerdirect and Loma Linda company. Available at: <http://www.fixr.com/costs/lead-paint-removal>. Accessed November 4, 2010.

<sup>501</sup> Estimate assumes a per house inspection charge of \$280 plus 40% of houses are encapsulated at \$1,125 (2,000 sq ft x \$0.50), 20% abated for \$7,000 (LAMPP allocation), 25% abated at \$16,000 (2,000 sq ft x \$8 sq ft), and 15% abated at \$30,000 (2,000 sq ft home x \$15 sq ft).



*prevention or early detection of disease or illness related to such coverage.*

Based on BLS claims data from 2007, 2008 and 2009, Ingenix Consulting projected \$187,202 as the total cost of health care related to BLS in 2010. Of this amount, medical claims accounted for \$152,049 and cost-sharing accounted for \$35,153. As noted in section V-2, BLS utilization in 2009 was not at the level it would be if all children in fully insured plans accessed BLS screenings to the extent specified under the “duty of physicians” statute.

The potential savings to insurers and employers resulting from prevention of lead poisoning varies by severity of poisoning. For the severe cases, the direct costs of immediate treatments used to decrease EBLs can be high. Chelation therapy (ChT) can cost as much as \$8,000 (average \$2,418 to \$4,711). These treatments often require extended hospital stays and sometimes need to be repeated. Costly long-term treatments for central nervous system and developmental conditions may also be required for both lead poisoning requiring ChT and lead poisoning at lower exposure levels. Assessing BLLs in the first year of life and again prior to a child turning three targets the critical development period for children and offers the chance for early detection. The earlier the detection of lead exposure, the more likely duration and dosage of exposure can be reduced for the child. In turn, early detection could lead to a lower proportion of the population leading lives while managing costly deficits caused by lead exposure.

***8. The impact of the mandated health care benefit on the cost of health care for small employers, as defined in § 38a-564 of the general statutes, and for employers other than small employers.***

Prior to BLS becoming a mandated benefit, the average cost of BLS-related claims for the fully insured population contributed an average of \$0.01 or less to premiums on a PMPM basis. In the initial year following the mandate, the cost of BLS spread out on an annual basis over the fully insured population was \$0.03-\$0.04. However, the cost under the mandate did not differ statistically from the period prior to mandate enactment, so it is unlikely that the mandated health benefit would impact the cost of small employers.

Although unlikely, the impact of the net new cost for BLS may vary based on employer size. Since the overall cost for small group plans tends to be lower than large group plans, as a percentage of total paid medical cost, the cost of this mandate will be somewhat greater for small employers. Regardless of size, strategies for offsetting health insurance premium costs include increasing cost-sharing, reducing the number of non-mandated benefits covered or no longer offering health insurance plans.

***9. The impact of the mandated health benefit on cost-shifting between private and public payers of health care coverage and on the overall cost of the health care delivery system in the state.***

The overall cost of the BLS mandate on Connecticut’s health care delivery system is projected at \$218,163 for 2010.<sup>502</sup> This amount includes all projected medical claims and cost-sharing plus administrative fees and insurer profit/reserves. Given the lack of a significant difference when comparing BLS claims before and after the mandate, it is expected that almost all of the projected spending may have occurred in the absence of the mandate.

The provision for fully insured plans to cover BLS may or may not result in a shift of costs between the private and public payers of health care. If BLS is obtained through private insurance plans by those who otherwise would use publicly funded mechanisms if the mandate were not in place, then a shift in cost to the private sector would occur. Arguably, a large share of the benefits of early detection and prevention of lead poisoning accrue to the public sector through a reduction of the resources necessary to provide support for

<sup>502</sup> Ingenix Consulting. Actuarial Report for the State of Connecticut on Set Two of the Health Insurance Mandates Covered by Public Act Number 09-179. December 10, 2010. Located in Appendix II.

children with lead poisoning (e.g. special education, criminal justice).

## Addendum

Calculations and assumptions for financial impact V-2.

### *Assumptions:*

- Population size:  
Annual birth cohort size assumption is 43,000 for all children less than 72 months (per DPH), of which 63 percent are not enrolled in Medicaid. Of the non-Medicaid population (27,305), approximately half are fully insured (13,653).
- 9-12 months: The maximum potential for screening listed is the size of the fully insured birth cohort for each given year. 13,653 is used.
- 24 months: With the exception of 2009, during all subsequent years, the fully insured population turning 2 is the maximum for BLS (13,653 is used).
- At risk: With the exception of 2009, the at-risk population is 33 percent of the fully insured child population for a 4-year period ( $13,653 \times 4 \times 33$  percent).
- Catch up screenings for fully insured 12-35 month olds is calculated based on the product of the cohort size (13,653) and the proportion of the population that didn't obtain a BLS between the ages of 1-2 years old.  $(2006 \text{ cohort} \times 0.553) + (2007 \text{ cohort} \times 0.518) + (2008 \text{ cohort} \times 0.488)$
- Catch up screenings for fully insured 36<72 month olds is calculated similarly as the product of the cohort size and the proportion of the population that didn't obtain a second BLS by 36 months.  $(2005 \text{ cohort} \times 0.68) + (2006 \text{ cohort} \times 0.7) + (2007 \text{ cohort} \times 0.73)$

Estimating maximum utilization of BLS among the fully insured population.					
Year	9-12 mo	24 mo	At risk	Catch up 12 ≥35 mo	Catch up 36-72 mo
2009	13,653		4,010	21,284	28,807
2010	13,653	13,653	18,021	0	0
2011	13,653	13,653	18,021	0	0
2012	13,653	13,653	18,021	0	0
2013	13,653	13,653	18,021	0	0
2014	13,653	13,653	18,021	0	0
2015	13,653	13,653	18,021	0	0

## **Volume II**

### **Chapter 9**

#### **Low Protein Modified Food Products, Amino Acid Modified Preparations, and Specialized Formulas**

Review and evaluation of CGSA § 38a-518c and 38a-492c

Mandatory coverage for low protein modified food products, amino acid modified preparations and specialized formulas

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## I. Overview

In Public Act 09-179, An Act Concerning Reviews of Health Insurance Benefits Mandated in this State, the Connecticut General Assembly directed the Connecticut Insurance Department to review statutorily mandated health benefits existing on or effective on July 1, 2009. This report is a part of that review and was conducted following the requirements stipulated under Public Act 09-179. The review is a collaborative effort of the Connecticut Insurance Department and the University of Connecticut Center for Public Health and Health Policy.

CGSA §§ 38a-518c and 38a-492c mandate that group and individual health insurance policies issued, renewed or continued in this state provide coverage for amino acid modified preparations and low protein modified food products for the treatment of inherited metabolic diseases when prescribed by a physician, and for specialized formulas which are medically necessary for the treatment of a disease or condition when they are administered under the direction of a physician.

Specifically, CGSA § 83a-518c provides that:

- (a) For purposes of this section:
  - (1) “Inherited metabolic disease” includes (A) a disease for which newborn screening is required under section 19a-55; and (B) cystic fibrosis.
  - (2) “Low protein modified food product” means a product formulated to have less than one gram of protein per serving and intended for the dietary treatment of an inherited metabolic disease under the direction of a physician.
  - (3) “Amino acid modified preparation” means a product intended for the dietary treatment of an inherited metabolic disease under the direction of a physician.
  - (4) “Specialized formula” means a nutritional formula for children up to age twelve that is exempt from the general requirements for nutritional labeling under the statutory and regulatory guidelines of the federal Food and Drug Administration and is intended for use solely under medical supervision in the dietary management of specific diseases.
- (b) Each group health insurance policy providing coverage of the type specified in subdivisions (1), (2), (4), (6), (11) and (12) of section 38a-469 delivered, issued for delivery or renewed in this state on or after October 1, 1997, shall provide coverage for amino acid modified preparations and low protein modified food products for the treatment of inherited metabolic diseases if the amino acid modified preparations or low protein modified food products are prescribed for the therapeutic treatment of inherited metabolic diseases and are administered under the direction of a physician.
- (c) Each group health insurance policy providing coverage of the type specified in subdivisions (1), (2), (4), (6), (11) and (12) of section 38a-469 delivered, issued for delivery or renewed in this state on or after October 1, 2007, shall provide coverage for specialized formulas when such specialized formulas are medically necessary for the treatment of a disease or condition and are administered under the direction of a physician.
- (d) Such policy shall provide coverage for such preparations, food products and formulas on the same basis as outpatient prescription drugs.  
(P.A. 97-167, S. 2)

CGSA sec 38a-492c mandates the same coverage in individual health insurance policies delivered, issued for delivery, renewed or renewed in Connecticut.

In March 2010, CPHHP and Ingenix Consulting (IC) requested and received 2007 and 2008 claims data related to the mandated benefit from six insurers and managed care organizations (MCOs) domiciled in Connecticut that cover approximately 90 percent of the population in fully insured group and individual health insurance plans in Connecticut (1.25 million persons). Based on that claims data, a review of the legislative history, reviews of pertinent literature and the Ingenix Consulting report, this review found the following:

### *Current coverage*

This mandate has been in effect since 1997 for amino acid modified preparations and low protein modified food products. Specialized formulas were added in 2001.

### *Premium impact*

**Group plans:** On a 2010 basis, medical cost is estimated to be \$0.24 PMPM. Estimated total cost (insurance premium, administrative fees, and profit) of the mandated services in 2010 in group plans is \$0.29 PMPM, which is approximately 0.1 percent of estimated total premium costs in group plans. Estimated cost sharing in 2010 in group plans is \$0.01 PMPM.

**Individual policies:** Four of the six insurers/MCOs provided claims data for individual health insurance policies. On a 2010 basis, medical cost is estimated to be \$0.08 PMPM. Estimated total cost (insurance premium, administrative fees, and profit) of the mandated service in 2010 in individual policies is \$0.11 PMPM, which is less than 0.1 percent of estimated total premiums in individual policies. Estimated cost sharing in 2010 in individual policies is \$0.01 PMPM. Individual policies data is less credible than group plans data primarily due to small sample size.

The Ingenix Consulting report indicated that the majority of these costs are for specialized formulas.

### *Self-funded plans*

Information received from the six insurers/MCOs domiciled in Connecticut representing an estimated 99 percent of the total self-funded population in Connecticut shows that 10.5 percent of members in self-funded plans have coverage for the benefit.

This report is intended to be read in conjunction with the General Introduction to this volume and the Ingenix Consulting Actuarial and Economic Report which is included as Appendix II.

## **II. Background**

### **Inherited Metabolic Disease**

Inherited metabolic diseases (also called inborn errors of metabolism)<sup>503</sup> are hereditary defects that interfere with one or more biochemical functions that are essential for life.<sup>504</sup> The most well-known inherited metabolic diseases are phenylketonuria (PKU) and maple syrup urine disease. The inability to metabolize some forms of protein, carbohydrates or fats can cause serious problems for infants. The major therapy for many of these metabolic diseases is medical nutrition therapy, which may limit or exclude completely most normal foods or formulas. Specialized formulas for infants and modified foods for children and adults

<sup>503</sup> MedicineNet.com. <http://www.medterms.com/script/main/art.asp?articlekey=7666>. Accessed October 15, 2010.

<sup>504</sup> Buist N, Huntington K, Winter S. 2009. Healthcare Coverage for Medical Food Treatment of Inborn Errors of Metabolism. Link found at: <http://www.michigan-pku.org/faq/1-pku/18-medical-food-bill-talking-points>. Accessed on October 15, 2010.

are used in strictly supervised diets to provide the nutrition and energy needed for normal growth and development.<sup>505</sup> For some people with metabolic diseases, medical foods are needed throughout their lives.

Newborn screening detects such errors in approximately 1 of 2000 infants per year. About 1 of 1500 require specially formulated foods, frequently called “medical foods,” for the management of an inherited metabolic disease. Nationally, an estimated 2800 children born per year need such specialized foods.

### **Low Protein Modified Food Product**

Specialized formulas, which use elemental forms of nutrients, are substituted for milk-based formulas for infants with some inherited metabolic diseases. However, these are not sufficient to meet the nutritional and energy needs of older children and adults with these conditions.<sup>506</sup> Low protein modified foods balance their low protein content with sufficient calories from other sources to support physical and neurological development and well-being. They are designed to resemble the foods for which they substitute, to increase patient acceptance and adherence to the diet.

### **Amino Acid Modified Preparation**

Amino acids are organic compounds that combine to form proteins. The human body requires a number of amino acids to grow and breakdown food. Essential amino acids cannot be made by the body and must be supplied by food. Sources of essential amino acids include milk, cheese, eggs, certain meats, vegetables, nuts, and grains.<sup>507</sup> People who cannot process proteins or who are allergic or intolerant to a protein contained in these foods may need amino acid modified preparations in order to obtain the required nutrients for physical and neurological growth and development.

### **Specialized Formulas**

Section 412 of the federal Food, Drug and Cosmetic Act, 21 USC section 350a, exempts from its labeling requirements any infant formula which is represented and labeled for use by an infant who has an inborn error of metabolism or a low birth weight, or who otherwise has an unusual medical or dietary problem. Manufacturers must apply for exempt status under 21 CFR section 107 and must meet any requirements imposed pursuant to those regulations.

Specialized formulas may be needed to provide infants and children who have inherited metabolic diseases or severe allergies or intolerance to milk, soy or other proteins with the amino acids they need for normal physical and neurological growth and developmental. They may also be needed by individuals suffering from short bowel syndrome, or an inability to absorb nutrients in the small intestine, which can result from the removal of portions of the small intestine.

## **III. Methods**

Under the direction of CPHHP, medical librarians at the Lyman Maynard Stowe Library at the University of Connecticut Health Center (UCHC) gathered published articles and other information related to medical, social, economic, and financial aspects of the required benefit. Medical librarians conducted literature searches using PubMed, PsycInfo, Scopus, UpToDate, Cochrane Systematic Review, Library’s LYMAN Catalog, and the Internet (FDA, NLM, CDC, CWLA, CT.gov, etc).

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<sup>505</sup> Huntington K, Buist NR. 2009. Medical Food for Treatment of Inborn Errors of Metabolism and State Legislative Mandates. *Topics in Clinical Nutrition* 24(4); 289-290.

<sup>506</sup> *Ibid.*

<sup>507</sup> Medline Plus. Amino Acids. Available at <http://www.nlm.nih.gov/medlineplus/ency/article/002222.htm>. Updated March 14, 2009. Accessed on November 12, 2010.

Search terms included: Foods, formulated, medical food, medical foods, prescription foods, medical foods, medically necessary formula, metabolism, inborn errors, and metabolic disorders.

CPHHP staff conducted independent literature searches using similar search terms used by the UCHC medical librarians. Where available, articles published in peer-reviewed journals are cited to support the analysis. Other sources of information may also be cited in the absence of peer-reviewed journal articles. Content from such sources may or may not be based on scientific evidence.

CPHHP staff consulted with clinical faculty from the University of Connecticut School of Medicine on matters pertaining to medical standards of care, traditional, current and emerging practices, and evidence-based medicine related to the benefit.

Staff gathered additional information through telephone and e-mail inquiries to appropriate state, federal, municipal, and non-profit entities and from internet sources such as the State of Connecticut website, Centers for Medicare and Medicaid (CMS) website, other states' websites, professional organizations' websites, and non-profit and community-based organization websites.

With the assistance of the Connecticut Insurance Department (CID), CPHHP and Ingenix Consulting requested and received 2007 and 2008 claims data from insurance companies and carriers domiciled in Connecticut. Six carriers provided claims data for their fully insured group and individual plan participants. Six carriers also provided information about coverage in the self-funded plans they administer.

CPHHP and the CID contracted with Ingenix Consulting (IC) to provide actuarial and economic analyses of the mandated benefit. Further details regarding the insurer/MCO claims data and actuarial methods used to estimate the cost of the benefit and economic methods used to estimate financial burden may be found in Appendix II.

## IV. Social Impact

### ***1. The extent to which the treatment, service or equipment, supplies or drugs, as applicable, is utilized by a significant portion of the population.***

Inherited metabolic diseases affect a very small percentage of the general population, approximately 1/15,000 overall. Many of them are extremely rare.<sup>508</sup> However, access to modified food products can mean the difference between life and death for some of those affected.<sup>509</sup>

Severe food allergies or intolerances (food intolerance involves the body's metabolism but not the immune system) may also necessitate the use of special formulas or modified food products, especially in infancy and childhood.

The National Institute for Allergies and Infectious Diseases (NIAID), one of the National Institutes of Health, estimate that up to 5 percent of children and 4 percent of adults have food allergies. A larger number of people have food intolerances. However, not all people with allergies or intolerances require these specialized foods and formulas. Many people can manage a food allergy or food intolerance by avoiding the specific food that triggers the condition.

### ***2. The extent to which the treatment, service or equipment, supplies or drugs, as applicable, is***

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<sup>508</sup> Buist N, Huntington K, Winter S. 2009. Healthcare Coverage for Medical Food Treatment of Inborn Errors of Metabolism. P.3. Link found at: <http://www.michigan-pku.org/faq/1-pku/18-medical-food-bill-talking-points>. Accessed on October 15, 2010.

<sup>509</sup> American Academy of Pediatrics. 2006. Newborn Screening Fact Sheets. *Pediatrics* 118(3):e934.



*available to the population, including, but not limited to, coverage under Medicare, or through public programs administered by charities, public schools, the Department of Public Health, municipal health departments or health districts or the Department of Social Services.*

### **Medicaid**

Pursuant to federal Early Periodic Screening, Diagnosis, and Treatment (EPSDT) guidelines, DSS covers low protein modified food products, amino acid modified preparations and specialized formulas “if medically necessary for those Medicaid recipients under 21 years of age.”<sup>510</sup>

### **WIC**

The Connecticut WIC program, administered by the Department of Public Health, includes specialized formulas in its list of Connecticut WIC Approved Products.<sup>511</sup>

### **Manufacturers**

Some manufacturers of specialized formulas have programs to assist low income families in purchasing their product.<sup>512</sup>

#### **3. The extent to which insurance coverage is already available for the treatment, service or equipment, supplies or drugs, as applicable.**

This mandate has been in effect since 1997 for amino acid modified preparations and low protein modified food products. Specialized formulas were added in 2001. Prior to enactment of this mandate, some insurance policies did not cover modified food products or special formulas.

#### **4. If the coverage is not generally available, the extent to which such lack of coverage results in persons being unable to obtain necessary health care treatment.**

Testimony from families on S.B. 66, which became P.A. 07-197 indicated that the cost of such formulas would be prohibitive for them without insurance coverage. Depending on the consumption level, these food products can cost from \$2000 to more than \$13,000 annually.

#### **5. If the coverage is not generally available, the extent to which such a lack of coverage results in unreasonable financial hardships on those persons needing treatment.**

Assuming an average annual cost of \$4,000, the actuarial report indicates that the cost of specialized formulas and modified food products can cost an average of 8 percent of a family’s income for families earning \$50,000 annually, if there is no insurance for it.<sup>513</sup>

#### **6. The level of public demand and the level of demand from providers for the treatment, service or equipment, supplies or drugs, as applicable.**

The number of people who need such formulas is extremely small, but those who need it have few alternatives.

#### **7. The level of public demand and the level of demand from providers for insurance coverage for the treatment, service or equipment, supplies or drugs, as applicable.**

<sup>510</sup> Personal communication with James Zakszewski, RPh, DDS Pharmacy Consultant, June 22, 2010.

<sup>511</sup> Connecticut Department of Public Health. Connecticut WIC Approved Products. Accessed on October 26, 2010 at [http://www.ct.gov/dph/lib/dph/Food\\_and\\_Formula\\_Item\\_List\\_for\\_10-1-09\\_CT.pdf](http://www.ct.gov/dph/lib/dph/Food_and_Formula_Item_List_for_10-1-09_CT.pdf)

<sup>512</sup> Neocate. Reimbursement support. Accessed on October 26, 2010 at [http://www.neocate.com/aaa\\_neocate/16485-reimbursement-support.html#5](http://www.neocate.com/aaa_neocate/16485-reimbursement-support.html#5)

<sup>513</sup> Ingenix Consulting report. Appendix II, p.63.

The United States Department of Health and Human Services Advisory Committee on Heritable Disorders in Newborns and Children has recommended that medical foods and other foods modified to be low in protein be included as essential benefits for treating children and adults with inborn errors of metabolism in the implementing regulations for the Patient Protection and Affordable Care Act.<sup>514</sup> In addition, the American Academy of Pediatrics,<sup>515</sup> the Society for Inherited Metabolic Disorders,<sup>516</sup> and Genetic Metabolic Dietitians International<sup>517</sup> all have position statements calling for the development of a national policy regarding appropriate insurance reimbursement for medical foods.

**8. The likelihood of achieving the objectives of meeting a consumer need as evidenced by the experience of other states.**

Thirty-two states have a similar mandate, according to the National Association of Insurance Commissioners, although many are more limited than Connecticut in the diseases which are covered or the dollar amount of coverage.<sup>518</sup>

State	Statute	Description
AK	§ 21.42.380	Shall provide coverage for formulas for treatment of PKU, with same co-payment and deductible as for other illness.
AZ	§§ 20-2327; 20-826; 20-1057; 20-1342; 20-1402; 20-1404	Coverage that contains a prescription drug benefit shall provide coverage for medical foods to treat inherited metabolic disorders. Cover at least 50% of the cost of medical foods.
AR	§§ 23-79-701 to 23-79-703  § 23-79-129	A tax credit up to \$2400 per year per child for medical food, low protein food for persons afflicted with PKU and other listed metabolic diseases is allowed against the Ark. income tax. All health plans shall provide coverage for PKU, galactosemia, organic acidemias and disorders of amino acid metabolism, subject to same co-pay and deductible as required by health plan, for amounts paid exceeding the tax credit  Every accident and health insurance policy or health care plan shall cover newborn children and shall include tests for PKU
CA	Ins. § 10123.89; Health and Safety § 1374.56	Policies issued by a health care service plan or an insurer must cover testing and treatment of PKU including special food products.
CO	§ 10-16-104	Coverage for inherited enzymatic disorders, including PKU, etc. Maximum age for PKU treatment is 21; no limit for other metabolic diseases. Cover medical foods used to treat metabolic disease. May impose coinsurance and deductibles.

<sup>514</sup> Howell RR. 2010. Letter to The Honorable Kathleen Sebelius, US Dept of Health and Human Services, June 14, 2010. Secretary's Advisory Committee on Heritable Disorders in Newborns and Children. Accessed October 15, 2010 at <http://www.hrsa.gov/heritabledisorderscommittee/correspondence/june142010letter.htm>.

<sup>515</sup> American Academy of Pediatrics. 2003. Reimbursement for foods for special dietary use: committee on nutrition. (Policy Statement). *Pediatrics* 2003;111:1117-1119. Accessed on October 15, 2010 at: [http://galenet.galegroup.com/servlet/HWRC/hits?docNum=A101860536&year2=&year1=&index3=KE&index2=KE&index1=RN&tcit=0\\_1\\_0\\_0\\_0\\_0&index=BA&locID=22516&rlt=2&text3=&text2=&origSearch=true&text1=A101860536&op2=AND&op1=AND&t=RK&s=11&r=d&o=&secondary=false&n=10&day2=&l=d&day1=&month2=&month1=&searchTerm=2NTA&c=1&bucket=per](http://galenet.galegroup.com/servlet/HWRC/hits?docNum=A101860536&year2=&year1=&index3=KE&index2=KE&index1=RN&tcit=0_1_0_0_0_0&index=BA&locID=22516&rlt=2&text3=&text2=&origSearch=true&text1=A101860536&op2=AND&op1=AND&t=RK&s=11&r=d&o=&secondary=false&n=10&day2=&l=d&day1=&month2=&month1=&searchTerm=2NTA&c=1&bucket=per)

<sup>516</sup> Society for Inherited Metabolic Disorders. 2007. Policy Statement: Coverage for Medical Foods. Accessed October 21, 2010 at <http://www.simd.org/Statements/MedicalFoods2007.htm>.

<sup>517</sup> Genetic Metabolic Dietitians International. Statement of support for coverage of medical foods. Accessed on October 21, 2010 at <http://www.gmdi.org/Resources/PositionStatements/tabid/125/Default.aspx>.

<sup>518</sup> NAIC Compendium of State Laws on Insurance Topics, Mandated Benefits- Other, "Metabolic Disease Formulas" Section. National Association of Insurance Commissioners. May, 2008.

<b>Table II.9.1. State Citation Summary</b>		
State	Statute	Description
CT	§§ 38a-492c; 38a-518c	Individual and group health insurance policies must cover low protein modified food products intended for the dietary treatment of inherited metabolic disease and cystic fibrosis if administered under the direction of a physician for children up to age 8. Covered same as prescriptions.
DC	§ 31-3802.01	All group and individual health policies providing maternity and newborn care shall include metabolic newborn screening.
FL	§ 627.42395	Any health insurance policy must offer prescription and nonprescription enteral formulas for treatment of inherited diseases as specified.
IN	§§ 27-8-24.1; 27-13-7-18	Must cover medical food intended for the dietary treatment of an inherited metabolic disease or condition. Same deductibles, coinsurance amounts as apply to other coverages
HI	§§ 431:10A-120; 432:1-609	Must cover medical foods and low-protein modified food products for the treatment of an inborn error of metabolism.
KY	§ 304.17A-139	Provide coverage for amino acid modified preparations and low-protein modified food products for the treatment of inherited metabolic diseases. May be subject to a cap of \$4000 per year for low protein foods and a separate cap of \$25,000 for medical formulas
LA	§§ 22:215.22; 22:2004.2; 22:3018.1	Must provide coverage for low protein foods for treatment of inherited metabolic disorders. Benefit limited to \$200 a month.
ME	tit 24 § 2320-D; tit. 24-A §§ 2745-d; 2837-d; 4238	Must include coverage for metabolic formula and special modified low-protein foods for inborn error of metabolism. Benefit limited to \$3,000 per year
MD	Ins. § 15-807; 19-705.5 Ins. § 15-817	Group policy shall cover medical foods prescribed by doctor for therapeutic treatment of inherited metabolic disease.  Child wellness services shall include a visit for the collection of adequate samples for hereditary and metabolic newborn screening.
MA	§ 175:47C  §§176A:8B; 176B:4c; 175:47I; 176A:8L; 176B:4k;  176G:4D	Coverage of newborns shall include special medical formulas necessary for treatment of PKU  Shall provide coverage for nonprescription enteral formulas for home use. Coverage for inherited diseases of amino acids and organic acids shall include food products modified to be low protein. Benefit limit not to exceed \$2,500 annually.
MN	§§ 62A.26; 62E.06	Must provide dietary treatment for PKU.
MO	§ 376.1219	Shall provide coverage for formula and low protein modified food products for PKU or any inherited disease of amino and organic acids. Insured must be less than six years of age.
MT	§§ 33-22-131; 33-31-102	Mandated coverage for dietary formulas for PKU sufferers. Covers treatment of inborn errors of metabolism. Coverage must include expenses of diagnosing, monitoring and controlling the disorder.
NV (8/06)	§§ 689A.0423; 689B.0353; 695B.1923; 695C.1723	Mandated coverage for enteral formulas medically necessary for treatment of inherited metabolic diseases and up to at least \$2500 per year for special food products prescribed by physician.

<b>Table II.9.1. State Citation Summary</b>		
State	Statute	Description
NH	§§ 415:6-c; 415:18-e; 420-A:17; 420-B:8-ff	Provide nonprescription enteral formula for treatment of inherited metabolic disease.
NJ	§§ 17:48-6s; 17:48A-7q; 17:48E-35.16; 17B:26-2.1o; 17B:27-46.1r; 17B:27A-7.4; 17B:27A-19.6; 26:2J-4.17 §§ 17:48-62; 17:48A-7y; 17:48E-35.24; 17B:27-46.1Z; 17B:26-2.1v; 17B:27A-7; 17B:27A-19; 26:2J-4.25	Cover expense of treatment of metabolic disease, including purchase of medical foods.  Specialized non-standard infant formulas for babies with multiple food protein intolerance.
NM	§§ 59A-22-41.1; 59A-46-43.2; 59A-47-38	Every individual and group policy must provide coverage for genetic inborn errors of metabolism that involve amino acid, carbohydrate and fat metabolism and for which medically standard treatments exist.
NY	Ins. Law § 3216(i)(21); 3221; 4303; 4322	Every policy which provides coverage for prescription drugs must include cost of enteral formulas when prescribed as medically necessary for disorders that will cause the individual to become malnourished. Includes modified solid food products that are medically necessary. Benefit limit is \$2500 per 12-month period.
ND	§ 26.1-36-09.7; 54-52.1-04.11	Cover medical foods and low protein modified food products for therapeutic treatment of inherited metabolic disease.
OR	§ 743.726 (Repealed effective 7/3/2009)	Must include coverage for inborn errors of metabolism. Coverage includes diagnosis, monitoring and controlling disorders, including medical foods.
PA	§ 40-39-342	Shall provide coverage for formulas for treatment of hereditary genetic metabolic disorders.
RI	§ 27-50-10	Standard health benefit plans shall include newborn metabolic screening.
SD	§§ 58-17-62; 58-18-41; 58-38-23; 58-40-21; 58-41-98	Mandated offer of coverage for testing and treatment, including dietary management and formulas.
TN	§ 56-7-2505	Mandated coverage for dietary formulas for treatment of PKU.
TX	I.C. § 1359.003	Mandated coverage for formulas necessary for treatment of PKU, same as prescription drugs.
UT	§ 31A-22-623; R590-76-4; R590-194	Must include coverage for special dietary products for those suffering from hereditary metabolic disease.
VT	tit. 8 § 4089d	Must include coverage for medical foods prescribed for medically necessary treatment for an inherited metabolic disease. Coverage for low protein modified food products must be at least \$2,500 per 12-month period.
WA	§§ 48.21.300; 48.46.510; 48.44.440; 48.20.520	Shall provide coverage for formulas for treatment of PKU.

***9. The relevant findings of state agencies or other appropriate public organizations relating to the social impact of the mandated health benefit.***

The Connecticut Department of Public Health operates the Newborn Screening Program in Connecticut. All newborns are required by law to be tested for inherited metabolic diseases. If tandem mass spectrometry testing is positive for a possible inherited metabolic disease, the child is referred to a Metabolic Treatment Center at either Yale University or the University of Connecticut Genetics program for follow-up testing and confirmation.<sup>519</sup> The DPH has developed fact sheets for many of the diseases for families and primary care providers. For a number of these diseases, a specialized diet is a part of the recommended treatment.

The Connecticut DPH also operates the Connecticut WIC program, a federally-funded program which provides nutritional foods to qualifying mothers and children. Many protein modified and amino acid food products and special formulas are included in the WIC Approved Products list.

***10. The alternatives to meeting the identified need, including but not limited to, other treatments, methods or procedures.***

The specific treatment for inherited metabolic diseases differs depending on the disease. Some metabolic diseases can be treated with medications and other nutritional supplements. However, for some metabolic diseases specialized low fat, low protein or lactose free diets must be implemented.<sup>520</sup> Special formulas are also needed by some children with severe food allergies and short bowel syndrome.

***11. Whether the benefit is a medical or broader social need and whether it is consistent with the role of health insurance and the concept of managed care.***

Modified food products and specialized formulas are necessary to address some inborn errors of metabolism and severe food allergies. If left untreated, these conditions can result in developmental delays, organ damage, seizures and/or death. As such, they meet a medical need.

***12. The potential social implications of the coverage with respect to the direct or specific creation of a comparable mandated benefit for similar diseases, illnesses, or conditions.***

The inherited metabolic diseases and other conditions for which these products are prescribed or recommended are very rare. The products themselves are highly specialized and not available for general use, nor are they in demand by the general population. However, as the Pennsylvania mandate review pointed out, this mandate blurs the line between medicine, which generally is a covered benefit, and food, which is not covered by most insurance contracts. People with other conditions which require special diets or special foods (e.g. obesity, hypertension, less severe food allergies or diabetes) may seek coverage for the foods recommended by their health care providers. The FDA has taken great pains to differentiate these food products from other types of foods for special diets.

***13. The impact of the benefit on the availability of other benefits currently offered.***

This mandate added a benefit that was not covered by many health insurance policies prior to its passage. It therefore added cost to the policies. Employers may respond to increases in cost by “buying down” their benefit plan, for example, increasing employee cost-sharing through larger premium co-pays, larger deductibles and/or larger co-insurance amounts.<sup>521</sup>

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<sup>519</sup> Connecticut Department of Public Health. Newborn screening program. Accessed on October 25, 2010 at [http://www.ct.gov/dph/cwp/view.asp?a=3138&q=387742&dphNav\\_GID=1601&dphPNavCtr=|47013|](http://www.ct.gov/dph/cwp/view.asp?a=3138&q=387742&dphNav_GID=1601&dphPNavCtr=|47013|)

<sup>520</sup> American Academy of Pediatrics. 2006. Newborn Screening Fact Sheets. *Pediatrics*118(3);e934.

<sup>521</sup> Ingenix Consulting report, Appendix II., 31.

**14. *The impact of the benefit as it relates to employers shifting to self-funded plans and the extent to which the benefit is currently being offered by employers with self-funded plans.***

Information received from the six carriers domiciled in Connecticut representing an estimated 99 percent of the total self-funded population in Connecticut shows that 10.5 percent of members in self-funded plans have coverage for the benefit.

**15. *The impact of making the benefit applicable to the state employee health insurance or health benefits plan.***

This is a currently mandated benefit and as such has been included in the state employee health insurance and health benefits plans, at least in part since 2000. Because the State plans were fully insured in 2007 and for the first half of 2008 for pharmacy benefits, the claims data from the carriers and the cost projections which are based on that data include the data from the State plans. Based on the statewide average cost PMPM, the total annual cost for this mandate in 2010 is estimated to be \$470,402.

(This has been calculated by multiplying the 2010 PMPM medical cost in table 1.3A by 12 to get an annual cost per insured life, and then multiplying that product by 163,334 covered lives, as reported by the State Comptroller's office.<sup>522</sup> The number of covered lives in the State plans includes both active employees and retirees who are not covered by Medicare.)

**Caveat:** This estimate is calculated using weighted averages for all claims paid by Connecticut-domiciled insurers and health maintenance organizations in the State. The actual cost of this mandate to the State plans may be higher or lower, based on the actual benefit design of the State plans and the demographics of the covered lives (e.g., level of cost-sharing, average age of members, etc.).

Retention costs are not included in this estimate because the State is now self-funded and the traditional elements of retention do not apply. State costs for administration of the plans would be in addition to the above amount.

**16. *The extent to which credible scientific evidence published in peer-reviewed medical literature generally recognized by the relevant medical community determines the treatment, service or equipment, supplies or drugs, as applicable, to be safe and effective.***

These medical foods are the recommended treatment for several of the inherited metabolic diseases.<sup>523</sup> They are also recognized by the Food and Drug Administration as necessary for the dietary management of certain diseases and conditions, in which the patient has limited or impaired capacity to ingest, digest, absorb or metabolize ordinary foodstuffs.

## **V. Financial Impact**

**1. *The extent to which the mandated health benefit may increase or decrease the cost of the treatment, service or equipment, supplies or drugs, as applicable, over the next five years.***

It is unlikely that this mandate will affect the utilization of these food products or special formulas. A very small percentage of people have conditions which require the use of such products. For those children and adults who do need them, they are not optional purchases and are likely to be purchased whether or not there is an insurance mandate.

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<sup>522</sup> Personal communication with Scott Anderson, State Comptroller's office, September 14, 2010.

<sup>523</sup> American Academy of Pediatrics. 2006. Newborn Screening Fact Sheets. *Pediatrics* 118(3);e934.

It is possible that the mandate could affect the price of the covered products; however it is impossible to determine to what extent this might occur. Insurers also have the ability to negotiate the prices they will pay.

**2. *The extent to which the mandated health benefit may increase the appropriate or inappropriate use of the treatment, service or equipment, supplies or drugs, as applicable, over the next five years.***

The mandate is limited to specific categories of medical food that are prescribed and used for relatively rare conditions. These food products are unlikely to be purchased if not needed for these conditions, as they are expensive and not particularly palatable. Thus the mandate is unlikely to increase or decrease the use of these products.

**3. *The extent to which the mandated health benefit may serve as an alternative for more expensive or less expensive treatment, service or equipment, supplies or drugs, as applicable.***

These products are prescribed/recommended only after an infant has been determined to have one of the inherited metabolic diseases defined in the statute, or has exhibited an inability to tolerate or a severe allergic reaction to standard cows' milk- or soy-based formulas. Older children and adults can sometimes manage some of the inherited metabolic diseases with strict diets that eliminate the trigger foods, and some children outgrow the severe allergies that make them unable to tolerate certain foods. However, for the children and adults who need these products, there is no alternative nutritional therapy.

**4. *The methods that will be implemented to manage the utilization and costs of the mandated health benefit.***

Insurers can require documentation of the medical necessity of these products for a given patient. They can also negotiate prices with the manufacturers and suppliers. Also, these products are covered at the same level as prescription drugs, which often have a higher member cost-sharing level than other medical benefits.

**5. *The extent to which insurance coverage for the treatment, service or equipment, supplies or drugs, as applicable, may be reasonably expected to increase or decrease the insurance premiums and administrative expenses for policyholders.***

Insurance premiums include medical cost and retention costs. Medical cost accounts for medical services. Retention costs include administrative cost and profit (for for-profit carriers) or contribution to surplus (for not-for-profit insurers/MCOs). (For further discussion, please see Appendix II, Ingenix Consulting Actuarial and Economic Report, page 14.)

**Group plans:** When the medical cost of the mandate is spread to all insureds in group plans, medical costs are estimated to be \$0.24 PMPM and retention costs are estimated to be \$0.05 PMPM in 2010. Thus the total effect on insurance premiums is estimated at \$0.29 PMPM in 2010, which is 0.1 percent of premium.

**Individual policies:** When the medical cost of the mandate is spread to all insureds in individual policies, medical costs are estimated to be \$0.08 PMPM and retention costs are estimated to be \$0.02 PMPM in 2010. Thus the total effect on insurance premiums is estimated at \$0.10 PMPM in 2010, which is less than 0.1 percent of premium.

For further information, please see Appendix II: Ingenix Consulting Actuarial and Economic Report.<sup>524</sup>

**6. *The extent to which the treatment, service or equipment, supplies or drugs, as applicable, is more or less expensive than an existing treatment, service or equipment, supplies or drugs, as***

<sup>524</sup> Ingenix Consulting Report, Appendix II, p. 6.

*applicable, that is determined to be equally safe and effective by credible scientific evidence published in peer-reviewed medical literature generally recognized by the relevant medical community.*

For those patients who cannot meet their nutritional needs through diet management or nutritional supplements alone and who therefore need these medical foods, there is no alternative.

***7. The impact of insurance coverage for the treatment, service or equipment, supplies or drugs, as applicable, on the total cost of health care, including potential benefits or savings to insurers and employers resulting from prevention or early detection of disease or illness related to such coverage.***

The total cost of health care is understood to be the funds flowing into the medical system, which are the medical costs portion of insurance premiums and the cost sharing of the insureds. Actuarial analysis of claims data received from insurers/MCOs in Connecticut shows an expected impact in 2010 of \$3,773,871 for low protein modified food products and specialized formulas for Connecticut residents covered by fully insured group and individual health insurance.

The cost of these food products may be offset by the avoidance of severe allergic reactions to other foods and formulas for these patients, and the avoidance of the potentially serious and sometimes life-threatening effects of failure to treat appropriately.

***8. The impact of the mandated health care benefit on the cost of health care for small employers, as defined in section 38a-564 of the general statutes, and for employers other than small employers.***

The actuarial report found that this mandate is expected to have roughly the same effect on the allowed cost of small group plans as it does on large group plans.<sup>525</sup> However, the small group market is more sensitive to the cost of health insurance and may be somewhat more likely to drop coverage as a result of cost increases generally.

***9. The impact of the mandated health benefit on cost-shifting between private and public payers of health care coverage and on the overall cost of the health care delivery system in the state.***

Medicaid and WIC pay for these medical food products. This mandate may avoid the need for families to access those public programs in order to be able to afford these products.

The overall cost of the health care delivery system in the state is understood to include total insurance premiums (medical costs and retention) and cost sharing. Actuarial analysis of claims data received from insurers/MCOs in Connecticut shows an expected cost in 2010 of \$4,527,074 for the mandated products for Connecticut residents covered by fully insured group and individual health insurance plans.<sup>526</sup> This estimated impact going forward assumes that the State of Connecticut plans continue to comply with this mandate even though these plans are no longer fully insured.

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<sup>525</sup> Ingenix Consulting report, Appendix II, 29.

<sup>526</sup> Ingenix Consulting report, Appendix II. Estimated 2010 Total Cost of Each Mandate For All Those Insured in Connecticut



## **Volume II**

### **Chapter 10**

#### **Neuropsychological Testing for Children Diagnosed with Cancer**

Review and Evaluation of Connecticut Statute

Chapter 700, § 38a-516d and § 38a-492l

Coverage for Neuropsychological Testing for Children Diagnosed with Cancer

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## I. Overview

The Connecticut General Assembly directed the Connecticut Insurance Department (CID) to review the health benefits required by Connecticut law to be included in group and individual health insurance policies. The review was conducted following the requirements stipulated under Public Act 09-179. This review was a collaborative effort of Connecticut Insurance Department and the University of Connecticut Center for Public Health and Health Policy (CPHHP).

Connecticut General Statutes, Chapter 700, §§ 38a-516d and 38a-492l state that each group or individual health insurance policy:

...shall provide coverage without prior authorization for each child diagnosed with cancer on or after January 1, 2000, for neuropsychological testing ordered by a licensed physician, to assess the extent of any cognitive or developmental delays in such child due to chemotherapy or radiation treatment.

In April 2010, CPHHP and Ingenix Consulting (IC) requested and received claims data related to the mandated benefit from six insurers and managed care organizations (MCOs) domiciled in Connecticut that cover approximately 90 percent of the population in fully insured group and individual health insurance plans in Connecticut (1.25 million persons). Claims data shows extremely low utilization, confirming professional opinion that about 70-80 tests are performed in Connecticut per year.[1] The findings of this report are based on actuarial analysis of received claims data and reviews of pertinent literature and other information related to the mandated benefit.

### *Current coverage*

This mandate went into effect on October 1, 2006 (P.A. 06-131)

### *Premium impact*

**Group plans:** On a 2010 basis, the medical cost is estimated to be \$0.00 per member per month (PMPM). Estimated total cost (insurance premium, administrative fees, and profit) of the mandated services in 2010 in group plans is \$0.00 PMPM and less than 0.01 percent of estimated total costs in group plans. Estimated cost sharing in 2010 in group plans is \$0.00 PMPM.

**Individual policies:** Four of the six insurers/MCOs provided claims data for individual health insurance policies. On a 2010 basis, medical cost is estimated to be \$0.00 PMPM. Estimated total cost (insurance premium, administrative fees, and profit) of the mandated services in 2010 in individual policies is an estimated \$0.00 PMPM and less than 0.01 percent of estimated total costs in individual policies. Estimated cost sharing in 2010 in individual plans is \$0.00 PMPM.

### *Self-funded plans*

Five of the six insurers/MCOs provided information about self-funded plans, representing approximately 47 percent of the total population in self-funded plans in Connecticut. These five insurers/MCOs report that 23 percent of members in their self-funded plans have coverage for the mandated benefit.

This report is intended to be read in conjunction with the General Introduction to this volume and the Ingenix Consulting Actuarial and Economic Report which is included as Appendix II.

## II. Background

Childhood cancer is uncommon. During 2003-2007, average incidence (new cases; under 20 years old) was 168 per year in Connecticut.<sup>527</sup> The most commonly diagnosed cancers for children and adolescents (under age 20) are acute lymphoblastic leukemia (ALL) and brain tumors.<sup>528</sup> The presence of these cancers and their treatment can affect various domains of development for the affected children, including their neuropsychological development.

Of the average 168 new cases of cancer in children each year in Connecticut, approximately 50 children/adolescents (age 5 to 20) are candidates for neuropsychological testing.<sup>529</sup> For about 25 percent of these children, repeat testing occurs every 3-4 years. Thus, approximately 70-80 children with cancer or who are cancer survivors receive neuropsychological testing in Connecticut each year.<sup>530</sup>

The distribution of children covered by self-funded plans, fully insured plans, and public plans is not precisely known. If the distribution is aligned with rates of insurance coverage in the general under 65 population, 46.6 percent, or approximately 33-37 children receive neuropsychological testing under mandated coverage annually.<sup>531</sup> Insurance claims data shows very low utilization and aggregate spending for the service. Connecticut is the only state with a health insurance mandate for coverage of neuropsychological testing for children with cancer.

Cognitive changes in children with cancer can stem from the disease, the treatment, complications of treatment, comorbid conditions, adverse effects of drugs, and for additional reasons.<sup>532</sup> Cognitive delays may include several domains, including attention and concentration, information processing speed, verbal memory, visuospatial memory, visuospatial skill, executive function (planning, problem solving), and psychomotor skill.

Neuropsychological testing examines a wide range of brain-related skills: general intelligence, attention, memory, language, sensory-motor functioning and problem-solving skills. There are many different tests used for assessment of various domains. In most cases the tests are administered by a psychologist trained in neuropsychological/neurocognitive test administration and with experience in interpreting the results. Neurocognitive evaluation identifies the child's strengths and areas that require rehabilitation. Test results are used by medical professionals and educational planning teams that consist of parents, guardians, educators, and medical professionals to inform treatment plans and develop educational plans that guide and chart the child's educational, social, psychological, and physical development. Please see Table II.10.1<sup>533</sup> for frequently used neuropsychological tests for children with cancer.

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<sup>527</sup> US Department of Health and Human Services, Centers for Disease Control and Prevention. 2010. State Cancer Profiles. Available at: <http://statecancerprofiles.cancer.gov/cgi-bin/quickprofiles/profile.pl?09&515#jpIncd>. Accessed August 16, 2010.

<sup>528</sup> Mulhern RK and Butler RW. 2004. Neurocognitive sequelae of childhood cancers and their treatment. *Pediatric Rehabilitation* 7(1): 1-14.

<sup>529</sup> Personal communication. J. Nathan Hagstrom, MD. June 25, 2010.

<sup>530</sup> *Ibid.*

<sup>531</sup> University of Connecticut, Center for Public Health and Health Policy. 2009. Review and Evaluation of Public Act 09-188, An Act Concerning Wellness Programs and Expansion of Health Insurance Coverage: A Report to the Connecticut 6. Connecticut General Assembly 2009. Insurance and Real Estate Committee of the Connecticut General Assembly. Available at: <http://publichealth.uconn.edu/images/reports/InsuranceReview09.pdf>. Accessed October 27, 2010.

<sup>532</sup> Nail LM. 2006. Cognitive changes in cancer survivors. *American Journal of Nursing* 106(3) Suppl. 48-54.

<sup>533</sup> Personal communication. Mary Laliberte, Connecticut Children's Medical Center. November 9, 2010.

<b>Table II.10.1. Neuropsychological Tests for Children Diagnosed with Cancer</b>	
<b>IQ</b>	<b>Motor Coordination</b>
<ul style="list-style-type: none"> <li>– Wechsler Intelligence Scale for Children-4th Edition</li> <li>– Differential Ability Scales-2nd Edition</li> <li>– Wechsler Adult Intelligence Scale-4th Edition</li> <li>– Test of Nonverbal Intelligence</li> </ul>	<ul style="list-style-type: none"> <li>– Lafayette Grooved Pegboard Test</li> <li>– Grip Strength Test</li> </ul>
<b>Academic Achievement</b>	<b>Memory and Learning</b>
<ul style="list-style-type: none"> <li>– Wechsler Individual Achievement Test-3rd Edition</li> <li>– Gray Oral Reading Test-4th Edition</li> <li>– Test of Written Expression-3rd Edition</li> <li>– Nelson-Denny Reading Test</li> <li>– Wide Range Achievement Test-3rd Edition</li> </ul>	<ul style="list-style-type: none"> <li>– California Verbal Learning Test-Children’s Version</li> <li>– California Verbal Learning Test-2nd Edition</li> <li>– Children’s Memory Test</li> <li>– Wechsler Memory Scale-4th Edition</li> <li>– Rey-Osterietth Complex Figure Test</li> </ul>
<b>Language</b>	<b>Emotional Functioning</b>
<ul style="list-style-type: none"> <li>– Expressive Vocabulary Test-Second Edition</li> <li>– Peabody Picture Vocabulary Test-Fourth Edition</li> <li>– Test of Pragmatic Language</li> <li>– Comprehensive Assessment of Spoken Language</li> </ul>	<ul style="list-style-type: none"> <li>– Behavior Assessment System for Children-2nd Edition (Parent, Teacher, Self Versions)</li> <li>– Children’s Depression Inventory</li> <li>– Beck Depression Inventory</li> <li>– Personality Assessment Inventory</li> <li>– Millon Adolescent Clinical Inventory</li> </ul>
<b>Neuropsychological Battery</b>	<b>Executive Functioning</b>
<ul style="list-style-type: none"> <li>– NEPSY-II: A Developmental Neuropsychological Approach</li> </ul>	<ul style="list-style-type: none"> <li>– Wisconsin Card Sorting Test</li> <li>– Delis-Kaplan Executive Functioning System</li> <li>– Behavior Rating Inventory of Executive Function</li> </ul>
<b>Visual-Spatial</b>	<b>Adaptive Functioning</b>
<ul style="list-style-type: none"> <li>– Beery Test of Visual-Motor Integration</li> <li>– Judgment of Line Orientation</li> </ul>	<ul style="list-style-type: none"> <li>– Vineland Adaptive Behavior Scales-2nd Edition (Parent and Teacher)</li> <li>– Children’s Development Inventory</li> </ul>
<b>Attention and Concentration</b>	<b>Miscellaneous Tests</b>
<ul style="list-style-type: none"> <li>– Continuous Performance Test-2nd Edition</li> <li>– Vanderbilt Assessment Scale</li> </ul>	<ul style="list-style-type: none"> <li>– Autism Diagnostic Observation Schedule</li> <li>– Social Responsiveness Scale (Parent and Teacher)</li> </ul>

### III. Methods

Under the direction of CPHHP, medical librarians at the Lyman Maynard Stowe Library at the University of Connecticut Health Center (UCHC) gathered published articles and other information related to medical, social, economic, and financial aspects of the required benefit. Medical librarians conducted literature searches using PubMed (Medline), CINAHL, PsycInfo, Google, and Scopus. Subject headings used in the search included:

- Childhood cancer
- Neoplasms
- Survivor
- Cancer Surveillance
- Neuropsychological Screening
- Oncology
- Cognitive Screening or Cognition or Cognitive Tests
- Psychological Adaptation
- Chemotherapy – Adverse Effects
- Radiation – Adverse Effects
- Chronic Disease/epidemiology
- Cancer
- Child, infant, children, adolescent, youth
- Neuropsychology
- Intelligence
- Cognition
- Psychosocial Intervention
- Health Expenditures
- Insurance Benefits
- Health Care Disparities

Additional search terms included: Health Status Disparities; Cost Savings; Mass Screening; Preventive Health Services; Health Services Administration; Health Services Accessibility; Cost of Illness; Cost-Benefit Analysis; Insurance Coverage; Health Care Costs; Insurance, Health, Reimbursement; Costs and Cost Analysis; Insurance Benefits; Health Care Rationing; Health Expenditures; Quality-Adjusted Life Years.

CPHHP staff conducted independent literature searches using the Cochrane Review, Scopus, and Google Scholar using similar search terms used by the UCHC medical librarians. Where available, articles published in peer-reviewed journals are cited to support the analysis. Other sources of information may also be cited in the absence of peer-reviewed journal articles. Content from such sources may or may not be based on scientific evidence.

CPHHP staff consulted with clinical faculty and staff from the University of Connecticut School of Medicine and Connecticut Children's Medical Center on matters pertaining to medical standards of care, traditional, current and emerging practices, and evidence-based medicine related to the benefit.

Staff gathered additional information through telephone and e-mail inquiries to appropriate state, federal, municipal, and non-profit entities and from internet sources such as the State of Connecticut website,

Centers for Medicare and Medicaid (CMS) website, other states' websites, professional organizations' websites, and non-profit and community-based organization websites.

With the assistance of the Connecticut Insurance Department (CID), CPHHP and Ingenix Consulting requested and received 2007 and 2008 claims data from insurance companies and MCOs domiciled in Connecticut. Six insurers/MCOs provided claims data for their fully insured group and individual plan participants. Five insurers/MCOs also provided information about coverage for neuropsychological testing for children diagnosed with cancer in the self-funded plans they administer.

CPHHP and the CID contracted with Ingenix Consulting (IC) to provide actuarial and economic analyses of the mandated benefit. Further details regarding the insurer/MCO claims data and actuarial methods used to estimate the cost of the benefit and economic methods used to estimate financial burden may be found in Appendix II.

## IV. Social Impact

### *1. The extent to which the service is utilized by a significant portion of the population.*

Childhood cancer is uncommon. During 2003-2007, average incidence (new cases; <20 years old) was 168 per year in Connecticut.<sup>534</sup> About 50 children/adolescents (age 5 to 20) with cancer are candidates for initial neuropsychological testing each year and follow-up testing occurs every 3-4 years.<sup>535</sup> Thus, approximately 70-80 children receive neuropsychological testing as a result of cancer treatments in Connecticut each year.<sup>536</sup> The distribution of children covered by self-funded plans, fully insured plans, and public plans is not precisely known. If the distribution is aligned with rates of insurance coverage in the general under-65 population, 46.6 percent, or approximately 33-37 children receive neuropsychological testing under mandated coverage annually.<sup>537</sup> Actuarial analysis of 2007-2008 claims data from six insurers/MCOs domiciled in Connecticut found extremely low utilization of the benefit in fully insured group and individual policies in Connecticut each year.

For further information, please see Appendix II: Ingenix Consulting Actuarial and Economic Report, page 9.

### *2. The extent to which the service is available to the population, including, but not limited to, coverage under Medicare, or through public programs administered by charities, public schools, the Department of Public Health, municipal health departments or health districts or the Department of Social Services.*

#### **Medicare**

Based on the population eligible for Medicare coverage, it is estimated that very few children with cancer and with insurance coverage through Medicare receive neuropsychological testing in Connecticut.

#### **Public Programs Administered by Charities**

The American Cancer Society does not offer health care insurance, and does not have the means to provide all the people who need it with financial assistance. It does offer answers to financial and insurance

<sup>534</sup> US Department of Health and Human Services, Centers for Disease Control and Prevention. State Cancer Profiles. Available at: <http://statecancerprofiles.cancer.gov/cgi-bin/quickprofiles/profile.pl?09&515#jpIncd>. Accessed August 16, 2010.

<sup>535</sup> Personal communication. J. Nathan Hagstrom, MD. June 25, 2010.

<sup>536</sup> *Ibid.*

<sup>537</sup> University of Connecticut, Center for Public Health and Health Policy. 2009. Review and Evaluation of Public Act 09-188, An Act Concerning Wellness Programs and Expansion of Health Insurance Coverage: A Report to the Insurance and Real Estate Committee of the Connecticut General Assembly. Available at: <http://publichealth.uconn.edu/images/reports/InsuranceReview09.pdf>. Accessed October 27, 2010.

questions, helps with transportation and lodging, and funds cancer research.<sup>538</sup>

There is a wide array of childhood cancer- and leukemia-related charities and foundations throughout the country that offer financial assistance to children in need of treatment for cancer and leukemia. Assistance may also include neuropsychological testing for children with cancer. The charities' resources are limited due to their own financial constraints and eligibility is generally based on income and assets.

### ***Public Programs Administered by Public Schools***

Public schools routinely provide neurocognitive assessments to students; most are completed to determine eligibility for special education services which are regulated by federal legislation.<sup>539</sup> Federal law defines a learning disability as a discrepancy between estimated intellectual functioning and academic achievement.<sup>540</sup> The psycho-educational tests used for this purpose are generally not sufficient to assess the specific neurocognitive deficits observed in pediatric cancer survivors.<sup>541</sup> Thus, testing services provided in the public schools may not provide information of the scope and depth required for development of comprehensive and effective treatment and educational plans for children with cancer.

### ***The Department of Public Health (DPH)***

The Connecticut Department of Public Health website includes information and resources related to cancer; however, CPHHP staff found no information related to neuropsychological testing for children diagnosed with cancer. Chemotherapy is listed as a factor in childhood hearing loss on the DPH website, and information on screening for hearing and speech developmental delays is described. No information was found that indicates the DPH is a major source of neuropsychological testing for children with cancer or provides funding for neuropsychological testing for children with cancer.

### ***Municipal Health Departments***

No information was found that would indicate municipal health departments would be a source of neuropsychological testing or provide funding for neuropsychological testing for children with cancer. Municipal health departments routinely provide cancer/cancer prevention information and resources, early detection and screening services or referrals, and treatment referral services for residents.

### ***The Department of Social Services (DSS)***<sup>542,543</sup>

Medicaid covers neuropsychological testing conducted in physician's offices on an outpatient basis, as well as in rehabilitation clinics. Testing may be conducted by a psychologist, physician or technician. A wide range of neuropsychological tests are covered and none of the services require prior authorization.

### ***3. The extent to which insurance coverage is already available for the service.***

State of Connecticut law requires coverage for neuropsychological testing for children with cancer in fully insured group and individual health insurance plans as of October 1, 2006.<sup>544</sup> 2007 and 2008 claims data from six insurers/MCOs domiciled in Connecticut that cover 90 percent of the population in fully insured

<sup>538</sup> American Cancer Society. 2007. Access to Health Care. Available at:

[http://www.cancer.org/docroot/subsite/accesstocare/content/Frequently\\_Asked\\_Questions.asp](http://www.cancer.org/docroot/subsite/accesstocare/content/Frequently_Asked_Questions.asp). Accessed June 1, 2010.

<sup>539</sup> Taylor L, Simpson K, Bushardt R, et al. 2006. Insurance barriers for childhood survivors of pediatric brain tumors: the case for neurocognitive evaluations. *Pediatric Neurosurgery* 42: 223-7.

<sup>540</sup> US Department of Education. 1997. Individuals with Disabilities Education Act of 1997 (IDEA 1997).

<sup>541</sup> Taylor L, Simpson K, Bushardt R, et al. 2006.

<sup>542</sup> Connecticut Department of Social Services. Provider Fee Schedules, Office and Outpatient Services. Issued January 1, 2010.

<sup>543</sup> Connecticut Department of Social Services. Medicaid Summary of Services, Medical Care Administration. Available at: <http://www.ct.gov/dss/lib/dss/pdfs/medicaidservicesv3kk.pdf>. Accessed June 21, 2010.

<sup>544</sup> Conn. Gen. Stat. Ann. § 38A-492L (INDIVIDUAL INSURANCE POLICIES); § 38A-516D (GROUP INSURANCE POLICIES).



group and individual insurance plans in Connecticut showed evidence that claims are paid for the mandated services. Information received from five insurers/MCOs domiciled in Connecticut shows that 23 percent of members in these five insurers/MCOs' self-funded plans have coverage for the benefit.

***4. If the coverage is not generally available, the extent to which such lack of coverage results in persons being unable to obtain necessary health care treatment.***

Coverage is required and generally available for persons enrolled in fully insured group and individual health insurance plans. Coverage is available to 23 percent of persons enrolled in self-funded plans; persons enrolled in fully insured and self-funded group plans represent the vast majority of covered lives. Medicaid also reimburses for the benefit.

***5. If the coverage is not generally available, the extent to which such a lack of coverage results in unreasonable financial hardships on those persons needing treatment.***

As noted above, coverage of neuropsychological testing for children diagnosed with cancer is required to be included in fully insured group and individual health insurance plans in Connecticut. Medicaid also reimburses for the benefit. Less than one quarter of persons enrolled in self-funded plans have coverage for the benefit.

Cancer treatment is a high cost medical service. High non-treatment costs are often borne by the child's family, including travel and lost wages due to required time off work to care for the child. Cost-sharing and other economic costs accruing to the family may result in significant financial hardships for the child's family, even for those with comprehensive health benefits. Thus in certain situations, even the relatively low costs of neuropsychological testing may contribute to financial hardships experienced by some families with children with cancer.

Further discussion of financial and socioeconomic effects of the mandated benefit may be found in Appendix II: Ingenix Consulting Actuarial Report, page 51-52.

***6. and 7. The level of public demand and the level of demand from providers for the service and for insurance coverage for the service.***

Several people and organizations provided support for passage of the bill during the time it was under consideration by the legislature. The Leukemia and Lymphoma Society testified in support of the bill, stating that radiation and/or chemotherapy cause slow damage to the brain and that children under the age of five are the most susceptible. A leukemia survivor and a clinical psychologist with a specialty in neuropsychology assessment also provided support for insurance coverage of the mandated benefit. No public testimony in opposition of the bill was recorded.

Medical librarians and CPHHP staff found no published literature regarding the level of public demand or level of demand from providers for the service or for insurance coverage for neuropsychological testing to determine cognitive or developmental delays for children with cancer.

***8. The likelihood of achieving the objectives of meeting a consumer need as evidenced by the experience of other states.***

According to the National Association of Insurance Commissioners, Connecticut is the only state that requires fully insured group and individual health insurance plans to cover neuropsychological testing to determine cognitive or developmental delays in children with cancer.<sup>545</sup> CPHHP researchers found no

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<sup>545</sup> National Association of Insurance Commissioners. NAIC Compendium of State Laws on Insurance Topics. August 2008.

evidence of the mandated benefit in any other state.

***9. The relevant findings of state agencies or other appropriate public organizations relating to the social impact of the mandated health benefit.***

Thirty states now require a fiscal note or an additional review process for any new required health insurance benefit prior to enactment.<sup>546</sup> Internet searches and telephone inquiries found no studies from state agencies and public organizations related to the social impact of mandated insurance coverage for neuropsychological testing to determine cognitive or developmental delays for children with cancer. States searched included Arkansas, California, Colorado, Louisiana, Maine, Maryland, Massachusetts, Minnesota, New Jersey, New York, Ohio, Oregon, Pennsylvania, Rhode Island, Texas, Virginia, Washington, and Wisconsin.

***10. The alternatives to meeting the identified need, including but not limited to, other treatments, methods or procedures.***

In childhood cancer cases where neuropsychological testing identifies a deficit, it is often mild and typically compartmentalized to narrow areas of neuro-cognitive function, such as memory. The deficits are often only revealed through use of sophisticated assessment tools. Literature searches found no alternative treatments, methods or procedures currently available that provide similar efficacy for assessing the extent of any cognitive or developmental delays associated with childhood cancer or its treatment.

***11. Whether the benefit is a medical or broader social need and whether it is consistent with the role of health insurance and the concept of managed care.***

Neuropsychological testing for children with cancer is recommended due to the proven deleterious neuropsychological effects of chemotherapy and radiation treatments. Because these damaging effects result directly from the disease or its treatment, testing to identify them is included in the overall treatment plans of children with cancer. It can be argued that neuropsychological testing in cases where the suspected deficits are not the result of medical treatments are broader social needs. Determinations of insurance coverage for neuropsychological testing based on whether or not a medical treatment is the primary cause is consistent with the role of health insurance and the concept of managed care.

***12. The potential social implications of the coverage with respect to the direct or specific creation of a comparable mandated benefit for similar diseases, illnesses, or conditions.***

Neuropsychological testing for children with cancer developed due to the impact of brain tumors and cancer treatment (e.g. surgery, chemotherapy and radiation) on neuropsychological development. It is conceivable that a comparable mandated benefit could be enacted for neuropsychological testing to assess the extent of cognitive or developmental delays associated with other childhood diseases/injuries or treatment modalities that affect the brain and central nervous system (e.g., traumatic brain injury) if claims for such services were denied and the political will existed to enact a statutory requirement for coverage.

***13. The impact of the benefit on the availability of other benefits currently offered.***

Claims data show extremely low utilization of delivery of the benefit in Connecticut, which suggests little to no impact on the availability of other benefits currently offered.

***14. The impact of the benefit as it relates to employers shifting to self-funded plans and the extent to which the benefit is currently being offered by employers with self-funded plans.***

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<sup>546</sup> National Conference of State Legislatures. 2009. Health insurance coverage mandates: Are they too costly? Presentation at the Louisiana Department of Insurance 2009 Annual Health Care Conference. Report issued May 28, 2009. Available at: <http://www.ncsl.org/portals/1/documents/health/MandatesCauchi09.pdf>. Accessed May 7, 2010.

Due to the low incidence of childhood cancer and the negligible financial impact of the mandate it is not anticipated that employers shifted or will shift to self-funded plans as a result of this mandated benefit. It is also not anticipated that repeal of this single mandated benefit would lead to a shift from self-funded plans to fully insured plans among employers. Employers cognizant of the cumulative financial effects of mandated benefits and large enough to assume the risk of employee health care costs are more likely to consider shifting to self-funded plans.

There are several reasons for health insurance premium increases, including medical cost inflation, an aging population and an aging workforce, and required benefits or “mandates.” Employers contemplating a shift to self-funded plans are likely to weigh these and other factors. Employers also may shift to plans with higher coinsurance amounts to keep premiums at a more affordable level (“benefit buy down”). Benefit buy down can result in employees not taking up coverage and thus being uninsured or not accessing care when it is needed because of high deductibles.

Five health insurers/MCOs domiciled in Connecticut provided information about self-funded plans for which they administer benefits. These five insurers/MCOs report that 23 percent of members in their self-funded plans have coverage for the mandated services.

***15. The impact of making the benefit applicable to the state employee health insurance or health benefits plan.***

The neuropsychological testing for children with cancer mandate is a current benefit that has been included in the state employee health insurance and health benefits plans at least in part since 2006. Thus the social impact of the benefit for the approximately 134,344 covered lives in state employee plans and 30,000 state retirees not enrolled in Medicare<sup>547</sup> is expected to be the same or similar to the social impact for persons covered in non-state employee health insurance plans as discussed throughout Section IV of this report.

State employee claims are included in the 2007 and 2008 claims data provided by insurers/MCOs for their fully insured group insurance enrollees. Because the state shifted to self-funded status on July 1, 2010 (during the time this report was being written), utilization under self-funded status is unknown. All self-funded plans, including those that provide coverage for state employees, are not regulated by the state insurance department and are exempt from state health insurance required benefit statutes.

In terms of financial impact, if the state employee health insurance/benefit plans continue to provide coverage for the required benefit, the IC actuarial analysis estimates the medical cost to the state employee health insurance plan will total \$0.00 in 2010.<sup>548</sup>

***16. The extent to which credible scientific evidence published in peer-reviewed medical literature generally recognized by the relevant medical community determines the service to be safe and effective.***

Neuropsychological testing carries no known safety risks. The assessment tools are non-invasive.

Neuropsychological assessment utilizes standardized tests whose validity and reliability have been established empirically and the effectiveness of assessment tools used to determine cognitive or developmental delays is

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<sup>547</sup> Personal communication. Scott Anderson, State of Connecticut Comptroller’s Office. September 14, 2010.

<sup>548</sup> Note: The zero cost estimate results from extremely low utilization of the mandated services in the general population. See Appendix II, Ingenix Consulting Actuarial and Economic Report for further details.

apparent in the research literature.<sup>549,550,551</sup> Tests used for neuropsychological assessment are developed and normed so that scores are reproducible and can be compared to those of non-affected persons of similar age, sex and demographic background to yield valid conclusions.

For example, the Wechsler Intelligence Scale for Children—Fourth Edition (WISC-IV)—a frequently used standardized test for neuropsychological assessment of children with cancer—was developed over a five-year period during which the items that compose the test were administered to a standardized sample of 2,200 children based on U.S. Census data.<sup>552</sup> During development of the test, evidence of reliability was achieved through internal consistency, test-re-test stability, and factor-analytic studies.<sup>553</sup> Evidence of validity was achieved through relationships to other measures (comparisons to other standardized neuropsychological tests) and correlation with the previous edition of the WISC (WISC-III).<sup>554</sup>

In summary, neuropsychological assessment of children diagnosed with cancer is safe and effective. Tests are developed through rigorous methods and administered, scored, and interpreted by highly-trained professionals.

## IV. Financial Impact

### ***1. The extent to which the mandated health benefit may increase or decrease the cost of the service over the next five years.***

The mandate is not expected to materially alter the availability of neuropsychological testing or its cost over the next five years. 2008 claims data from six insurers/MCOs domiciled in Connecticut shows extremely low utilization. As an extremely low-volume service, the presence of the insurance mandate is not expected to have any additional effect on its cost. The cost of the service is likely to increase (or decrease) at the same rate as any other medical service.

### ***2. The extent to which the mandated health benefit may increase the appropriate or inappropriate use of the service over the next five years.***

For children diagnosed with cancer or leukemia whose insurance plans would not otherwise cover neuropsychological tests, the mandated health benefit may increase appropriate use. For the uninsured, those covered by self-funded plans and those who use out-of-pocket funds or already receive testing and evaluation from other sources, the mandated benefit may not increase appropriate use. Little inappropriate use or overutilization is expected to be occurring because false positive diagnoses of childhood cancer/leukemia followed by treatment is generally rare and testing is unlikely to be repeated unnecessarily due to the time required to administer and score the tests.

### ***3. The extent to which the mandated health benefit may serve as an alternative for more expensive or less expensive treatment, service or drug(s).***

Neuropsychological testing for children with cancer does not serve as an alternative for any other treatment,

<sup>549</sup> Chouinard MJ, Braun CM. 1993. A meta-analysis of the relative sensitivity of neuropsychological screening tests. *Journal of Clinical and Experimental Neuropsychology* 15: 591-607.

<sup>550</sup> Grant I, Adams KM. 1996. *Neuropsychological Assessment of Neuropsychiatric Disorders*, 2<sup>nd</sup> Ed. Oxford University Press: New York, NY.

<sup>551</sup> American Educational Research Association (AERA), American Psychological Association (APA), and National Council on Measurement in Education. 1999. *Standards for Educational and Psychological Testing*, Revised Ed. AERA: Washington, DC.

<sup>552</sup> Williams PE, Weiss LG, Rolfhus E. 2003. WISC-IV Technical Report #1 Theoretical Model and Test Blueprint. The Psychological Corporation: San Antonio, TX.

<sup>553</sup> Williams PE, Weiss LG, Rolfhus EL. 2003. WISC-IV Technical Report #2 Psychometric Properties. The Psychological Corporation: San Antonio, TX.

<sup>554</sup> *Ibid.*

service or equipment, supplies or drugs.

**4. *The methods that will be implemented to manage the utilization and costs of the mandated health benefit.***

Utilization and cost impact is negligible due to the extremely small number of beneficiaries who require the service. Actuarial review of Connecticut claims data shows costs as *de minimis*.

**5. *The extent to which insurance coverage for the service may be reasonably expected to increase or decrease the insurance premiums and administrative expenses for policyholders.***

Insurance premiums include medical cost and retention costs. Medical cost accounts for medical services. Retention costs include administrative cost and profit (for for-profit insurers/MCOs) or contribution to surplus (for not-for-profit insurers/MCOs). (For further discussion, please see Appendix II, Ingenix Consulting Actuarial and Economic Report, page 12-13.)

Neuropsychological testing is a relatively low-cost service that experiences extremely low utilization. Medical and retention costs of the required benefit in both group and individual policies are less than \$0.01 PMPM which is *de minimis*. The effect of testing on insurance premiums and administrative expenses for policyholders is negligible.

For further information, please see the Appendix II: Ingenix Consulting Actuarial and Economic Report.

**6. *The extent to which the service is more or less expensive than an existing treatment, service or drug(s), that is determined to be equally safe and effective by credible scientific evidence published in peer-reviewed medical literature generally recognized by the relevant medical community.***

Not applicable. Medical librarians and CPHHP staff found no published literature documenting any equally safe and effective methods for assessing neuropsychological impact of cancer and cancer treatment for children.

**7. *The impact of insurance coverage for the service on the total cost of health care, including potential benefits or savings to insurers and employers resulting from prevention or early detection of disease or illness related to such coverage.***

The total cost of health care is understood to be the funds flowing into the medical system, which are the medical costs of insurance premiums and cost sharing. Actuarial analysis of claims data received from insurers/MCOs in Connecticut shows an expected cost in 2010 of \$8155 for neuropsychological testing for children diagnosed with cancer who are Connecticut residents and covered by fully insured group and individual health insurance plans.

In terms of potential benefits or savings to insurers and employers resulting from prevention or early detection of disease or illness, early identification of neuropsychological or cognitive delays for children undergoing cancer treatments may foster early attempts to address such deficits, which may in turn limit short and long-term adverse effects of childhood cancer and its treatment.

**8. *The impact of the mandated health care benefit on the cost of health care for small employers, as defined in section 38a-564 of the general statutes, and for employers other than small employers.***

No published literature was found regarding the effect of mandated coverage of neuropsychological testing for children with cancer on the cost of health care for small employers. Although small employers may

be more sensitive to premium increases than other employers, the estimated cost of the mandate (\$0.00 PMPM) suggests little difference in effects among different types of employers.

For further information regarding the differential effect of the mandates on small group vs. large group insurance, please see Appendix II: Ingenix Consulting Actuarial and Economic Report, pages 28-29.

***9. The impact of the mandated health benefit on cost-shifting between private and public payers of health care coverage and on the overall cost of the health care delivery system in the state.***

Cost-shifting between private and public payers of health care coverage generally occurs when formerly privately insured persons, after enrolling in a public program or becoming un- or underinsured, require and are provided health care services. Cost-shifting also occurs when a formerly publicly-funded service becomes the responsibility of private payers, which can result following enactment of a health insurance mandate.

Most persons formerly covered under private payers lose such coverage due to a change in employer, change in employment status, or when private payers discontinue offering health care coverage as an employee benefit or require employee contributions to premiums that are not affordable. Because this required benefit became effective October 1, 2006, it is unlikely that the mandate, taken individually, has any impact on cost-shifting between private and public payers of health care coverage at present.

Additionally, due to the low incidence of children with cancer in Connecticut (an average of 168 new cases annually for the period 2003-2007) and the relatively low cost of neuropsychological testing, the mandated benefit is not estimated to have an impact on cost-shifting between private and public payers.

The overall cost of the health delivery system in the state is understood to include total insurance premiums (medical costs and retention) and cost sharing. Actuarial analysis of claims data received from insurers/MCOs in Connecticut shows an expected cost in 2010 of \$9732 for neuropsychological testing for children diagnosed with cancer for children in Connecticut covered by fully insured group and individual health insurance plans.

For further information, please see Appendix II, Ingenix Consulting Actuarial and Economic Report.

## **Volume II**

### **Chapter 11**

#### **Preventive Pediatric Care and Blood Lead Screening and Risk Assessment**

Review and evaluation of Connecticut General Statutes,

Chapter 700, § 38a-535

Mandatory Coverage for Preventive Pediatric Care and Blood Lead Screening

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## I. Overview

The Connecticut General Assembly directed the Connecticut Insurance Department (CID) to review the health benefits required by Connecticut law to be included in group and individual health insurance policies. The review was conducted following the requirements stipulated under Public Act 09-179. This review was a collaborative effort of Connecticut Insurance Department and the University of Connecticut Center for Public Health and Health Policy (CPHHP). The CID and CPHHP contracted with the actuarial firm Ingenix Consulting (IC) to conduct a fiscal and economic analysis for each mandate.

This chapter evaluates the financial and social impact of the requirement for fully insured group insurance policies to cover preventive pediatric care (PPC) as specified under Connecticut General Statutes, Chapter 700, § 38a-535. The statute reads as follows:

For purposes of this section, “preventive pediatric care” means the periodic review of a child’s physical and emotional health from birth through six years of age by or under the supervision of a physician. Such review shall include a medical history, complete physical examination, developmental assessment, anticipatory guidance, appropriate immunizations and laboratory tests in keeping with prevailing medical standards.

Each group health insurance policy providing coverage of the type specified in subdivisions (1), (2), (4), (6), (11) and (12) of section 38a-469 delivered, issued for delivery or renewed on or after October 1, 1989, or continued as defined in section 38a-531, on or after October 1, 1990, shall provide benefits for preventive pediatric care for any child covered by the policy or contract at approximately the following age intervals: Every two months from birth to six months of age, every three months from nine to eighteen months of age and annually from two through six years of age. Any such policy may provide that services rendered during a periodic review shall be covered to the extent that such services are provided by or under the supervision of a single physician during the course of one visit.

The statute also requires that “On and after January 1, 2009, each such policy shall also provide coverage for blood lead screening and risk assessments ordered by a primary care provider pursuant to section 19a-111g. Such benefits shall be subject to any policy provisions which apply to other services covered by such policy.” Since the blood lead screening requirement applies to fully insured individual health plans as well as group plans, Volume II, Chapter 8 is devoted to discussing the impact of the blood lead screening requirement and Volume II, Chapter 11 discusses only the preventive pediatric care requirement.

To evaluate this mandate, in March 2010, CPHHP and IC requested and received 2007 and 2008 claims data related to the mandated benefit from six insurers and managed care organizations (carriers) domiciled in Connecticut that cover approximately 90 percent of the population in fully insured group and individual health insurance plans in Connecticut (1.25 million persons). Six carriers provided data for group plans and four of the six carriers provided claims data for individual policies.

Overall, the projected 2010 cost of providing preventive pediatric care to the population in fully insured group plans on Connecticut’s health care system is \$34,647,698. This amount includes \$27,975,625 in total medical claims, \$1,076,948 in cost sharing and \$5,595,125 retention (administrative expenses plus profit).

On average, out-of-pocket cost sharing is expected to comprise 3.1 percent of the dollars spent preventive pediatric services for the fully insured population. The projected cost includes all claims for PPC covered by

fully insured group plans. It is likely that this amount is substantially greater than the cost of care acquired due to the mandate.

### *Current coverage*

The mandate went into effect on October 1, 1989 extending coverage for preventive pediatric care to children enrolled in fully insured group health plans. (P.A. 89-101)

### *Premium impact*

The projected 2010 average per member per month (PMPM) for all covered PPC provided to fully insured members is summarized below. The gross cost presented is expected to be higher than the “new” cost or change in cost that may have occurred following the mandate.

**Group plans:** Based on the weighted average medical costs from 2008, on a 2010 basis, the medical claims for PPC is estimated to be \$1.91 PMPM on average. Estimated total cost (insurance premium, administrative fees, and profit) of the mandated services in 2010 in group plans is \$2.29 PMPM, which is 0.6 percent of the estimated total cost for group plans.

**Individual policies:** The PPC mandate is not applicable to individual policies. Individual policies data is less credible than group plans data primarily due to small sample size.

### *Self-funded plans*

Five carriers provided information about self-funded plans, accounting for approximately 47 percent of Connecticut residents enrolled in such plans. Responses indicate that 97.4 percent of members in self-funded plans administered by these five carriers have coverage for PPC to an equal or greater extent than the Connecticut mandate requires of fully insured groups.

This report is intended to be read in conjunction with the General Introduction to this volume and the Ingenix Consulting Actuarial Report which is included as Appendix II.

## **II. Background**

### **Guidelines for Preventive Pediatric Health Care**

The standard of care for preventive health care for children in the United States is guided by the American Academy of Pediatrics’ (AAP) publication “Recommendations for Preventive Pediatric Health Care.” First published in 1967 and subsequently revised, the recommendations, referred to as the “periodicity schedule,” prescribe screening for developmental and medical conditions throughout childhood with a special emphasis on disease prevention and early detection of health conditions or disabilities during early childhood. The periodicity schedule is also supported by and reflected in the expert guidelines and health provider resources published by Bright Futures (1994, 2002, 2008), a collaborative project of over twenty national associations guided by the Health Resources and Services Administrations’ Maternal and Child Health Services Bureau.<sup>555</sup>

The periodicity schedule sets both a schedule for visits, often referred to as “well-child,” or “health supervision” visits, and defines a range of expected tasks for pediatric health care. According to the Bright Futures report, “The health supervision visit is considered a basic screening procedure. In addition to promoting health, each visit is intended in part to be a screening process to assess risk and to identify

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<sup>555</sup> Hagan JF, Shaw JS, Duncan PM. 2008. Bright Futures: guidelines for health supervision of infants, children and adolescents. Third Edition. Elk Grove Village, IL: American Academy of Pediatrics. Available at: [http://brightfutures.aap.org/3rd\\_Edition\\_Guidelines\\_and\\_Pocket\\_Guide.html](http://brightfutures.aap.org/3rd_Edition_Guidelines_and_Pocket_Guide.html). Accessed December 5, 2010.

possible problems and vulnerabilities.” The rationale for frequent well-child visits during early childhood is to increase opportunities for early identification and intervention before a child misses a major milestone such as walking or talking. The recommended well-child visits include one during the prenatal period, one newborn visit, six visits during the first year of life, five visits between the ages of one and two, and annual visits from age three through twenty-one. Excluding the prenatal and newborn visit, a child should have the twelfth well-care visit at age three and the fifteenth well-care visit at age six.<sup>556</sup> The high frequency of recommended visits, immunizations and screenings during a child’s early years is a focal point given the significant changes that occur in terms of neurodevelopment, motor skills and learning capacity.

The typical well-child visit includes updating the child and family medical history, immunizations, a physical examination and related measurements, risk assessments, screenings, and anticipatory guidance provided by the physician to the family and/or child. The components of well-child visits are elaborated upon below.

### **Immunizations**

Immunizations are recommended based on one of three age-group specific schedules approved by the AAP, the Advisory Committee on Immunization Practices of the CDC, and the AAFP. The “Recommended Immunization Schedule for Persons Aged 0 Through 6 Years” (which is the age group covered by Connecticut’s preventive pediatric health care mandate) includes: diphtheria, tetanus, pertussis (DPT); measles, mumps, rubella (MMR); Haemophilus influenza type b (HIB); inactivated poliovirus; pneumococcal; influenza; varicella (chicken pox); Hepatitis B and Hepatitis A; rotavirus; and meningococcal.<sup>557</sup> Adequate immunizations for school and day care enrollment in Connecticut generally requires DPT, MMR, HIB, poliomyelitis, varicella, and Hepatitis B.<sup>558</sup> Prior to vaccines for these conditions, children often did not survive childhood and those who survived often suffered from chronic pain, damaged hearts, partial paralysis, deafness, visual impairments and other morbidities.

### **Physical Examination/Related Measurements**

In addition to a physical examination of the unclothed infant or suitably draped older child, growth is documented for children 24 months and younger through head circumference ( $\leq 24$  months), length ( $< 24$  months), weight, and weight for length measures. For older children height, weight, body mass index and blood pressure are measured. Weight for length and body mass index are used to compare child growth to the general population and identify weight-related risks. Scales may use internalized or externalized rating scales, broad-band rating or self-related rating scales. Most measures had strong reliability and validity thus meeting the well-established evidence-based criteria.<sup>559</sup>

### **Psychosocial and behavioral assessment**

These assessments are conducted at all visits to evaluate the potential for mental or nervous conditions or behavioral issues.

### **Developmental screening and surveillance**

Developmental screenings are recommended at 9-month, 18-month and 30-month visits using standardized tests. The timeframe for developmental and behavioral assessments is based on the types of milestones and potential issues generally detectable. The 9-month screening is a point where early communication

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<sup>556</sup> American Academy of Pediatrics. 2008. Recommendations for Preventive Pediatric Health Care. Available at: <http://practice.aap.org/content.aspx?aid=1599>. Accessed December 5, 2010.

<sup>557</sup> American Academy of Pediatrics. 2010. Recommended Immunization Schedule for Persons Aged 0 Through 6 Years. Available at: <http://www.aap.org/immunization/IZSchedule.html>. Accessed December 5, 2010.

<sup>558</sup> Connecticut General Statutes. Revised January 1, 2010. § 10-204a-2a and Health and Safety (§ 19a-79-6a).

<sup>559</sup> Holmbeck GN, Welborn Thill A, Bachanas P, et al. 2008. Evidence-based assessment in pediatric psychology: measures of psychosocial adjustment and psychopathology. *Journal of Pediatric Psychology* 33(9): 958-80.

skills, vision and hearing, motor delays, and other issues may first be detected. When a child reaches 18-months delays in communication and language become more evident and motor delays that may have been mild at 9 months may become more apparent. Since communication and motor delays, which are common symptoms of autism spectrum disorders, tend to be evident at 18-months, the AAP/Bright Futures guidelines suggest that the autism screening tool be administered at this visit. At all other visits, surveillance of child development requires maintaining the health record and medical history, conducting a physical exam, and querying parent(s) about concerns and child growth both verbally and using questionnaires.<sup>560</sup>

### **Additional Screenings and/or Risk Assessments**

**Newborn metabolic/Hemoglobin screening:** Nationally, one in 1,500 newborns experience inborn errors of metabolism. These hereditary defects impede one or more biochemical functions essential to life.<sup>561</sup> For many screenable disorders, treatment can reduce the risks or severity of health impacts such as intellectual disabilities. The AAP/Bright Futures recommendation is for newborn screenings to be completed as specified by the state. In Connecticut, the newborn screening policy (which fully insured health plans are required to cover) requires newborns to be screened for over forty metabolic/genetic conditions prior to hospital discharge or within first four days of life. The screening includes amino acid disorders, fatty acid oxidation disorders, organic acidurias, and other diseases. Screening for phenylketonuria (PKU) has been in place since 1964. PKU results in a baby's inability to break down certain proteins and if left untreated, irreversible brain damage and developmental delay may result.<sup>562, 563</sup>

**Hearing Screening:** As of 2000, Connecticut implemented a policy of universal newborn hearing screening where each newborn is expected to receive screening prior to hospital discharge. The universal screening policy is consistent with the periodicity schedule and the AAP statement regarding pediatric hearing. Of the newborns screened in Connecticut during 2007, nearly 0.16 percent of newborns received a hearing loss diagnosis and 0.12 percent (52 children) enrolled in Birth-to-Three services for early intervention.<sup>564</sup> Per the periodicity schedule, a child should also receive a hearing screening during annual visits at age 3, 4, 5, 6, 8, and 10; and, receive a risk assessment and/or hearing screening during all other visits.<sup>565</sup>

**Vision Screening:** The critical period for vision development occurs between three months old and age seven.<sup>566</sup> The AAP statement, "*Eye Examination in Infants, Children and Young Adults by Pediatricians*" describes the parameters for screening expected in the periodicity schedule. The method of screening depends on age and child cooperation. If a child is uncooperative at the age three visit, they should be rescreened within six months. Otherwise, screening is expected on an annual basis through the age six visit and periodically thereafter based on prior vision issues, periodic screening, and risk assessments. Vision problems, such as refractive disorders, tend to be common among adolescents.

<sup>560</sup> Council on Children with Disabilities Section on Developmental Behavioral Pediatrics. Bright Futures Steering Committee. Medical Home Initiatives for Children with Special Needs Project Advisory Committee. Policy Statement. 2006. Identifying infants and young children with developmental disorders in the medical home: an algorithm for developmental surveillance and screening. *Pediatrics* 118(1): 405-19.

<sup>561</sup> Buist NRM, Huntington K, Winter SC. Healthcare coverage for medical food treatment of inborn errors of metabolism. June 23, 2009.

<sup>562</sup> Connecticut Department of Public Health. 2008. State department of public health calls attention to September as national newborn screening month. Available at: <http://www.ct.gov/dph/cwp/view.asp?Q=422930&A=3294>. Accessed December 5, 2010.

<sup>563</sup> Connecticut Department of Public Health. Disorders screened by the Connecticut newborn screening program. Available at: [http://www.ct.gov/dph/lib/dph/family\\_health/newborn\\_screening/pdf/nbs\\_disorders.pdf](http://www.ct.gov/dph/lib/dph/family_health/newborn_screening/pdf/nbs_disorders.pdf). Accessed December 5, 2010.

<sup>564</sup> Connecticut Department of Public Health. Connecticut early hearing detection and intervention 2007 statistics. Available at: [http://www.ct.gov/dph/cwp/view.asp?a=3138&q=404772&dphNav\\_GID=1971&dphNav=%7C#1](http://www.ct.gov/dph/cwp/view.asp?a=3138&q=404772&dphNav_GID=1971&dphNav=%7C#1). Accessed December 5, 2010.

<sup>565</sup> Joint Committee on Infant Hearing. 2007. Year 2007 position statement: principles and guidelines for early hearing detection and intervention programs. *Pediatrics* 120(4): 898-921.

<sup>566</sup> Coats DK. Visual development and vision assessment in infants and children. Last literature review version 18.3: September 2010. Topic last updated: September 30, 2010. Available at: <http://www.uptodate.com/patients/content/topic.do?topicKey=-UUE9CAorH8wsg>. Accessed December 5, 2010.

**Lead Screening:** The AAP/Bright Futures recommendations suggest that screening should be done in accordance with state law. Consistent with the periodicity schedule, AAP, and CDC recommendations Connecticut law mandates blood lead screening at 12 months and 24 months and as indicated, based on risk assessments. Generally, acute lead poisoning is not visually detectable. The impact of lead exposure on children younger than three is expected to have especially harmful effects on brain development, cognition and has been associated with lower IQ scores, educational performance, and delinquent or criminal behavior as the lead-exposed individual ages. (Refer to Volume II, Chapter 8 for additional details). In Connecticut, the prevalence estimate for elevated blood lead levels is 1.4 percent or one in 73 children; the incidence is one in 104 children.<sup>567</sup>

**Dyslipidemia screening:** Since high LDL cholesterol is a risk factor for cardiovascular disease, the periodicity schedule recommends assessing risk for high cholesterol at the 24 month visit and subsequent screening using a fasting lipid profile if the child has an elevated risk. Risk assessment and screening if necessary is also suggested at the age 4, age 6, age 8, and age 10 visits with annual screenings thereafter.

**Anemia (hematocrit and hemoglobin) screening:** This screening is intended to prevent anemia, a condition that can lead to childhood complications such as heart problems, mental delays, and delays in growth or physical activities (e.g., walking). Anemia symptoms may include pica, tiredness, fatigue, weakness, pale skin, inflammation or soreness in tongue, dizziness, irritability, shortness of breath, depression, chest pain, poor appetite, difficulty concentrating or irregular heart beat.<sup>568</sup> The periodicity schedule lists screening at nine months and recommends consulting with the AAP Nutrition Handbook for additional guidance on universal and targeted screening approaches.

**Tuberculin test:** The AAP Committee on Infectious Disease recommendation to conduct a risk assessment and conduct a Mantoux skin test for tuberculin only if the child has an elevated risk of exposure. Mandatory screening is strongly discouraged because routine screening of low-risk populations leads to false positive test results.<sup>569</sup>

**Oral health:** Dental caries are very prevalent among young children. The “*Every Smile Counts*” report for Connecticut states that 27 percent of children have dental decay by kindergarten and 41 percent have decay by third grade.<sup>570</sup> Physicians are expected to refer children to a dental home beginning at the 6 month visit and again at the age three and age six visits. Provided a dental home is not available, the physician should determine whether the child’s water source has fluoride. Fluoride prevents dental caries and potentially reverses decay through remineralization of the tooth. In Connecticut, approximately 11.1 percent of the population relies on private well systems rather than public water systems which are fluoridated.<sup>571</sup>

## Anticipatory Guidance

The well-child visit offers an opportunity to inform families about relevant modifications for reducing risk, especially for injury prevention, which is the leading cause of mortality and hospital visits among children under age six. The *Bright Futures* guidelines outline appropriate guidance for specific visits. The *Bright Futures* website specifies that information should not be delivered as a lecture but rather as an opportunity

<sup>567</sup> Connecticut Department of Public Health. Screening data. Available at: <http://www.ct.gov/dph/cwp/view.asp?a=3140&q=387576>. Accessed December 5, 2010.

<sup>568</sup> Mayo Clinic. Iron Deficiency Anemia. Complications. Available at: <http://www.mayoclinic.com/health/iron-deficiency-anemia/DS00323/DSECTION=complications>. Accessed December 5, 2010.

<sup>569</sup> Committee on Infectious Diseases. 1996. Update on tuberculosis skin testing of children. *Pediatrics* 97(2): 282-84.

<sup>570</sup> Connecticut Department of Public Health. Every Smile Counts Final Report. Available at: <http://www.ct.gov/dph/cwp/view.asp?a=3125&q=388872>. Accessed December 5, 2010.

<sup>571</sup> Centers for Disease Control and Prevention. 2008. Populations receiving optimally fluoridated public drinking water, United States, 1992-2006. *MMWR* 57(27): 737-741.

to establish what families know, target guidance, clear up any misconceptions, introduce new information and reinforce healthy practices while preventing illness or injury.<sup>572</sup> Topics include what to expect during current or approaching stages of development, eating and nutrition, fitness, oral health, success in school, safety or injury prevention, social development, family relationships, school or vocational achievement, and other areas of concern.<sup>573</sup> Injury prevention counseling is considered such an important part of the well-child visit that the AAP and Bright Futures encourage physicians to document related counseling on the child's medical chart. (For additional details and resources about the PPC recommendations, please refer to the periodicity schedule <http://practice.aap.org/content.aspx?aid=1599>).

## Screening Methods

A wide range of screening tools are used during well-child visits. Screenings for newborn metabolic/genetic disorders, cholesterol, anemia, and lead require a blood sample and related laboratory test. Collectively, dozens of tools exist for assessing general development and the child's "social and emotional capacities to engage the environment." The Bright Futures "Guidelines for Health Supervision of Infants, Children, and Adolescents" includes checklists to complete assessments. However, a standard method for screening has not been adopted for pediatric assessment. Assessment tools vary in length ranging from 5-minute queries to 45-minute queries. Some questionnaires can be administered and scored by non-physicians so that the caregiver can complete the questions prior to the start of the office visit. This allows the physician to interpret the results and follow-up on areas of concern at the time of the visit.

## Treatment/Intervention

Depending on what, if any, concerns are detected during the well-child visit, interventions may be recommended so that future health problems can be avoided. For newborns with positive metabolic/genetic screening results, referrals must be made to the State Regional Treatment Center for care coordination. In the case that developmental disabilities, autism spectrum disorders or hearing impairments are suggested, a diagnostic evaluation, chronic condition management, treatment planning, and referrals for rehabilitation services or early intervention programs (via Birth-to-Three or special education programs) are expected.<sup>574</sup> Corrective actions such as amplification or sensory devices, cochlear implants, or surgical and medical evaluation may be indicated for children with hearing loss whereas children with vision problems may receive glasses, refractive surgery, visual training or other therapies depending on the condition.<sup>575</sup> For younger children, addressing hearing issues and developmental disabilities early on can help minimize the impact of these health issues later in life.<sup>576</sup>

Opportunities to prevent future health issues may also arise. To prevent dental caries, children without fluoride in their water can be provided oral fluoride supplementation. Anemia can typically be treated with dietary changes and taking dietary supplements to correct a deficiency (iron, folate or B-12) if indicated. High LDL cholesterol in children under eight years of age may be decreased along with related-cardiovascular disease risks by working with the child to increase activity, reduce their weight (if overweight)

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<sup>572</sup> Green M, Palfrey JS, eds. 2002. *Bright Futures: Guidelines for Health Supervision of Infants, Children, and Adolescents* (2nd ed., rev.). Arlington, VA: National Center for Education in Maternal and Child Health. Available at: <http://www.brightfutures.org/bf2/pdf/>. Accessed October 18, 2010.

<sup>573</sup> Bright Futures. Georgetown University. Available at: <http://www.brightfutures.org/anticipatory/aguide2.htm>. Accessed October 18, 2010.

<sup>574</sup> Council on Children with Disabilities Section on Developmental Behavioral Pediatrics. Bright Futures Steering Committee. Medical Home Initiatives for Children with Special Needs Project Advisory Committee. Policy Statement. 2006. Identifying infants and young children with developmental disorders in the medical home: an algorithm for developmental surveillance and screening. *Pediatrics* 118(1): 405-419.

<sup>575</sup> Connecticut Department of Public Health. Universal newborn hearing screening. Available at: <http://www.ct.gov/dph/cwp/view.asp?a=3138&q=387712>. Accessed December 5, 2010.

<sup>576</sup> Nelson HD, Bougastos C, Nygren P. 2008. Universal newborn hearing screening: systematic review to update the 2001 US Preventive Services Task Force Recommendation. *Pediatrics* 122(1): e266-e276.

and adherence to nutrition counseling recommendations.<sup>577</sup> Similarly, if a child is obese or overweight, they may be referred to comprehensive moderate-to-high-intensity programs that combine dietary, physical activity and behavioral components to improve weight status.

### **Historical Context of Connecticut Legislation**

Connecticut’s adoption of the mandated coverage for PPC occurred during the period when the federal government passed the Omnibus Budget Reconciliation Act of 1989 which clarified and expanded the Early Periodic Screening, Diagnosis and Treatment Program (EPSDT) for eligible children receiving health care through Medicaid. Initially, EPSDT was enacted in 1967 as part of the federal response to the President Task Force on Manpower Conservation’s report “One Third of a Nation: A Report on Young Men Found Unqualified for Military Service.” The report documented the physical effects of poverty on health during childhood as an underlying explanation for young men lacking the health status required for military service. This report combined with an elevated awareness of poverty, malnutrition, disabilities and child development led to enactment of the EPSDT program and the goal of finding and treating problems early in a child’s life, before the physical or mental health condition becomes more costly to treat.<sup>578</sup>

The 1989 Congressional amendments defined the content and scope of EPSDT-related preventive services. Although the EPSDT legislation includes treatment that is beyond the PPC coverage mandate in Connecticut, much of the language is comparable to the periodicity schedule and Connecticut’s statute. Per the 1989 amendments, the EPSDT program provides periodic and as-needed health screening services at professionally reasonable intervals “to determine the existence of physical or mental conditions.”<sup>579</sup> The amendment defines the minimum contents of the screening as follows:

- a comprehensive health and developmental history including assessment of both physical and mental health development;
- a comprehensive unclothed physical exam;
- appropriate immunizations to be furnished in accordance with the schedule subsequently established under the 1993 vaccines for children program;
- laboratory tests including lead blood level assessment appropriate for age and risk factors, and
- health education (including anticipatory guidance).

In addition, the legislation requires vision services, dental care, and hearing services to be conducted “at professionally reasonable intervals.”<sup>580</sup> Furthermore, State Medicaid Manuals specify the minimum components for developmental assessment services and preventive dental care.<sup>581</sup>

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<sup>577</sup> American Academy of Pediatrics. 2008. New AAP policy on lipid screening and heart health in children. Available at: <http://www.aap.org/advocacy/releases/july08lipidscreening.htm>. Accessed December 5, 2010.

<sup>578</sup> Department of Health and Human Services. 1992. Office of Inspector General. Early and periodic screening, diagnosis and treatment (EPSDT)—performance measurement. OEI-07-90-00130. Available at: <http://oig.hhs.gov/oei/reports/oei-07-90-00130.pdf>. Accessed December 5, 2010.

<sup>579</sup> *Ibid.*

<sup>580</sup> Department of Health and Human Services. 1992. Office of Inspector General. Early and periodic screening, diagnosis and treatment (EPSDT)—performance measurement. OEI-07-90-00130. Available at: <http://oig.hhs.gov/oei/reports/oei-07-90-00130.pdf>. Accessed December 5, 2010.

<sup>581</sup> *Ibid.*

### III. Methods

Under the direction of CPHHP, medical librarians at the Lyman Maynard Stowe Library at the University of Connecticut Health Center (UCHC) gathered published articles and other information related to medical, social, economic, and financial aspects of the required benefit. Medical librarians conducted literature searches using PubMed, Scopus, UptoDate, DynaMed, Cochrane database, EMedicine, CINAHL, and a web search using Google.

CPHHP staff conducted independent literature searches using PubMed, Tufts Cost Effectiveness Registry, Westlaw and Google Scholar. Search parameters included: anticipatory guidance, pediatrics, periodicity schedule, immunization, vaccine, well-child, health supervision, newborn screening, developmental assessment, behavioral assessment, and bright futures (limits: English, All Infant: birth-23 months, Newborn: birth-1 month, Infant: 1-23 months, Preschool Child: 2-5 years). Terms added to searches included: preventive, cost, effective, and safety. Where available, articles published in peer-reviewed journals are cited to support the analysis. Other sources of information may also be cited in the absence of peer-reviewed journal articles. Content from such sources may or may not be based on scientific evidence.

CPHHP staff consulted with clinical faculty from the University of Connecticut School of Medicine on matters pertaining to medical standards of care, traditional, current and emerging practices, and evidence-based medicine related to PPC. Staff also gathered additional information through telephone and e-mail inquiries to appropriate state, federal, municipal, and non-profit entities and from internet sources such as the State of Connecticut website, Centers for Medicare and Medicaid (CMS) website, other states' websites, professional organizations' websites, and non-profit and community-based organization websites.

With the assistance of the Connecticut Insurance Department (CID), CPHHP and Ingenix Consulting requested and received 2007 and 2008 claims data from insurance companies and MCOs (carriers) domiciled in Connecticut. Six carriers provided inpatient PPC claims data for their fully insured group plan participants. Five carriers also provided information about coverage in the self-funded plans they administer. It is anticipated that the self-funded plans managed by the sixth carrier offer coverage comparable to the other five carriers.

CPHHP and the CID contracted with Ingenix Consulting (IC) to provide actuarial and economic analyses of the mandated benefit. A description of the methods used for the actuarial analyses is available in the IC report included in Appendix II.

### IV. Social Impact

#### ***1. The extent to which preventive pediatric care is utilized by a significant portion of the population.***

According to an analysis of nationally representative data from the Medical Expenditure Panel Survey (2000-2002), 83.2 percent of infants and 68.7 percent of 3 to 5 year olds accessed well-child visits consistent with national recommendations. Uninsured children (35.3 percent) and noncitizen children (43.9 percent) were less likely to access recommended well-child visits. Notably, on average 94.6 percent of children (0 to 18) in New England compared to 61.4 percent of children nationally accessed recommended well-care visits.<sup>582</sup> Analyses of other national data sets have found higher rates of access to well-child visits (76.6 percent).<sup>583</sup> Although analyses of nationally representative data find that a significant proportion of infants and young

<sup>582</sup> Selden TM. 2006. Compliance with well-child visit recommendations: evidence from Medical Expenditure Panel Survey, 2000-2002. *Pediatrics* 118(6): e1766-e1778.

<sup>583</sup> Yu SM, Bellamy HA, Kogan MD, et al. 2002. Factors that influence receipt of recommended preventive pediatric health and dental care. *Pediatrics* 110(6): e73.



children attend well-child visits, studies also indicate a range in the extent to which the components of the periodicity schedule are met. An analysis of the 2000 National Survey of Early Childhood Health found that 33.6 percent of families of children from 4 to 35 months of age receive fair or poor care.<sup>584</sup> Most families received counseling on child sleeping position (89.2 %) but more than 40 percent of families did not receive a developmental assessment (43.8%), car seat guidance (42.8%), or guidance on other dangerous situations for children <35 months (47.2%).<sup>585</sup>

Specific to Connecticut, surveillance indicates high utilization of several PPC screenings and procedures described in the Bright Futures/AAP periodicity schedule. 99.1 percent of newborns received recommended hearing screening (2007)<sup>586</sup> and 99.4 percent received metabolic and genetic testing (2009).<sup>587</sup> By 18 months 61.6 and 52.4 percent received blood lead screening (Medicaid-enrolled and not-enrolled, respectively) whereas by 36 months old, 45.3 and 32 percent had received both recommended screenings (Medicaid-enrolled and not Medicaid enrolled, respectively).<sup>588</sup>

According to the 2008 National Immunization Survey, overall 69.8 percent of children ages 19-35 months old received the recommended dosage for all of the following vaccines: diphtheria, pertussis, tetanus, polio, measles, Haemophilus influenza type b, hepatitis B and varicella. For specific vaccines, 80 to 99.5 percent of children accessed the recommended schedule of immunizations for MMR (95.3%), Dtap (88.2%), polio (99.5%), Hib (82.6%) and PCV (91.5% with 4 doses, and 98.8% with 3 doses), HepB (98.1%), and varicella (93.2%).<sup>589</sup> Data for utilization of other specific screening and well-care services was not available. However, several reports indicate that pediatricians do not routinely screen children for vision or fluoride access. Reportedly, oral fluoride supplements are also not prescribed at the earliest age possible or the appropriate amounts.<sup>590</sup>

***2. The extent to which preventive pediatric care is available to the population, including, but not limited to, coverage under: Medicare, the Department of Social Services, the Department of Public Health, Municipal Health Departments and public programs run by public schools or charities.***

With the exception of Medicaid, well-child visits are not provided through public programs or charities in the manner recommended by the periodicity schedule. However, a number of service specific programs (e.g. immunization, vision, hearing, physical examinations) do exist through public, nonprofit or charity-based programs. Of note, it is required for children to receive immunizations (except per religious objection) and physical exams (including vision screening) if participating in a publicly funded and administered health or education program. Such programs include Medicaid, Head Start, school readiness programs and public schools or licensed child care settings. To some extent, publicly funded programs offer free clinics for physical exams, immunizations and screenings. However, such exams do not meet the full intent of the periodicity schedule since there is not ongoing monitoring and development of a comprehensive

<sup>584</sup> Zuckerman B, Stevens GD, Inkelas M, et al. 2004. Prevalence and correlates of high-quality basic pediatric preventive care. *Pediatrics* 114(6): 1522-1529.

<sup>585</sup> *Ibid.*

<sup>586</sup> Connecticut Department of Public Health. Connecticut early hearing detection and intervention 2007 statistics. Available at: [http://www.ct.gov/dph/cwp/view.asp?a=3138&q=404772&dphNav\\_GID=1971&dphNav=%7C#1](http://www.ct.gov/dph/cwp/view.asp?a=3138&q=404772&dphNav_GID=1971&dphNav=%7C#1). Accessed December 5, 2010.

<sup>587</sup> Personal Communication. Connecticut Department of Public Health. State of Connecticut Public Health Laboratory. Newborn Screening Program. October 28, 2010.

<sup>588</sup> Connecticut Department of Public Health. Screening data. Childhood lead poisoning in Connecticut. Available at: <http://www.ct.gov/dph/cwp/view.asp?a=3140&q=387576>. Accessed December 5, 2010.

<sup>589</sup> Centers for Disease Control and Prevention. 2009. National, State, and Local Area Vaccination Coverage Among Children Aged 19--35 Months --- United States, 2008. *MMWR* 58(33): 921-26.

<sup>590</sup> Bader JD, Rozier RG, Lohr KN, et al. 2004. Physicians' roles in preventing dental caries in preschool children. U.S. Preventive Services Task Force. *American Journal of Preventive Medicine* 26(4):315-25.

medical record and monitoring of physical, cognitive, behavioral and social development. On a piecemeal basis anticipatory guidance is available through public, not-for-profit and private programs. During early childhood, Healthy Start, Nurturing Families, Head Start, the WIC program, hospitals or federally qualified community health centers may provide guidance that is nutrition focused, child development focused or injury-prevention focused. At the local level, car seat safety guidance is often offered through a variety of organizations by SafeKids, municipalities, hospitals, not-for-profits, and parent groups.

### ***Medicare***

No coverage identified for preventive pediatric care.

### ***Department of Social Services***

Medicaid covers preventive evaluations and examinations for children from birth through age 6,<sup>591</sup> though DSS does “not dictate the time frame in which they are performed.”<sup>592</sup> The time frame and screenings required must meet reasonable standards of medical practice.

### ***Department of Public Health***

Through the Vaccines for Children joint federal-state program, health providers agree to receive free vaccines and administer them to children from birth through age 18 without billing Medicaid or health insurers for the cost of the vaccine. The maximum billable amount for Medicaid or uninsured patients is an administrative fee of \$21 while for the privately insured, the insurer maximum administrative fee as specified by the health plan is allowed.

### ***Municipal Health Departments***

Some local health departments offer free immunization clinics for children aged 0 to 18. For example, Waterbury offers monthly clinics<sup>593</sup> and the West Haven Health Department offers a free semi-monthly childhood immunization clinic plus health physicals for older children and immunized children at city hall.<sup>594</sup>

### ***Public schools***

Connecticut statute dictates that “if the parents or guardians of any children are unable to pay for such immunizations, the expense of such immunizations shall, on the recommendations of such board of education, be paid by the town.”<sup>595</sup> Prior to the start of the school year some districts offer physical examinations, immunizations and potentially vision screenings and laboratory tests (i.e.: hematoocrit and hemoglobin). School readiness programs may also offer some screenings. For example, the New Haven Board of Education provides vision and hearing screening as part of the school readiness program.

### ***Charities***

Free vision screenings have been coordinated by Prevent Blindness Connecticut in collaboration with local health departments, Visiting Nurse Associations, Head Start sites and school readiness programs. (The efforts screened nine percent of all preschool children in 2002).<sup>596</sup> Free clinics through AmeriCares are

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<sup>591</sup> DSS Provider Fee Schedule, Office and Outpatient Services (1/1/10), Procedure Codes 99381-99383, 99391-99393.

<sup>592</sup> Personal communication. Nina Holmes, DSS Medical Policy Unit. June 16, 2010.

<sup>593</sup> City of Waterbury, Connecticut. Department of Public Health.  
Available at: <http://www.waterburyct.org/content/458/4000/589/default.aspx>. Accessed December 5, 2010.

<sup>594</sup> City of West Haven, Connecticut. Department of Public Health.  
Available at: <http://www.cityofwesthaven.com/foundations/store/storepage.asp?page=Healthdept>. Accessed December 5, 2010.

<sup>595</sup> Connecticut General Statutes. Revised January 1, 2010. Title 10 Education and Culture. Chapter 169 School Health and Sanitation. 10-204a (6).

<sup>596</sup> Solomon J, Lee MA. Vision Care for Connecticut Children. Children’s Health Council. November 2003.

available in three cities in southwestern Connecticut to provide health care (such as immunizations and well-child visits) to uninsured, low-income populations.

**3. The extent to which insurance coverage is already available for preventive pediatric care.**

Medicaid, SCHIP and fully insured group plans are required to cover PPC. A survey of Connecticut-domiciled carriers found that 97.4 percent of self-funded members covered by five carriers are enrolled in plans where PPC is a benefit.<sup>597</sup> The five carriers cover approximately 47 percent of the self-funded market.

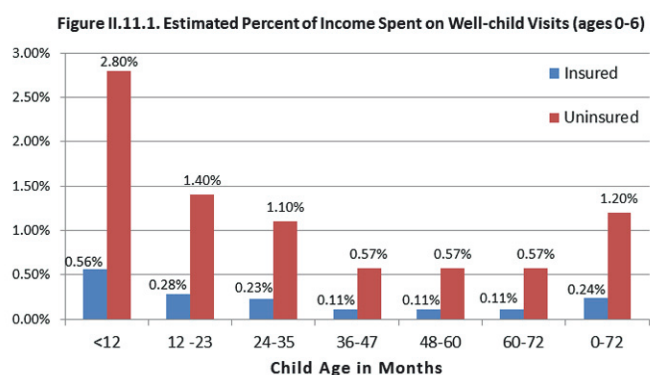
**4. If the coverage is not generally available, the extent to which such lack of coverage results in persons being unable to obtain necessary health care treatment.**

The preventive services covered by this mandate are generally covered by fully insured and self-funded employers, Medicaid and SCHIP. Analysis of national data has found that the uninsured population is far less likely to receive recommended well-care visits (35.3 percent compared to 69.1 percent).<sup>598</sup> Furthermore, 63.1 percent of children enrolled in Medicaid received the recommended visits compared to 28.4 percent of children who were Medicaid-eligible but not enrolled and 64.1 percent of privately insured children received the recommended visits compared to 44.3 percent of the uninsured but Medicaid-ineligible population.<sup>599</sup> The discrepancies between populations obtaining the recommended level of well-child visits can in part be explained by insurance status. However, in addition to insurance status other financial and socioeconomic factors such as income, education, citizenship and race have also been documented as factors influencing access to well-child visits.

**5. If the coverage is not generally available, the extent to which such a lack of coverage results in unreasonable financial hardships on those persons needing preventive pediatric care.**

Obtaining preventive pediatric health care to the extent covered for well-child visits may pose financial hardships to the caregiver(s). According to the Ingenix Consulting report, the average total health care cost in the first year of life for a healthy baby is about \$1,400 which includes five office visits (at \$150 per visit), cost of immunization (\$600) and lab tests (\$50).<sup>600</sup> In subsequent years, the average cost of well-care visits decreases since fewer well-child visits and immunizations are required each year. For children between one and four years old, the cost for an office visit is about \$135 to \$155, and the remaining cost for all necessary immunizations through age 18 is an additional \$600.<sup>601</sup> Based on the visit schedule and the average charges for visits, immunizations and laboratory tests, the annual costs of well child visits by age can be estimated as follows: \$700 at 12-24 months; \$550 at 24-36 months, and \$285 or less annually thereafter. For well-child visits between the ages of birth through six, the estimated average combined cost is approximately \$3,505.

The estimated burden of well-child visits on a family earning \$50,000 is displayed in Figure II.11.1, for an uninsured family and an insured family required to pay 20 percent of the cost of



<sup>597</sup> Ingenix Consulting Actuarial Report on Set Two of the Health Insurance Mandates Covered by Public Act Number 09-179.

<sup>598</sup> Selden TM. 2006. Compliance with well-child visit recommendations: evidence from Medical Expenditure Panel Survey, 2000-2002. *Pediatrics* 118(6): e1766-e1778.

<sup>599</sup> *Ibid.*

<sup>600</sup> Ingenix Consulting Actuarial Report on Set Two of the Health Insurance Mandates Covered by Public Act Number 09-179. page 51.

<sup>601</sup> Ingenix Consulting Actuarial Report on Set Two of the Health Insurance Mandates Covered by Public Act Number 09-179. page 25.

well-child visits. For the scenario, the average percent of annual income paid each year on well-child visits ranges from an estimated 0.24 percent for the insured family to 1.2 percent for the uninsured family (This number assumes an average annual expense of \$600 per year for well-child visits as a child ages from 0 to 72 months old).<sup>602</sup> Looking at the first year of life, the percent of income that would be spent for the recommended amount of well-child visits would be 0.56 percent for the insured family and 2.8 percent for the uninsured family. The following year, the cost of care for each family would be expected to reduce by 50 percent and, once a child reaches 36 months, the expected proportion of income spent annually on well-child care would be 0.11 percent for the insured family and 0.57 percent for the uninsured family.

#### ***6. The level of public demand and the level of demand from providers for preventive pediatric care.***

The primary provider organizations working with children, the AAP and AAFP, both support the Bright Futures recommendations and the periodicity schedule. Utilization rates for well-child visits and immunizations further reflect a high level of public demand for preventive pediatric health care. (Refer to Section IV-1 for additional details). A pediatric member of the AAP testified about the role of well-child visits in detecting patterns of developmental or learning delays and other problem issues a child or caregiver may be facing such as potential abuse, behavioral issues, substance abuse, early signs of depression or social isolation, and lead poisoning.<sup>603</sup> However, even though provider organizations such as the AAP and AAFP endorse the health supervision and well-child recommendations, surveys of providers and utilization statistics indicate that in pediatric and family physician practices support is not universal. Some reports have concluded that pediatricians and/or family physicians may not have adequate training, understanding or will when it comes to implementing anticipatory guidance, developmental screenings and assessing whether oral fluoride should be prescribed. In a similar fashion, not all caregiver(s) of children opt for all components of well-child care. For example, an increasing number of families may oppose and refuse immunizations based on religious reasons or concerns about adverse health effects.

#### ***7. The level of public demand and the level of demand from providers for insurance coverage for preventive pediatric care.***

The Connecticut General Assembly's unanimous support of legislation requiring insurers to cover PPC paired with the public hearing testimony in support of the measure reflect the public and provider demand for insurance coverage. Supportive testimony was submitted by a number of physician members of the Connecticut chapter of the AAP, the Connecticut Department of Health Services, the Connecticut Commission on Children and the Connecticut Psychological Association. Testimony in support of the bill emphasized the role of mandating coverage for PPC in terms of "ensuring equity in health services for children, the importance of continuity of health care for children, the proven benefits of such aspects of preventive care as immunizations, and the minimal cost of insuring such care."<sup>604</sup>

Support for insurer coverage of PPC continues to be illustrated in the federal EPSDT program and also passage of the federal Patient Protection and Affordable Care Act which requires new health plans as of September 23, 2010 to cover preventive care as specified under the Bright Futures guidelines without charging co-pays, co-insurance, or deductibles when the care is obtained in-network.<sup>605</sup>

#### ***8. The likelihood of achieving the objectives of meeting a consumer need as evidenced by the***

<sup>602</sup> Ingenix Consulting Actuarial Report on Set Two of the Health Insurance Mandates Covered by Public Act Number 09-179. page 62.

<sup>603</sup> Connecticut General Assembly. Public Hearing Testimony in favor of proposed bill #5761 from Dr. Paul Dworkin. An act concerning insurance coverage for pediatric preventive care. Insurance and Real Estate. February 28, 1989: 544-545.

<sup>604</sup> Connecticut General Assembly. Public Hearing Testimony. Insurance and Real Estate. February 28, 1989. Pages: 199-200, 202-204, 209-211, 250, 294-296, 314-316, 359-361, 404, 433-434, 544-545.

<sup>605</sup> Miller S. Society for Human Resource Management. 2010. Administration issues regulations on first-dollar preventive care. Available at: [www.shrm.org/hrdisciplines/benefits/articles/pages/preventivecareregs.aspx](http://www.shrm.org/hrdisciplines/benefits/articles/pages/preventivecareregs.aspx). Accessed July 15, 2010.

*experience of other states.*

According to Council for Affordable Health Insurance (CAHI),<sup>606</sup> 33 states have a “well child care” mandate, which CAHI defines as one that, “provides for childhood immunization and/or annual exams by a pediatrician.”<sup>607</sup> A closer review of the state mandates conducted by CPHHP staff suggests that at least nine states are addressing the demand for PPC in a manner similar to Connecticut. These states include California, Colorado, Florida, Georgia, Maryland, Massachusetts, Montana, New York and Rhode Island.

***9. The relevant findings of state agencies or other appropriate public organizations relating to the social impact of the mandated health benefit.***

Thirty states now require a fiscal note or an additional review process for any new required health insurance benefit prior to enactment.<sup>608</sup> Internet searches and telephone inquiries identified several studies from state agencies and public organizations related to mandated insurance coverage for PPC. States searched included California, Colorado, Delaware, Florida, Georgia, Massachusetts, Maryland, New York, and Rhode Island. However, the reports identified focus on the financial impact. None of the state agency or public organization reports identified for PPC discussed social impact.

***10. The alternatives to meeting the identified need, including but not limited to, other treatments, methods or procedures.***

The schedule for preventive pediatric health care developed as a means to meet immunization recommendations, apply increases in medical knowledge and technology to improving health, and as a means to mitigate long-term consequences that may unfold as a result of pediatric health problems. For the most part, care components reflect consensus among the major professional health provider organizations. However, stakeholder debate occurs regarding the frequency of well-child visits, which screening methods to use and whether screenings are best applied universally or for higher risk populations.

***11. Whether the benefit is a medical or broader social need and whether it is consistent with the role of health insurance and the concept of managed care.***

Well-child visits consist of health supervision and immunizations. Rather than focusing primarily on the treatment of infectious diseases or injuries as was traditionally done by pediatricians prior to advances in medical technology, a significant focus of pediatric care is to prevent poor health outcomes beginning in infancy.<sup>609</sup> Since the HMO Act of 1973, immunizations have been an integral part of health insurance,<sup>610</sup> and immunizations have met the medical need of reducing morbidity and mortality related to the once highly prevalent childhood diseases. Health surveillance creates the added opportunity for identifying children who would benefit from targeted interventions that prevent, improve or maintain their health status, and future development. Early detection of health problems, such as genetic or metabolic disorders, can translate into the provision of life-saving or disability-preventing measures which can reduce the need for treatments or support services that otherwise would be required.

<sup>606</sup> Council for Affordable Health Insurance. 2009. Health Insurance Mandates in the States 2009.

<sup>607</sup> Council for Affordable Health Insurance. 2009. Mandated Benefit Definition Memo.

<sup>608</sup> National Conference of State Legislatures. 2009. Health insurance coverage mandates: Are they too costly? Presentation at the Louisiana Department of Insurance 2009 Annual Health Care Conference. May 28, 2009. Available at: [http://www.lidi.state.la.us/Health/LHCC/2009\\_HealthCareConference/index.html](http://www.lidi.state.la.us/Health/LHCC/2009_HealthCareConference/index.html). Accessed May 7, 2010.

<sup>609</sup> Green M, Palfrey JS, eds. 2002. *Bright Futures: Guidelines for Health Supervision of Infants, Children, and Adolescents* (2nd ed., rev.). Arlington, VA: National Center for Education in Maternal and Child Health. Available at: <http://www.brightfutures.org/bf2/pdf/>. Accessed October 18, 2010.

<sup>610</sup> Rosenberg AB. 2009. Vaccination in the United States: payer perspective on the working group and its recommendations. *Pediatrics* 124: S564-S566.

To the extent that PPC is focused on learning capacity, mental health, behavior or future potential, some stakeholders may contend that the benefit meets a broader social need rather than a medical need.

***12. The potential social implications of the coverage with respect to the direct or specific creation of a comparable mandated benefit for similar diseases, illnesses, or conditions.***

It is conceivable that a comparable mandated benefit could be enacted for other designated populations to be assigned coverage for screenings, immunizations or physical examinations, as a means to prevent disease, promote early treatment, and improve health outcomes. Coverage for mammography and blood lead screening have also been established as required benefits under fully insured health plans.

***13. The impact of the benefit on the availability of other benefits currently offered.***

Although the cost of well-child visits is relatively low, the sizable population makes PPC costly relative to other mandates and, therefore, this mandate may be more likely to adversely impact other benefit provisions. As a response, health plan carriers may cut costs by eliminating or restricting access to, or placing limits on other non-mandated benefits currently offered. However, the availability of any benefits to be restricted may be limited. Insurers may be contractually obligated to provide specific benefits or the administrative burden related to restricting benefits may not be financially advantageous. Additionally, many of the benefits that could be targets for elimination are included in plans for competitive advantage.

***14. The impact of the benefit as it relates to employers shifting to self-funded plans and the extent to which the benefit is currently being offered by employers with self-funded plans.***

The Ingenix Consulting analysis of survey responses from Connecticut's domiciled carriers suggests that 95 percent of self-funded employer groups elect plans with coverage for PPC and 2.6 percent of self-funded members lack coverage for PPC.

***15. The impact of making the benefit applicable to the state employee health insurance or health benefits plan.***

The state employee health insurance/benefit plans were subject to the PPC benefit requirement from the mandate implementation date of October 1, 1989 up until July 1, 2010 when Connecticut transitioned from fully insured group plans to self-funded. It appears that Connecticut continues to include mandated benefits in the health plans offered to state employees even though as a self-funded group they would be exempt from state mandates under the federal Employee Retirement Income Security Act (ERISA). The projected 2010 total medical cost estimate for state employee PPC claims is \$3,766,535.<sup>611</sup>

***16. The extent to which credible scientific evidence published in peer-reviewed medical literature generally recognized by the relevant medical community determines recommended preventive pediatric care to be safe and effective.***

Pediatric vaccination programs are a substantial component of well-child care. Prior to vaccines becoming available to the public, the Food and Drug Administration and the Centers for Disease Control and Prevention review the safety and effectiveness data from randomized clinical trials (RCTs). As noted, "Without undisputable demonstration of [the vaccine's] efficacy, a vaccine would neither be licensed nor recommended by responsible authorities."<sup>612</sup> Furthermore, for approval of combination vaccines, each component of the combination vaccine must have the same immunogenic and safety profile comparable to the gold standard, non-combination vaccine.<sup>613</sup> According to pre-licensure efficacy trial research,

<sup>611</sup> Ingenix Consulting Actuarial Report on Set Two of the Health Insurance Mandates Covered by Public Act Number 09-179.

<sup>612</sup> Heininger U. 2009. A risk-benefit analysis of vaccination. *Vaccine* 27: Suppl 6:G9-G12.

<sup>613</sup> Zepp F, Schmitt HJ, Cleerhout J et al. 2009. Review of 8 years of experience with Infanrix hexa (DTPa-HBV-IPV/Hib hexavalent vaccine).

immunizations offer moderate to high levels of protection to infants in terms of percent risk reduction for the development of a specific disease or manifestation of a disease, compared to unimmunized individuals. National data suggests a remarkably low rate of 11.4 reports of adverse events per 100,000 vaccines.<sup>614</sup> Although risks of adverse events exist following immunizations, national data suggests that adverse event ratios are comparable to populations with placebo injections. Furthermore, on-time receipt of vaccinations in the first year of life have not been shown to adversely affect neuropsychological outcomes seven to ten years later.<sup>615</sup>

Additional studies have also documented the effectiveness and safety of vaccines among vulnerable populations such as pre-term and low-birth weight infants,<sup>616</sup> immune-compromised children such as those with leukemia and other malignancies,<sup>617</sup> and children with chronic renal failure and/or liver transplantation.<sup>618</sup> For low-birth weight and pre-term infants, vaccines have been found to be immunogenic, safe, and well-tolerated.<sup>619</sup> For the immune compromised, the benefits of vaccination often outweigh the risks. Clinical research has found many vaccines to remain immunogenic, protective and safe. However, for some immune-compromised children live vaccines may pose a risk that outweighs the benefit if the virus has a low-incidence rate (measles).<sup>620</sup>

Beyond vaccination, the safety and effectiveness of PPC or well-child visits becomes a subject for some debate. The concept of how to define safe and effective preventive care, especially screenings, varies across stakeholder groups. A recent article on the concept of “clinical utility” contrasts how establishing effectiveness of a pharmaceutical differs from establishing the effectiveness of a medical test. Evaluation of drug effectiveness involves rigorous randomized control trials to establish whether the desired clinical outcome occurs in the intervention group, compared to the control group. Similar to drug tests, medical tests can be evaluated as effective based on whether the test measures the intended characteristic accurately (analytic validity) and whether the characteristic measured identifies a disease condition or risk accurately (clinical validity). Traditionally, medical tests were deemed effective to the extent that the test achieves analytic and clinical validity comparably or better than the prevailing gold standard. However, if the standard is to achieve clinical utility, “the benefits and risks that accrue from both positive and negative test results” are also considered.<sup>621</sup> Although screening tests used for PPC are generally regarded as having analytic and clinical validity, the weights ascribed to associated benefits and risks often differs across stakeholder groups and at times yields conflicting recommendations for preventive care activities, including those relevant to PPC.

The medical community involved in setting PPC standards includes the American Academy of Pediatrics (AAP), the American Academy of Family Physicians (AAFP), the Bright Futures project, the Medical Association Guidelines for Adolescent Preventive Services (GAPS), the United States Preventive Services Task

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*Expert Review of Vaccines* 8(6): 663-78.

<sup>614</sup> Jacobson RM. 2003. Vaccine Safety. *Immunology and Allergy Clinics of North America* 23(4): 589-603.

<sup>615</sup> Smith MJ, Woods CR. 2010. On-time vaccine receipt in the first year does not adversely affect neuropsychological outcomes. *Pediatrics* 125(6): 1134-41.

<sup>616</sup> Esposito S, Serra D, Gualtieri L, et al. 2009. Vaccines and preterm neonates: why, when and with what. *Early Human Development* 85(10 Suppl): S43-5.

<sup>617</sup> Luthy KE, Tiederman ME, Beckstrand RL, et al. 2006. Safety of live-virus vaccines for children with immune deficiency. *Journal of the American Academy of Nurse Practitioners* 18(10): 494-503.

<sup>618</sup> Neuhaus TJ. 2004. Immunization in children with chronic renal failure: a practical approach. *Pediatric Nephrology* 19(12): 1334-9.

<sup>619</sup> Esposito S, Serra D, Gualtieri L, et al. 2009. Vaccines and preterm neonates: why, when and with what. *Early Human Development* 85 (10 Suppl): S43-5.

<sup>620</sup> Luthy KE, Tiederman ME, Beckstrand RL, et al. 2006. Safety of live-virus vaccines for children with immune deficiency. *Journal of the American Academy of Nurse Practitioners* 18(10): 494-503.

<sup>621</sup> Burke W, Laberge A-M, Press N. 2010. Debating clinical utility. *Public Health Genomics* 13: 215-223.

Force (USPSTF) and the Institute for Clinical Systems Improvement (ICSI). The types of well-child care endorsed by each organization are noted in Table II.11.1.<sup>622</sup> The AAP sets goals for pediatric practitioners, the Bright Futures report presents national goals for PPC, and the USPSTF sets recommendations for PPC based on “evidence.”). The AAP/Bright Futures recommendations are generally consistent. On the other hand, there is much more variation in the USPSTF reports. Consistent with the AAP, the USPSTF recommends vision screening, speech/language screenings, tuberculosis and anticipatory guidance (though the schedule and content may differ). Contrary to the AAP, the USPSTF either “recommends against” or finds insufficient evidence to support a recommendation “for or against” scoliosis screening, hyperlipidemia screening for children younger than two, hearing screening of children in early childhood, hemoglobin and hematocrit screening, and urine screening.

<b>Components</b>	<b>AAP</b>	<b>Bright Futures</b>	<b>UPSTF</b>	<b>AAFP</b>	<b>ICSI</b>	<b>GAPS</b>
Physical Exam	Y	Y			Y (limited)	
Growth monitoring	Y	Y		Y	Y	Y
Blood pressure monitoring	Y	Y			Y	Y
Scoliosis		Y	N?			
Behavioral Risk Assessment	Y	Y			Y	Y
Developmental Assessment	Y	Y			Y	
Hyperlipidemia screening (<2)	Y	Y	N	N	N	Y
Newborn Hearing screening	Y					
Hearing screening (post newborn period)	Y	Y	N (middle childhood)		Y	
Oral fluoride treatment	Y			Y	Y	
Vision screening*						
Visual Acuity	Y	Y	Y-grade B		Y	
Amblyopia	Y	Y	Y-grade B			
Strabismus			Y-grade B			
Speech language delay			Y			
Hemoglobin/Hematocrit screening			N	N	Y	
Universal	Y				annual, older children only	
1 time		Y				
High risk						
Tuberculosis Screening	Y	Y	Y	Y	Y	
Urine screening (infection)	Y	Y	N	N	N	
Anticipatory Guidance/behavior counseling**	Y	Y	Y		Y	

\*American Association Ophthalmology Pediatrics Ophthalmology/Strabismus Panel Guidelines (2008)  
\*\*The number and timing of subject matters for guidance vary across groups.

The lack of clinical trials and adequately controlled studies evaluating the components of PPC further

<sup>622</sup> Moyer VA, Butler M. 2004. Gaps in the evidence for well-child care: a challenge to our profession. *Pediatrics* 114(6): 1511-1521.



explain some of the inconsistencies across recommendations for PPC. A systematic review of the medical literature conducted by Meyer and Butler (2004) found no clinical trial evidence for the periodic complete physical exam, growth monitoring, developmental assessment, behavioral risk assessment, blood pressure monitoring, scoliosis screening, urine infection screening, visual acuity screening tuberculosis screening, hyperlipidemia screening, universal anemia screening, lead poisoning screening in high-risk children, and hearing screening after newborn period.<sup>623</sup> According to the same study, limited evidence was found for behavioral counseling on injury prevention and newborn screenings for genetic/metabolic disorders and hearing. In addition, Meyer and Butler raise concerns specific to adverse events that may result from false-positive tests at well-child visits and the research gap surrounding this topic. The authors' further suggest that false-positive screening results may lead to expensive or intrusive verification tests, psychological distress or treatment when a child does not have the condition.<sup>624</sup>

Questions about the effectiveness of the well-child visits schedule have also been raised through conflicting epidemiological findings. For example, one study found similar outcomes when comparing children receiving the “standard” number of visits (five visits) for the first year of life to those with three visits. The same study also noted little difference between those receiving the “standard” ten visits during the first two years of life to those receiving five visits across the same period.<sup>625</sup>

## V. Financial Impact

### ***1. The extent to which the mandated health benefit may increase or decrease the cost of preventive pediatric care over the next five years.***

Fully insured group health insurance plans in Connecticut have been required to adhere to the PPC mandate since October 1, 1989. Available information does not enable the ability to control for PPC resources that would be consumed by the fully insured population in the absence of the mandate. The lack of longitudinal data on the unit cost of care and utilization of PPC restricts the ability to comment on any contributions the PPC mandate may have on the cost of care over the next five years. Any increase or decrease may be explained by factors such as inflation, changes in the size of the child population, children shifting to public health plans, vaccine shortages, societal norms or other trends. Generally, it would be expected that if an initial increase in utilization resulted in price increases or supply shortages, economies of scale and market equilibrium would have been reached in the years following implementation.

However, the federal Patient Protection and Affordable Care Act requires new fully insured and self-funded health plans, as of September 23, 2010, to cover preventive care as specified under the Bright Futures guidelines. The federal mandate further requires that coverage be provided without charging co-pays, co-insurance or deductibles when the care is obtained in-network.<sup>626</sup> It is assumed that the PPC coverage threshold set by federal law will become the prevailing standard, rather than that of the Connecticut mandate. To the extent that the elimination of cost-sharing creates an incentive for pursuing PPC, the aggregate amount spent on PPC will increase.

### ***2. The extent to which the mandated health benefit may increase the appropriate or inappropriate use of preventive pediatric care over the next five years.***

Fully insured group health plans have been required to adhere to the PPC mandate since October 1, 1989.

<sup>623</sup> *Ibid.*

<sup>624</sup> *Ibid.*

<sup>625</sup> Dinkevich E, Hupert J, Moyer VA. 2001. Evidence based well child care. *British Medical Journal* 323(7317): 846.

<sup>626</sup> Miller S. Society for Human Resource Management. 2010. Administration issues regulations on first-dollar preventive care. Available at: [www.shrm.org/hrdisciplines/benefits/articles/pages/preventivecareregs.aspx](http://www.shrm.org/hrdisciplines/benefits/articles/pages/preventivecareregs.aspx). Accessed July 15, 2010.

The lack of longitudinal data on utilization of PPC by insurance type, limits the ability to assess what change of utilization if any, is a result of the PPC mandate. However, it is possible that utilization of PPC may increase as a result of the Patient Protection and Affordability Act which eliminates cost-sharing for PPC visits for all fully insured and self-funded plans issued after September 23, 2010. The main caveat is that to the extent that the elimination of cost-sharing translates into increased premiums paid by the insured person (or family member), individuals may opt not to elect coverage, becoming uninsured and less likely to access PPC. Alternatively, those who become uninsured may enroll in public health plans if eligible and continue to access PPC.

***3. The extent to which the mandated health benefit may serve as an alternative for a more expensive or less expensive approach.***

Well-child visits serve as an alternative to treating medical conditions once they become more severe. Immunizations provide an alternative to treating children who have contracted once common infectious diseases such as measles, poliomyelitis or pertussis by inoculating the child against the disease thus preventing the infection. Issues such as developmental delays, high blood pressure, obesity, anemia or mental health conditions may also be detected allowing conditions to be managed and risks such as heart attacks, and unintentional or intentional injuries to be prevented. Generally speaking, the cost of a well-child visit and related charges remains less than the cost of treating an individual for conditions that could be prevented. However, by applying well-child visits to children up to age six, the total bill for providing PPC to all fully insured children may outweigh the savings generated from not having to treat more severe conditions as the child ages.

***4. The methods that will be implemented to manage the utilization and costs of the mandated health benefit.***

It is anticipated that health plan carriers employ the same management methods and cost controls that are applied for other covered benefits. The legislation does not prohibit carriers from employing utilization management, prior authorization, or other utilization tools at their discretion. However, insurers often opt to provide well-child visits without co-pays or other cost-sharing mechanisms. Although fully insured group health plans must cover well-child visits, the plan may cover a limited variety of reimbursable screening tests and assessments.

***5. The extent to which insurance coverage for preventive pediatric care, may be reasonably expected to increase or decrease the insurance premiums and administrative expenses for policyholders.***

Health insurance premiums consist of reimbursable medical costs and retention. Retention refers to the administrative expenses and profit charges set by the carriers for each given medical claim. For 2010 (not accounting for implementation of the federal legislation), Ingenix Consulting's projections based on carriers claims data indicates that on average, an employer pays \$1.91 per member per month (PMPM) for medical costs and \$0.38 PMPM for retention. As a total, the employer with a fully insured group plan pays \$2.29 PMPM or \$27.48 per member per year for PPC. Since the mandate does not apply to fully insured individuals, neither an increase nor decrease is expected in premiums for individual policyholders.

It is important to note that although \$1.91 PMPM in medical claims is expected to be paid out for PPC, a high proportion of this amount may be funded regardless of the mandate. As noted under Social Impact #14 (IV-14) although self-funded group plans are not required by state-law to offer PPC, Ingenix Consulting found that 95 percent of self-funded groups are estimated as covering PPC.

***6. The extent to which preventive pediatric care is more or less expensive than an existing approach***

*that is determined to be equally safe and effective by credible scientific evidence published in peer-reviewed medical literature generally recognized by the relevant medical community.*

Potential alternatives to covering prevailing PPC recommendations such as the periodicity schedule involve adhering to fewer well-child visits or the administering of well-child care in group settings.<sup>627</sup> Similar health outcomes have been documented by some researchers when comparing group versus individual pediatric visits and the “standard” number of visits compared to 50 to 60 percent as many visits. Theoretically, well-child care in group settings could reduce the per unit cost per visits by the number of children per group while a 50 to 60 percent reduction in the number of well-child visits would reduce the total cost of visits by more than half. (However, it is important to reiterate that a substantial proportion of the child population does not currently receive the number of well-child visits recommended by the periodicity schedule thus reducing the magnitude of cost-saving potential from these alternatives).

Existing approaches for the varying components of PPC exist. However, given the breadth of PPC, a review of potential alternatives and respective costs are not presented in this section. In addition to potential variations in frequency of visits, screenings, and immunizations additional alternatives such as the age at which one receives screening, the type of screening test, and whether such screening is applied in a targeted or universal fashion exist.

***7. The impact of insurance coverage for preventive pediatric care on the total cost of health care, including potential benefits or savings to insurers and employers resulting from prevention or early detection of disease or illness related to such coverage.***

The estimated total cost of preventive pediatric health care for fully insured group members in 2010 is \$29,052,573 according to IC’s analysis of claims data. This projection captures all PPC-related claims for fully insured group members without controlling for the level of PPC-related claims that would exist in the absence of the mandate or accounting for any cost-savings that may occur from prevention or early detection of a condition.

Early detection creates the opportunity to reduce future demand for health care and increase the number of quality-adjusted life years (QALY) if onset of a condition, severity of a condition or the need for expensive, long-term treatments is prevented. When screening is followed by appropriate treatment of a condition, the related morbidities, mortality and social burden that would have occurred in the absence of early diagnosis may be reduced. Prevention or early treatment of a condition can offset the cost of the preventive measure and its related medical expenses. In some instances, the savings generated does not fully compensate for the preventive measure but is considered cost-effective if QALY increase. Table II.11.2 (see page 211) summarizes findings from the health economics literature with regard to whether a given preventive measure has been described as cost-saving or cost-increasing.

Among the components of the periodicity schedule, researchers have examined many types of immunizations, newborn metabolic and genetic screenings, newborn hearing screening, fluoride varnish, and blood pressure and tuberculin tests for targeted populations. All of these measures have been described as cost-effective, even in the case where vaccines, screenings, interventions and related follow-ups were not fully offset by expected savings. Medical librarians and CPHHP were unable to identify similar economic studies for dyslipidemia screening, vision screening, developmental screening and surveillance, psychological/behavioral assessment, autism screening, hematocrit or hemoglobin screening, or anticipatory guidance.

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<sup>627</sup> Dinkevich E, Hupert J, Moyer VA. 2001. Evidence based well child care. *British Medical Journal* 323(7317): 846.

**8. *The impact of the mandated health care benefit on the cost of health care for small employers, as defined in § 38a-564 of the general statutes, and for employers other than small employers.***

No published literature was found regarding the effect of mandated coverage of PPC on the cost of health care for small employers. According to the IC analysis, on average, PPC accounts for \$2.29 PMPM for group insurance premiums (paid medical cost plus retention) for both small employers and other employers. The exact proportion of the \$2.29 PMPM attributable to the mandate is unknown because the mandate was implemented as of October 1, 1989 and adequate longitudinal data was unavailable to conduct a more robust analysis. Potentially, the mandate may have a small to moderate impact on premium costs that is less than the full \$2.29. Since small employers may have smaller profit margins, small employers may be more sensitive to premium increases than other employers. However, some evidence exists that PPC may be a standard benefit in many plans. Specifically, the actuarial analysis results suggest that approximately 95 percent of self-funded groups include PPC at least to the extent of the Connecticut mandate despite being exempt from health insurance benefit mandates specified under the Connecticut General Statutes.

**9. *The impact of the mandated health benefit on cost-shifting between private and public payers of health care coverage and on the overall cost of the health care delivery system in the state.***

The overall cost of the health delivery system in the state is understood to include total insurance premiums (medical costs and retention) and cost sharing. Actuarial analysis of claims data received from health plan carriers in Connecticut shows an expected cost in 2010 of \$34,647,698 for PPC for Connecticut residents covered by fully insured group health insurance plans. This overall cost represents all PPC for the fully insured population in group plans and is not limited to the change in cost that may have resulted from implementation of the mandate. It is expected that the cost to the health care system attributable to the mandate is a small proportion of the number presented since some pediatric care services would likely be consumed by fully insured group members and covered by their health plans in the absence of the mandate.

The provision for fully insured group plans to cover PPC may result in a shift of costs between the private and public payers of health care. To the extent that vaccines or other PPC services are obtained through private sector fully insured group plans when they otherwise would have been obtained through other means or not at all, a shift in cost from the public to the private sector may be taking place. The magnitude of the cost-shifting can be impacted by disparities between public and private sector reimbursement rates for pediatric services. For vaccine services, the public sector is reported as paying less than the true cost of service while private payers pay more than the true cost of services. A Georgia based study found, “on average, there is a positive net return from vaccinating private-pay patients, but the financial losses from vaccinating Vaccines for Children-eligible patients tend to negate any net gain from private-pay patients.” For pediatric practices with a large proportion of Medicaid-enrolled patients, the reduction in net gains was even greater.<sup>628</sup>

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<sup>628</sup> Rosenberg AB. 2009. Vaccination in the United States: payer perspective on the working group and its recommendations. *Pediatrics* 124: S564-S566.

**Table II.11.2.**  
**How components of well-child visits contribute to health care and societal costs**

Preventive Measure	Cost-Saving	Cost-Increasing
Newborn Metabolic-Genetic Screening	<ul style="list-style-type: none"> <li>▶ PKU</li> <li>▶ Biotinidase deficiency</li> <li>▶ Maple Syrup Urine Disease (MSUD)</li> <li>▶ Congenital hypothyroidism (CH)<sup>629</sup></li> </ul>	<ul style="list-style-type: none"> <li>▶ 14 tests (Tandem Mass Spectrometry)<sup>630, 631</sup></li> <li>▶ Galactosemia<sup>632</sup></li> <li>▶ Congenital adrenal hyperplasia<sup>633</sup></li> <li>▶ MCADD<sup>634</sup></li> <li>▶ Hemoglobinopathy<sup>635</sup></li> </ul>
Immunization	<ul style="list-style-type: none"> <li>▶ Vaccine Series: DTP, Hib, Polio, MMR<sup>636</sup></li> <li>▶ DTaP, DTP and Pertussis component<sup>637</sup></li> <li>▶ Hib<sup>638</sup></li> <li>▶ Varicella<sup>639</sup></li> <li>▶ MMR<sup>640, 641</sup></li> <li>▶ Pneumococcal, Otitis Media, Pneumonia if child is 2-5<sup>642</sup></li> </ul>	<ul style="list-style-type: none"> <li>▶ Influenza-savings depends on reaching high risk population<sup>643</sup> and flu attack rate during season<sup>644</sup></li> <li>▶ Hepatitis A-nearly cost neutral over 10 birth cohorts when adjusting for herd immunity-free riders<sup>645, 646</sup></li> <li>▶ Pneumococcal, Otitis Media, Pneumonia if child is &lt;2 years old<sup>647</sup></li> </ul>
Other measures	<ul style="list-style-type: none"> <li>▶ Newborn hearing screening: net benefit after 4 years;<sup>648</sup> universal screening generates greatest cost-savings<sup>649</sup></li> <li>▶ Blood pressure screening: initial evaluation of child suspected to have hypertension<sup>650</sup></li> <li>▶ Tuberculin test: if screening for kindergarten<sup>651</sup></li> </ul>	<ul style="list-style-type: none"> <li>▶ Fluoride varnish<sup>652</sup></li> </ul>

<sup>629</sup> Carroll AE, Downs SM. 2006. Comprehensive Cost-Utility Analysis of Screening Strategies. *Pediatrics* 117(5): S287-S295.

<sup>630</sup> Cipriano LE, Rugar CA, Zaric GS. 2007. The cost-effectiveness of expanding newborn screening for up to 21 inherited metabolic disorders using tandem mass spectrometry: results from a decision analytic model. *Value Health* 10(2): 83-97.

<sup>631</sup> Schoen EJ, Baker JC, Colby CJ, et al. 2002. Cost-benefit analysis of universal tandem mass spectrometry for newborn screening. *Pediatrics* 110(4): 781-6.

<sup>632</sup> Carroll AE, Downs SM. 2006. Comprehensive Cost-Utility Analysis of Screening Strategies. *Pediatrics* 117(5): S287-S295.

<sup>633</sup> *Ibid.*

<sup>634</sup> Tran K, Banerjee S, Li H, et al. 2007. Clinical efficacy and cost-effectiveness of newborn screening for medium chain acyl-CoA dehydrogenase deficiency using tandem mass spectrometry. *Clinical Biochemistry* 40(3-4):235-41.

<sup>635</sup> Gessner BD, Teutsch SM, Shaffer PA. 1996. A cost-effectiveness evaluation of newborn hemoglobinopathy screening from the perspective of state health care systems. *Early Human Development* 45(3): 257-75.

<sup>636</sup> Zhou F, Santoli J, Messonnier ML, et al. 2005. Economic evaluation of the 7-vaccine routine childhood immunization schedule in the United States. *Archives of Pediatric and Adolescent Medicine* 159(12): 1136-44.

<sup>637</sup> Ekwueme DU, Strebel PM, Hadler SC, et al. Economic evaluation of use of diphtheria, tetanus, and acellular pertussis vaccine or diphtheria, tetanus, and whole-cell pertussis vaccine in the United States, 1997. *Archives of Pediatric and Adolescent Medicine* 154(8):797-803.

<sup>638</sup> Zhou F, Bisgard KM, Yusuf HR, et al. 2002. Impact of universal Haemophilus influenzae type b vaccination starting at 2 months of age in the United States: an economic analysis. *Pediatrics* 110(4): 653-61.

<sup>639</sup> Centers for Disease Control and Prevention. 1999. An ounce of prevention...what are the returns?, 2nd ed. Rev. Atlanta, GA: U.S. Department of Human Services. Available at: [www.cdc.gov/mmwr/PDF/other/ozprev.pdf](http://www.cdc.gov/mmwr/PDF/other/ozprev.pdf). Accessed December 5, 2010.

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<sup>640</sup> *Ibid.*

- <sup>641</sup> Zhou F, Reef S, Massoudi M, et al. 2004. An economic analysis of the current universal 2-dose measles-mumps-rubella vaccination program in the United States. *Journal of Infectious Disease* 189(Suppl 1):S131-45.
- <sup>642</sup> Weycker D, Richardson E, Oster G. 2000. Childhood vaccination against pneumococcal otitis media and pneumonia: an analysis of benefits and costs. *American Journal of Managed Care* 6(10 Suppl): S526-35.
- <sup>643</sup> Meltzer MI, Neuzil Km, Griffin MR, et al. 2005. An economic analysis of annual influenza vaccination of children. *Vaccine* 23(8):1004-14.
- <sup>644</sup> Hibbert CL, Piedra PA, McLaurin KK, et al. 2007. Cost-effectiveness of live-attenuated influenza vaccine, trivalent in preventing influenza in young children attending day-care centres. *Vaccine* 25(47): 8010-20.
- <sup>645</sup> Armstrong GL, Billah K, Rein DB, et al. 2007. The economics of routine childhood hepatitis A immunization in the United States: the impact of herd immunity. *Pediatrics* 119(1): e22-9.
- <sup>646</sup> Rein DB, Hicks KA, Wirth KE, et al. 2007. Cost-effectiveness of routine childhood vaccination for hepatitis A in the United States. *Pediatrics* 119(1): e12-21.
- <sup>647</sup> Weycker D, Richardson E, Oster G. 2000. Childhood vaccination against pneumococcal otitis media and pneumonia: an analysis of benefits and costs. *American Journal of Managed Care* 6(10 Suppl): S526-35.
- <sup>648</sup> Gorga MP, Neely ST. 2003. Cost-effectiveness and test-performance factors in relation to universal newborn hearing screening. *Mental Retardation and Developmental Disabilities Research Reviews* 9(2):103-8.
- <sup>649</sup> Keren R, Helfand M, Horner C, et al. 2002. Projected cost-effectiveness of statewide universal newborn hearing screening. *Pediatrics* 110(5): 855-64.
- <sup>650</sup> Swartz SJ, Srivaths PR, Croix B, et al. 2008. Cost-effectiveness of ambulatory blood pressure monitoring in the initial evaluation of hypertension in children. *Pediatrics* 122(6): 1177-81.
- <sup>651</sup> Centers for Disease Control and Prevention. 1999. An ounce of prevention...what are the returns?, 2nd ed. Rev. Atlanta, GA: U.S. Department of Human Services. Available at: [www.cdc.gov/mmwr/PDF/other/ozprev.pdf](http://www.cdc.gov/mmwr/PDF/other/ozprev.pdf). Accessed December 5, 2010.
- <sup>652</sup> Quinonez RB, Stearns SC, Talekar BS, et al. 2006. Simulating cost-effectiveness of fluoride varnish during well-child visits for Medicaid-enrolled children. *Archives of Pediatric and Adolescent Medicine* 160(2): 164-70.

**Volume I**  
**Appendix I**

**House Bill No. 5018**

**Public Act No. 09-179**

*An act concerning reviews of health insurance  
benefits mandated in the State of Connecticut*









**House Bill No. 5018**

**Public Act No. 09-179**

**AN ACT CONCERNING REVIEWS OF HEALTH INSURANCE  
BENEFITS MANDATED IN THIS STATE.**

Be it enacted by the Senate and House of Representatives in General Assembly convened:

Section 1. (NEW) (*Effective July 1, 2009*) (a) As used in this section:

(1) "Commissioner" means the Insurance Commissioner.

(2) "Mandated health benefit" means an existing statutory obligation of, or proposed legislation that would require, an insurer, health care center, hospital service corporation, medical service corporation, fraternal benefit society or other entity that offers individual or group health insurance or medical or health care benefits plan in this state to: (A) Permit an insured or enrollee to obtain health care treatment or services from a particular type of health care provider; (B) offer or provide coverage for the screening, diagnosis or treatment of a particular disease or condition; or (C) offer or provide coverage for a particular type of health care treatment or service, or for medical equipment, medical supplies or drugs used in connection with a health care treatment or service. "Mandated health benefit" includes any proposed legislation to expand or repeal an existing statutory obligation relating to health insurance coverage or medical benefits.

(b) (1) There is established within the Insurance Department a

**House Bill No. 5018**

health benefit review program for the review and evaluation of any mandated health benefit that is requested by the joint standing committee of the General Assembly having cognizance of matters relating to insurance. Such program shall be funded by the Insurance Fund established under section 38a-52a of the general statutes. The commissioner shall be authorized to make assessments in a manner consistent with the provisions of chapter 698 of the general statutes for the costs of carrying out the requirements of this section. Such assessments shall be in addition to any other taxes, fees and moneys otherwise payable to the state. The commissioner shall deposit all payments made under this section with the State Treasurer. The moneys deposited shall be credited to the Insurance Fund and shall be accounted for as expenses recovered from insurance companies. Such moneys shall be expended by the commissioner to carry out the provisions of this section and section 2 of this act.

(2) The commissioner shall contract with The University of Connecticut Center for Public Health and Health Policy to conduct any mandated health benefit review requested pursuant to subsection (c) of this section. The director of said center may engage the services of an actuary, quality improvement clearinghouse, health policy research organization or any other independent expert, and may engage or consult with any dean, faculty or other personnel said director deems appropriate within The University of Connecticut schools and colleges, including, but not limited to, The University of Connecticut (A) School of Business, (B) School of Dental Medicine, (C) School of Law, (D) School of Medicine, and (E) School of Pharmacy.

(c) Not later than August first of each year, the joint standing committee of the General Assembly having cognizance of matters relating to insurance shall submit to the commissioner a list of any mandated health benefits for which said committee is requesting a review. Not later than January first of the succeeding year, the

**House Bill No. 5018**

commissioner shall submit a report, in accordance with section 11-4a of the general statutes, of the findings of such review and the information set forth in subsection (d) of this section.

(d) The review report shall include at least the following, to the extent information is available:

(1) The social impact of mandating the benefit, including:

(A) The extent to which the treatment, service or equipment, supplies or drugs, as applicable, is utilized by a significant portion of the population;

(B) The extent to which the treatment, service or equipment, supplies or drugs, as applicable, is currently available to the population, including, but not limited to, coverage under Medicare, or through public programs administered by charities, public schools, the Department of Public Health, municipal health departments or health districts or the Department of Social Services;

(C) The extent to which insurance coverage is already available for the treatment, service or equipment, supplies or drugs, as applicable;

(D) If the coverage is not generally available, the extent to which such lack of coverage results in persons being unable to obtain necessary health care treatment;

(E) If the coverage is not generally available, the extent to which such lack of coverage results in unreasonable financial hardships on those persons needing treatment;

(F) The level of public demand and the level of demand from providers for the treatment, service or equipment, supplies or drugs, as applicable;

(G) The level of public demand and the level of demand from

**House Bill No. 5018**

providers for insurance coverage for the treatment, service or equipment, supplies or drugs, as applicable;

(H) The likelihood of achieving the objectives of meeting a consumer need as evidenced by the experience of other states;

(I) The relevant findings of state agencies or other appropriate public organizations relating to the social impact of the mandated health benefit;

(J) The alternatives to meeting the identified need, including, but not limited to, other treatments, methods or procedures;

(K) Whether the benefit is a medical or a broader social need and whether it is consistent with the role of health insurance and the concept of managed care;

(L) The potential social implications of the coverage with respect to the direct or specific creation of a comparable mandated benefit for similar diseases, illnesses or conditions;

(M) The impact of the benefit on the availability of other benefits currently offered;

(N) The impact of the benefit as it relates to employers shifting to self-insured plans and the extent to which the benefit is currently being offered by employers with self-insured plans;

(O) The impact of making the benefit applicable to the state employee health insurance or health benefits plan; and

(P) The extent to which credible scientific evidence published in peer-reviewed medical literature generally recognized by the relevant medical community determines the treatment, service or equipment, supplies or drugs, as applicable, to be safe and effective; and

**House Bill No. 5018**

(2) The financial impact of mandating the benefit, including:

(A) The extent to which the mandated health benefit may increase or decrease the cost of the treatment, service or equipment, supplies or drugs, as applicable, over the next five years;

(B) The extent to which the mandated health benefit may increase the appropriate or inappropriate use of the treatment, service or equipment, supplies or drugs, as applicable, over the next five years;

(C) The extent to which the mandated health benefit may serve as an alternative for more expensive or less expensive treatment, service or equipment, supplies or drugs, as applicable;

(D) The methods that will be implemented to manage the utilization and costs of the mandated health benefit;

(E) The extent to which insurance coverage for the treatment, service or equipment, supplies or drugs, as applicable, may be reasonably expected to increase or decrease the insurance premiums and administrative expenses for policyholders;

(F) The extent to which the treatment, service or equipment, supplies or drugs, as applicable, is more or less expensive than an existing treatment, service or equipment, supplies or drugs, as applicable, that is determined to be equally safe and effective by credible scientific evidence published in peer-reviewed medical literature generally recognized by the relevant medical community;

(G) The impact of insurance coverage for the treatment, service or equipment, supplies or drugs, as applicable, on the total cost of health care, including potential benefits or savings to insurers and employers resulting from prevention or early detection of disease or illness related to such coverage;

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(H) The impact of the mandated health care benefit on the cost of health care for small employers, as defined in section 38a-564 of the general statutes, and for employers other than small employers; and

(I) The impact of the mandated health benefit on cost-shifting between private and public payors of health care coverage and on the overall cost of the health care delivery system in the state.

Sec. 2. (*Effective July 1, 2009*) The commissioner shall carry out a review as set forth in section 1 of this act of statutorily mandated health benefits existing on or effective on July 1, 2009. The commissioner shall submit, in accordance with section 11-4a of the general statutes, the findings to the joint standing committee of the General Assembly having cognizance of matters relating to insurance not later than January 1, 2010.

Approved June 30, 2009

**Volume II**

**Appendix II**

***Ingenix Consulting***

**Actuarial Report**

**On set two, 12-22 of the 45**

**Health Insurance Mandates**

**Covered By Public Act**

**Number 09-179**

**for**

**The State of Connecticut**





**INGENIX CONSULTING—**  
ACTUARIAL REPORT For The STATE OF CT  
On Set Two Of The HEALTH INSURANCE MANDATES  
Covered By PUBLIC ACT NUMBER 09-179

December 10, 2010

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## I. INTRODUCTION:

This report serves to record the findings of Ingenix Consulting (IC) pursuant to our engagement to provide actuarial services to the State of CT in conjunction with Substitute House Bill No. 5021, Public Acts 09-179. This report is intended to communicate the results of that work.

Ingenix Consulting is pleased to have been chosen to serve the state of CT in this valuable project. A team approach was used with the workgroup that included the CT Department of Insurance, the Center for Public Health and Health Policy, and IC. A team approach was also used internally at IC. Daniel Bailey, FSA, MAAA managed the actuarial work for the project and worked on most of the mandates. James Drennan, FSA, MAAA provided guidance, expertise in individual insurance, and acted as consultant and peer reviewer. Dr. Thomas Knabel, MD, and his clinical staff were responsible for clinical guidance and support. Mary Canillas, FSA, MAAA carried out the data research that involved our extensive commercial health claims databases.

The financial/economic work was lead by Tanvir Khan, who worked with a team of associates located throughout the nation, including Jon Montague-Clouse, PharmD. The financial / economic report is embedded in section III of this Set Two report; it is not part of the actuarial report.

IC was retained by the state to assess 45 existing health insurance mandates. In this document, IC's findings and conclusions are presented. These findings relate to the actuarial evaluation of each mandate in the second set of 11 mandates—Set Two. The mandates will be reviewed with respect to cost, socio-economic impact, and effect on the finance and delivery system.

For this project, the six health insurers domiciled in CT were asked to submit their claim data showing how much these mandates cost. This was an important step in determining how much the mandates add to the cost of health insurance premiums in CT. For some of the mandates, IC also supplemented the health carrier data with data from their CT and national databases.

Results are presented in several steps in this report. First, they are presented in summary form, and subsequently, additional data and calculations that support the findings are layered into the document.

### I.1 IC reviewed the following eleven mandates (Section numbers, individual then group, and date of passage are shown in parentheses):

1. **Mammography and breast ultrasound:** Requires coverage of a minimum of baseline mammogram for women 35 to 39 and annual mammogram for those age 40 and older. Additional conditional benefit of comprehensive ultrasound screening. (38a-503 and 38a-530; Oct 2001)
2. **Maternity Care, Minimum Stay:** Requires insurers to cover a minimum of a 48 hour stay following normal delivery and 96 hours after caesarean. Earlier discharge is possible with consent of patient and attending physician subject to follow-up visit (38a-503c and 38a-530c; Oct. 1996). This is also a federal mandate.

3. **Mastectomy Care, Minimum Stay:** Requires insurers to cover a minimum of 48 following mastectomy or lymph node dissection, and longer stay if physician recommends and patient consents. Earlier discharge is possible with consent of patient and attending physician. (38a-503d and 38a-530d; July 1997). There is a federal mandate pertaining to reconstructive surgery following mastectomy, but not minimum length of stay.
4. **Prescription Contraception:** Policies that include outpatient prescription drugs cannot exclude prescription contraception. (38a-503e and 38a-530e; Oct. 1999).
5. **Infertility:** Requires coverage for diagnosis and treatment of infertility subject to conditions and limitations. Covers up to two cycles of in vitro fertilization or transfer and a maximum of two embryo implants per cycle. (38a-509 and 38a-536; Oct. 2005).
6. **Autism Spectrum Disorders:** Requires medical insurers to cover physical, speech, and occupational therapy (PT/OT/ST) for the treatment of autism spectrum disorders (ASD) to the same extent as coverage for other diseases. If the policy does not cover PT/OT/ST for other diseases and conditions, then it is not required to cover it for ASD. (38a-488b and 38a-514b; Jan. 2009).
7. **Newborn Infants:** Requires coverage of newborn infants from the moment of birth. Newborn care includes all post-partum care through the first 31 days of life. No pre-existing condition may be applied to newborns. Newborns may not be refused insurance coverage. (38a-490 and 38a-516; Oct. 1974).
8. **Blood lead screening:** Individual insurers must cover blood lead screening and risk assessments ordered by a primary care provider. (38a-490d; Oct. 1997).
9. **Prescription Food:** Requires coverage of specific preparations and food products for the treatment of inherited metabolic diseases if prescribed and under the direction of a physician. (38a-492c and 38a-518c; Oct. 1997). A revision in Oct. 2007 revised the mandate to no longer include the requirement that the specialized food be prescribed, only that it be administered under the direction of a physician.
10. **Developmental Needs of Children with Cancer:** Requires coverage, without prior authorization, for neuropsychological testing of children diagnosed with cancer to assess developmental delay due to chemotherapy and radiation. (38a-492i and 38a-516d; Oct 2006).
11. **Preventive Pediatric Care and Blood Lead Screening:** (Group Only) Requires group plans to cover the same lead screening and risk assessment as individual policies, as of Jan 2009. Also requires group coverage of pediatric preventive services, which include the review of a child's health from birth through six years of age by a primary care physician per schedule. (38a-535; Oct 1990).

Note: Except for the eighth and eleventh mandate, all eleven mandates apply the same to group and individual coverage. All eleven mandates apply to comprehensive health insurance plans such as Health Maintenance Organizations (HMO) and Preferred Provider Organizations (PPO). The mandates do not apply to disability plans, workers compensation, or medical indemnity plans that pay a set amount for each day that the person insured is a hospital inpatient. The first, second, third, and seventh mandates also apply to limited medical benefit plans under individual policies. Only the second and third mandates also apply to limited medical benefit plans under group contracts.

## **I.2 IC Review of Cost of Mandates—Two Components:**

With respect to the cost of the benefit mandates, two pieces were examined —medical cost and non-medical expense, with much greater emphasis on the former since it involves the far larger portion of overall cost. The annual medical cost was reviewed in 2007 and 2008 dollars as reported by the carriers. Elsewhere in the report, non-medical expense is also referred to as retention. It represents roughly 17% of premium for group plans. It is composed of administrative cost and profit. Some mandates may involve more administrative expense than others, especially at the time they are implemented. This will be explained in further detail later in this report.

In reporting the medical cost of the mandate, the cost we show is Paid Cost, which is the cost actually borne by the medical insurers and HMOs. The focus is on the Paid cost because it is the primary ingredient of health insurance premiums. In addition to Paid cost, there is another cost that is the amount borne by the member in the form of deductibles, coinsurance, and copays. This cost borne by the insured members is referred to as Cost Sharing, (which does not include any portion of the insurance premium that the member may pay). The sum of these two costs, Paid + Cost Sharing, is referred to as Allowed cost in this report. Most of the focus of this report is on Paid cost, since that is what drives the premium cost of health insurance. When the member's financial burden is discussed later in this report, the focus will be on the member cost-share, which is the difference between the Allowed and Paid Cost.

The primary data source was provided by the CT domiciled carriers, all of which are subject to the mandates for their fully insured business. These six carriers provided cost data for 2007 and 2008 on an allowed and on a paid basis. There were far more members in the group data than in individual plans; thus the group data was substantially more credible than the individual data. (Credible is used here in the actuarial and statistical sense, as it relates to the law of large number.) The numbers referred to below in the cost summary of section I.3 are for **group** plans. Later in the report, individual plans and the individual data are discussed at greater length. As a reference, for some of the mandates, IC's internal commercial health claims data for 2007 and 2008 were also extracted and reviewed, both CT-specific as well as national data in some instances. Outside data sources were also reviewed for incidence and prevalence rates.

First, a summary of the expected 2010 medical cost is presented without detail or long-range projections. Later in this report, the medical cost of each mandate will be elaborated on further, and we will also include socio-economic consequences and ramifications on the finance and delivery system, including the effect on health insurance cost and availability. This will be followed by commentary on the economic and financial aspects of the mandates.

## **I.3 EXECUTIVE SUMMARY OF 2010 MEDICAL COST ASSESSMENT AND MAJOR FINDINGS:**

During the course of this project, each of the six insurance carriers domiciled in CT was asked to provide data showing their cost for each mandate. IC and the workgroup examined the carriers' reported cost of the mandates. A weighted average was developed across all six carriers using the relative number of member months as our weights. If a carrier had 25% of the total member months, for example, then its PMPM was weighted at 25% in the average. The cost shown by the carriers represents the full cost of all care mentioned in the mandate,

even though a significant portion of the mandated services might have already been covered prior to the existence of the mandate.

Where available, IC's own data for CT was evaluated to ascertain a separate estimate of mandate costs and provide a reasonability check. It was easier to determine the cost of some of the mandates, whereas others were more difficult and may have involved additional analytic complexity.

In the estimates below, a point estimate of cost has been shown. This is not meant to imply a false sense of precision by providing a best estimate. When carriers selected the claims covered by the mandate, the variation reported likely represents some degree of judgment in selecting the claims. While the actual 2008 cost is known based primarily on carrier data, the projected 2010 cost may be somewhat greater or less than the values projected.

The term *de minimis* is used to describe the projected incremental cost of any mandate that we expect to be \$0.05 per member per month (PMPM) or less when the cost is spread to all the insured people covered by the plan. The terms per person per month and per insured person per month mean the same thing as per member per month (PMPM).

The mandates reviewed showed significant variation in the populations affected and each mandate produced different effects.

The following eleven mandates are the second subset of the 45 mandates, all of which will be reviewed by the end of 2010. **The PMPM costs presented in this section are for group insurance. Individual data and costs will be discussed later in this report.**

1. Mandate one covers breast cancer screening, which includes mammography and breast ultrasound under some circumstances. The observed weighted average of the carrier paid cost data is \$2.31 PMPM for 2008, and is projected to be \$2.54 in 2010. This is the gross cost of the benefit in the sense that it includes everything covered by the mandate but does not factor in any savings resulting from it. Patient compliance with breast cancer screening has become one of the indicators used to establish the quality of a managed care plan.

2. Mandate two requires coverage of a minimum stay for maternity. Most carriers included all the costs of deliveries in their data. Based on the insurers' data, a weighted average 2008 paid cost of \$6.99 PMPM was observed. On a 2010 basis, this is projected to be \$7.69. If we remove the cost of labor and delivery from the carrier data, this amount would be cut approximately in half. The mandate requires a minimum of two days stay following a normal delivery and four days after cesarean. The carriers interpreted the literal language of the mandate to cover the full gross cost of maternity including delivery. Delivery itself costs roughly the same as the subsequent hospital stay. Thus the full gross cost reported is considerably more than the net new cost of the increased length of stay only. The average cost of an obstetric day is roughly \$2,000. The mandate requires the stay "following a ... delivery." It could be argued that the mandate pertains to the stay only and not the delivery itself. Another way to look at the cost of this mandate would be the extent that it increases the average length of stay. It increases LOS by more than one full day, which adds about \$2,000 to each delivery. This translates into roughly \$1.50 to \$2.00 PMPM of additional (net new) medical cost. The projected 2010 cost estimate for the minimum stay only is \$1.85 PMPM.



This state mandate passed in October 1996 became a federal mandate in 1998 under the Newborns' and Mothers' Health Protection Act. It is likely that this mandate has some sentinel effect that encourages doctors to err on the safe side of longer length of stay rather than striving to achieve optimal recovery time. This adds to the cost of care. Hospital days are relatively expensive. The probability of contracting a hospital-based infection increases with length of stay. Prior to the passage of the mandate, some of the physician groups that were organized to provide accountable managed care were able to provide deliveries with an average stay of less than two days following vaginal delivery without loss of quality. Part of the opposition to these shorter stays was cultural—the reaction to managed care that came too fast too soon. Mothers had become accustomed to a longer period of in hospital recuperation following delivery, and some objected to the new standards of more cost-effective treatment.

3. Mandate three involves the coverage of a minimum stay for mastectomies. Based on the insurers' data, the weighted average for 2008 paid cost is \$0.29 PMPM. We expect this to be \$0.31 PMPM in 2010. This is another minimum stay mandate; it was interpreted by the carriers to include the full gross cost of mastectomy surgery as well as hospital stay. We did not have data to analyze length of stay, but the cost of a medical surgical hospital day in the data was about \$2,515. Using the same logic as for maternity above, reducing length of stay following mastectomy could reduce the cost of each mastectomy significantly. Since there are far fewer women having mastectomies than maternity stays, the increased length of stay (LOS) costs far more for maternity than mastectomy on a PMPM basis. The incremental cost for the increased LOS for mastectomy is estimated to be worth roughly \$0.05 to \$0.15 PMPM. The 2010 projected cost estimate for the minimum stay only is \$0.10 PMPM.

This state mandate is not the same as the federal mastectomy mandate that requires reconstructive surgery following mastectomy. CT has such a reconstruction mandate that is part of the cancer, leukemia mandate, 38a-504 and 38a-542. Like the minimum maternity stay, the state mandate for minimum stay following mastectomy was passed during the late 1990's period of managed care backlash. During this period, there were many complaints from patients and doctors about insurance company pressure to curtail the length of hospital stays.

4. Mandate four requires the coverage of prescription contraception in outpatient prescription drug plans. The carrier data showed a 2008 weighted average paid cost of \$1.10 PMPM. This was substantially lower than the allowed cost of \$2.03. Thus, the cost-sharing for this benefit is greater than is typical for the other mandates. This is a pharmacy benefit, and pharmacy often involves a greater portion of cost-sharing than a medical benefit. The 2010 paid cost is projected to be \$1.20 PMPM. The mandate allows groups to reject coverage of prescription contraception for religious purposes only.

5. Mandate five requires insurers to pay for the diagnosis and treatment of infertility. Based on the insurers' data, the weighted average 2008 paid cost is \$2.56 PMPM. We expect this to be \$2.80 PMPM in 2010. This mandate has specific conditions and limitations. Without these, the mandate could cost more. There are two primary methods—intrauterine insemination and in vitro fertilization. Well over 90% of the cost of the mandate is for in vitro fertilization

Some other states have mandated infertility as a must offer mandate, which allows some groups to decline it if they choose. This encourages adverse selection in those states

because the groups that need the benefit tend to buy it. In CT, however, the mandate must be included in all insurance plans. As such, the cost is spread to all insureds and adverse selection does not occur.

No attempt in this study was made to correlate the increased prevalence of fertility drugs with the cost of premature and multiple births, but that is an issue which experts have raised. In discussing this mandate with clinical experts, they were quick to point out that the infertility mandate has a significant indirect effect on the cost of maternity and newborns. It leads to a higher rate of prematurity and multiple births, and an increasing need for neonatal intensive care compared with general nursery care for full-term babies.

6. Mandate six involves treatment of autism spectrum disorder with physical, speech, and occupational therapy (PT/ST/OT). Because there are few individuals undergoing this treatment during the data period of 2007 and 2008, and the cost per service is relatively small, the overall paid cost of \$0.03 PMPM is *de minimis*. This mandate became effective after the data gathering period. In discussion with the state director of the Birth to Three program, we learned that many carriers were paying for PT/ST/OT for children with ASD prior to the passage of the mandate. The carriers were queried about their 2009 cost for this mandate, and the data indicated about the same cost level in 2009 as in 2007 and 2008. The IC data was also queried, and it showed an increase in outpatient services that cost an additional \$0.06 PMPM. As of 2010, this mandate was expanded to cover behavioral services. It is difficult to accurately assess how much it will cost, but the increase could be as much as ten-fold.

7. The seventh mandate requires insurers to cover all newborns from the moment of birth. The weighted average paid cost of the carriers for 2008 was \$4.51, which is about \$4.96 PMPM on a 2010 basis. A newborn is defined in the mandate as a child from postpartum through the first 31 days of life. (Physicians sometimes use a 28 day definition.) Included in this cost is the high cost of premature births. Some carriers also have difficulty separating well newborn claims from other maternity, especially when the mother and baby reside in the same hospital room. The average cost of newborns was skewed by the high cost of the small number of the sickest, most premature, and lowest birthweight babies. These infants need the neonatal intensive care unit (NICU) in order to survive, and there may be multiple nurses and medical personnel assigned to care for the least healthy babies while they are in the NICU. The most costly newborn stays can cost over one hundred times as much as a well newborn stay.

8. The eighth mandate requires coverage of blood lead screening and risk assessment by a primary care physician. It applies to individual plans only, but it is a component of the 11<sup>th</sup> mandate that applies to group only. The paid cost is \$0.01 PMPM and is *de minimis*. The cost shown here is for group; the cost for individual is about the same level. This component of the group mandate became effective in 2009. A study of IC 2009 CT data from group plans for blood lead screening showed the same *de minimis* level of cost in 2009 as in 2007 and 2008, with a small increase in 2009 utilization over 2007 and 2008.

9. Mandate nine requires coverage of specialized food under the direction of a physician. The carrier paid cost data shows an average of \$0.22 PMPM for 2008. This would be about \$0.24 PMPM on a 2010 basis. Most of the cost of specialized food was for patients who require specialized formula rather than those that require either low protein modified food products or amino acid modified preparations.

10. Developmental needs of children with cancer: The insurers' data show a negligible 2008 paid cost. Although there were some services, the weighted average paid cost was \$0.00 PMPM, which is *de minimis*. This medical service has extremely low utilization.

11. The eleventh and final mandate applies to group plans only. It requires coverage of Pediatric Preventive Services. It also requires blood lead screening in the same way that mandate eight does for individual plans. The cost of blood lead screening itself is *de minimis*, but the cost of the preventive services for children is substantial. The weighted average paid cost of the carrier data in 2008 is \$1.74 PMPM. On a 2010 basis, this would be about \$1.91 PMPM. This is the gross cost of these services without any savings for avoided or averted costs. It is not clear whether such savings exist, and, if so, how much they are worth. The cost of the blood lead screening is \$0.01 PMPM, and it is not included in the \$1.91 PMPM. (It is shown above in mandate 8.) The blood lead screening component of this mandate was effective in 2009, whereas the preventive services were effective in 1989.

**I.3A SUMMARY OF EXPECTED MEDICAL COSTS OF MANDATES IN 2010, Carriers' Cost (PAID Basis)**

	<u>PMPM Cost</u>	<u>%</u>
1. Mammography	\$2.54 PMPM	0.8%
2. Maternity Minimum Stay	\$1.85 "	0.6%
3. Mastectomy Minimum Stay	\$0.10 "	0.03%
4. Prescription Contraception	\$1.20 "	0.4%
5. Infertility	\$2.80 "	0.9%
6. Autism	\$0.03 "	0.01%
7. Newborn Coverage	\$4.96 "	1.7%
8. Blood Lead Screening	\$0.01 "	less than 0.01%
9. Prescription Food	\$0.24 "	0.1%
10. Dev. Needs for Ped. Cancer	\$0.00 "	less than 0.01%
11. Preventive Pediatric	\$1.91 "	0.6%

**Total** (for group plans): **\$15.64 PMPM**, which is **5.2%** of paid medical cost for group plans using a \$300 PMPM base.

This reflects the full gross cost of some of the mandates, such as newborn coverage, based on insurer data, which may include additional cost that is not actually part of the mandate. It is greater than the net new cost of the mandates. For the most costly mandate, maternity minimum stay, it is estimated that the net new cost of the minimum stay aspect is only about 20% of the full gross cost reported by the carriers. For a mandate such as mammography, the gross cost is effectively the net new cost, but again, this does not mean all mammograms were not covered by all insurers prior to the mandate.

A range of gross medical cost for the eleven would be \$12 to \$19 PMPM. In terms of three scenarios, low, medium, and high, \$12 PMPM is our low estimate and \$19 PMPM is the high estimate. The cost estimate for the medium scenario is rounded to \$15.50 PMPM.

In calculating the percentage of overall medical cost for group plans, we used a denominator of **\$300** PMPM for all calculations. This is medical cost only and does not include administrative cost or profit.

If we look at the cost of the mandates as a percent of the overall health insurance premium and use an assumed premium cost of \$360 PMPM based on a medical cost ratio of about 83%, then the \$15.64 represents about 4.3% of the total health insurance premium. It should be noted that the top half of the fraction (\$15.64 of mandated medical costs) does not include administrative cost and profit, but the bottom half (\$360) does. For this reason, it is not an appropriate measure to use. This will be explained in section II.1.a.

#### I.4 THE DATA

##### MANDATE COST DATA:

Two major data sources were used for this project to obtain the cost by mandate. Each of the six carriers domiciled in CT was asked to supply a cost estimate of each mandate. This data was collected from the carriers and examined. Ingenix Consulting data was also used as reference point to compare with the carrier data. Carriers were asked to provide diagnosis and procedure codes and national drug codes associated with each mandate, where available.

The carrier data for some mandates revealed variation of cost in the initial submission. Some of the variation was attributable to differences in codes gathered and the approach each carrier used to gather the data used to calculate the mandate cost.

The final cost estimates are based on both carrier data and Ingenix data. The data shown in the table in 3A is paid basis carrier data projected to a 2010 PMPM level. The purpose of the analysis was to produce a reasonable estimate of the actual cost. A weighted average of carrier data was obtained and compared with the mandate cost produced by the Ingenix data.

The workgroup also met with outside experts, such as providers who are experts in the clinical areas addressed by the mandates. These meetings also provided insight into the aspects of utilization and unit cost that drive the cost of the mandates as well as their socio-economic ramifications and effects on the system for the finance and delivery of health care.

##### CARRIER DATA ON TOTAL MEDICAL COST AND INSURED MEMBER MONTHS:

The carriers were also asked to supply member months and total claims dollars associated with 2007 and 2008. A weighted average paid medical cost was developed for **group plans** as follows:

	<u>2007</u>	<u>2008</u>
MEDICAL	\$263.03	\$284.76
<u>PHARMACY</u>	<u>\$46.83</u>	<u>\$49.10</u>
TOTAL	\$309.86	\$333.86

Similar information was also provided for **individual plans**:

	<u>2007</u>	<u>2008</u>
MEDICAL	\$162.92	\$177.82
<u>PHARMACY</u>	<u>\$19.52</u>	<u>\$20.14</u>
TOTAL	\$182.44	\$197.96

In both the group and individual data, a significant number of members have medical coverage but not pharmacy coverage (Rx).

The group paid cost is more than 50% greater than the individual. Note that there were more than ten times as many group members as individual in the 2007 and 2008 carrier data submitted. There were about 1.2 million group members but only about 92,000 individual members in 2007 with medical coverage. Of these members, only 829,000 and 79,000 also had RX coverage. The following chart shows the 2007 and 2008 average member counts for both medical and RX split by 2007 vs. 2008 and group vs. individual.

<b>AVERAGE MEMBERS</b>	<u>2007</u>	<u>2008</u>
MEDICAL		
GROUP	1,197,282	1,155,892
INDIVIDUAL	91,625	95,208
PHARMACY		
GROUP	829,041	804,438
INDIVIDUAL	79,430	82,568

Because of the large difference in the number of insured lives, the Group data is much more “credible” than the Individual data. The term credible is used here in the actuarial and statistical sense that is an aspect of data validity; it relates to our confidence in the data in relation to the law of large numbers. Due to the far greater number of lives associated with Group plans, the average for Group is expected to fluctuate less than the average for individual if this study were repeated year after year. For this reason, we have more confidence in the statistics calculated from the Group data. When looking at the cost of a single mandate, credibility is a more significant issue for the Individual data than for the Group data, especially for low-cost mandates.

## II. ELABORATION ON THE ELEVEN MANDATES:

### II.1 COMMENTARY ON ADMINISTRATIVE COST:

The premium dollar can be thought of as composed of three pieces. The first is medical cost; the second is administrative cost and the third is profit (or contribution to surplus for carriers that are not-for-profit). Sometimes the term retention is used to mean the combined cost of administration and profit. The term “non-medical expense” means the same thing as retention. The cost of state premium tax is included in administrative cost; it is 1.75% of premium.

The cost of mandates is part of the overall cost of health care. As such, they come with an administrative cost. When mandates are introduced, they necessitate changes in various operational and technological processes, such as premium billing and claims payment systems. Health insurers need to configure benefit systems to handle the required benefit changes. They may also need to notify members or policy-holders of the changes and perhaps revise marketing and sales material. Even for a mandate whose medical cost is *de minimis*, there may still be an associated one-time administrative (admin) cost involved in implementation. Various functions within the insurance company need to be made aware of the change in minimum coverage, and there is an associated cost. This set-up cost is not unique to commercial insurance and a similar process occurs when plan changes are introduced into Medicaid or Medicare.

Separate from the one-time administrative cost is the ongoing administrative cost that occurs in subsequent years. This is the case for all the mandates in this report. Additional benefits come with additional claims processing and payment. Most health insurance companies, HMOs, and third party administrators have become adept with the operational aspects of benefit changes, although some systems and companies may accommodate change more easily. The systems modifications associated with a benefit change may vary in complexity as may the ongoing operational cost associated with mandates.

Since all the mandates are ongoing, we estimated the administrative costs using a percentage of the medical cost. For the sake of simplicity, assume administrative cost including profit is 20% of every dollar of premium, and medical cost is 80%. In this case, retention would be 25% of medical ( $25\% = 20\% / 80\%$ ).

Retention as a percent of premium varies from carrier to carrier and is different for group than for individual coverage. Companies may target a specific medical cost ratio (  $MCR = \text{Claims} / \text{Premium}$ ). Since retention is  $1 - MCR$ , we can use the target MCR to estimate the administrative cost plus profit of the book of business.

In addition to administrative cost, insurers build a profit charge into their premiums in order to cover their cost of capital and assure their financial security. In the case of for-profit insurers, their profits also benefit their shareholders. We use the term retention to describe administrative cost plus profit, which is all non-medical cost.

The vast majority of the incremental expense for the eleven mandates is medical cost.

For all eleven mandates combined, the cost of administration plus profit is about \$3.10. This is approximately 17% of overall premium and about 20% of the total medical cost. As a

range, this total retention is about \$2.50 to \$3.75 PMPM. As a percent of premium, we might expect this percentage to decrease over time as medical cost increases at a rate faster than the ordinary inflation that drives the cost of administration.

At the time the mandates were first introduced, there were likely one-time set up costs for the insurers. It is also possible that the mandates may have reduced some relatively minor administrative cost at the time they were introduced by preventing claim denials and appeals. We have not included any such reductions to administrative cost in the range above because we believe it would be inappropriate to do so at this point in time.

On average, the portion of the health insurance premium dollar that is assumed to apply to administrative cost, excluding profit, is approximately as follows:

**Admin as Percentage of Total Premium**

Individual	16% to 24%
Small Group	10% to 18%
Large Group	6% to 14%

This is reasonably consistent with the percentages provided by the CT DOI based on 2010 CT HMO filings.

This will generally vary by plus or minus a few percent depending on the insurer. As medical costs increase, particularly as more services are rendered and claims are paid, administrative cost also tends to increase. Over time, however, as medical claim cost increases at a faster rate (medical CPI) than administrative cost (CPI), administrative cost as a percentage of the premium dollar should decrease. The effect of this differential increase is mitigated somewhat by the effect of employers buying insurance plans that shift more of the cost to their employees at renewal, but it is not entirely eliminated. Over the past twenty years, medical CPI has been roughly double that of regular CPI. This helps explain the increase in the cost of health insurance premiums at a rate greater than normal inflation.

**II.1.a SUMMARY OF EXPECTED TOTAL COSTS OF MANDATES IN 2010, INCLUDING ADMINISTRATIVE COST AND PROFIT**

For 2010 medical cost we used a projected range of \$12 to \$19 PMPM, and a point estimate of \$15.64 PMPM. For retention, administrative cost plus profit, we assumed a range of \$2.50 to \$3.75 PMPM, with a point estimate of \$3.10. The expected total cost, including all retention, for these 11 mandates in 2010 on a paid basis is \$18.74 PMPM. (\$18.74 = \$15.64 + \$3.10). For future calculations later in this report, we have used 5.2% of premium as the incremental cost of insurance due to the eleven mandates (5.2% = \$18.74 / \$360).

This is the gross cost of the mandates. At this point in time, we expect that some of this cost would be part of insurance plans, regardless of whether the mandates existed or not. This is not to deny that the mandates generated new financial liability for the CT carriers, nor is it suggested the mandates did not expand essential services provided to insureds. This \$18.74 represents the full cost of the mandates as written, using the medical cost data provided by the carriers, where the net new cost is less than the gross cost. It also includes the cost of administration and profit charges.

## II.2 BRIEF EXPLANATION OF THE MEDICAL ASPECTS OF THE MANDATES:

This section is intended to provide enough medical information about the mandates that the reader of this report can put them into context. Since all of the mandates are currently required under CT insurance law, it was possible to see some of the effects of the mandates on medical practice and patient health.

1. **BREAST CANCER SCREENING:** This mandate requires coverage of a baseline mammogram for women between the ages of 35 to 39 and an annual mammogram from age 40 on. An additional benefit of comprehensive ultrasound screening will be provided if the woman meets one of several criteria pertaining to mammogram results or health history. These breast cancer screenings are an important component of a preventive program that includes early detection. Breast cancer is the second-leading cause of cancer death among women in the United States. Widespread use of screening, along with treatment advances in recent years, have been credited with significant reductions in breast cancer mortality. The effectiveness and efficiency of regular mammograms for women over 40 came under the scrutiny of the US Preventive Services Task Force in 2009. The USPSTF recommends against routine screening mammography in women aged 40 to 49 years. The decision to start regular, biennial screening mammography before the age of 50 years should be an individual one and take into account patient context, including the patient's values regarding specific benefits and harms. The USPSTF recommends biennial screening mammography for women between the ages of 50 and 74 years.

2. **MATERNITY, MINIMUM STAY:** This mandate requires coverage of a minimum length of inpatient hospital stay following delivery—48 hours following delivery for a normal delivery, 96 hours for cesarean. In order for a mother and child to leave the hospital any sooner, the decision needs to be made by the attending physician with the mother's consent. This is a federal mandate as well. The mandate does not prevent longer length of stay than the 48/96 hours. There is evidence that length of maternity stays has increased since the enactment of this mandate. This mandate came about in the late 1990's during the period of managed care backlash. At that time, doctors and patients pushed back against managed care policies that encouraged sending mothers home the day after delivery. In their efforts to reduce overall cost of care, insurers and HMOs strove to reduce inpatient hospital days since these are the most costly aspect of medical care. During this period, some carriers pursued savings opportunities aggressively. It is true that reducing length of stay following surgery helps decrease the patient's exposure to hospital-based infections, but this must be balanced against the need to recuperate under the watchful presence of nurses and medical staff.

The language of the mandate refers to the hospital stay following delivery, but does not refer to the cost of the delivery itself. The carrier data submitted, however, did include the cost of delivery.

3. **MASTECTOMY, MINIMUM STAY:** Requires insurers to cover a minimum hospital inpatient stay of 48 hours following mastectomy or lymph node dissection, and longer stay if physician recommends and patient approves. Earlier discharge is also possible with consent of patient and attending physician. The language of this mandate also



refers to the duration of the inpatient hospital stay “following a mastectomy or lymph node dissection.” The carriers included the cost of the mastectomy itself in their data.

4. **PRESCRIPTION CONTRACEPTION:** Requires coverage of prescription contraception in outpatient prescription drug plans, unless the group or individual declines for stated religious reasons. By making this benefit available in virtually all prescription drug policies, the availability of contraception drugs was expanded in the fully insured population. The vast majority of prescription contraception drugs are obtained through a pharmacy. A small portion is made up of injections administered in doctors’ offices that are billed using HCPCS codes. The primary methods are hormonal and intrauterine.
  
5. **INFERTILITY:** Requires coverage for diagnosis and treatment of infertility, subject to conditions and limitations. This relatively recent mandate applies to all individual and group plans. Infertility refers to an inability to conceive after having regular unprotected sex. Infertility can also refer to the biological inability of an individual to contribute to conception. In many countries infertility refers to a couple that has failed to conceive after 12 months of regular sexual intercourse without the use of contraception. The technology around infertility treatment has improved and evolved over the past twenty years. The mandate specifies which types and treatments are covered, for whom, and how often. According to the Mayo Clinic:
  - About 20% of cases of infertility are due to a problem in the man.
  - About 40% to 50% of cases of infertility are due to a problem in the woman.
  - About 30% to 40% of cases of infertility are due to problems in both.

According to the Department of Health and Human Services, approximately 10% to 15% of couples in the USA are infertile - meaning they have not conceived after at least one year of regular, unprotected sex. Many cases of apparent infertility are treatable. Infertility may have a single cause in one of the partners or could be the result of a combination of factors.

In Europe, North America, and much of the world, approximately 85% of couples will conceive within one year if they have regular unprotected sex. Averages in the UK are as follows (National Health Service):

- 20% will conceive within one month
- 70% will conceive within six months
- 85% will conceive within 12 months
- 90% will conceive within 18 months
- 95% will conceive within 24 months

Doctors in the UK will not usually diagnose a couple as infertile until 24 months have passed without conception and regular unprotected sex. Most people will see their GP (general practitioner, primary care physician) if there is no pregnancy within 12 months. According to the National Health Service, UK, a couple that has been trying to conceive for over three years has a maximum 25% chance of conceiving over the subsequent 12 months if they continue trying.

Women are covered by the mandate until age 40. Four cycles of ovulation induction are permitted. Three attempts are permitted for intrauterine insemination and up to two cycles of in vitro fertilization or transfer with no more than two embryo implantations per cycle. The number of embryos is a controversial area. Implantation of two embryos has a high likelihood of leading to twins. Implantation of multiple embryos increases the mother's chance of conception and her likelihood of multiple births. Multiple births of three or more are always delivered by cesarean section and end up in neonatal intensive care. Twins have a 50% likelihood of cesarean delivery. Multiple births are also correlated with prematurity and lower birthweight.

Some couples may make residence decisions based on the level of infertility benefit mandated in the state. The infertility mandate in MA provides unlimited cycles of in vitro fertilization, and some couples may prefer that to the two cycles permitted in CT. Since this information is not tracked from carrier to carrier in CT, it is possible for a couple to obtain two cycles of in vitro in CT paid by one insurance carrier and then two more after they switch to another health insurer. Some couples in CT choose to pay entirely out of pocket for additional infertility treatment after their policy benefits have been exhausted. At that point, family income is a key determinant of the additional level of treatment.

6. **AUTISM SPECTRUM DISORDERS:** This is relatively recent mandate—it commenced Jan 2009. It requires medical insurers to cover physical, speech, and occupational therapy (PT/OT/ST) for the treatment of autism spectrum disorders (ASD) to the same extent as coverage for other diseases. Autism spectrum disorder covers a range of related psychological conditions, thus the term “spectrum.” ASD is a congenital developmental disorder characterized by problems in three areas: social development, communication and stereotypic behaviors. It encompasses a number of disorders including Autism, Retts Syndrome, Childhood Disintegrative Disorder and Aspergers Syndrome. ASD can vary in severity. Government statistics suggest the prevalence rate of autism is increasing annually. There is no clear explanation for this, but two reasons cited are improved diagnosis and environmental influences. Studies suggest boys are more likely than girls to develop autism and receive the diagnosis three to four times more frequently. This mandate does not cover behavioral therapy, but a revised version that took effect in Jan 2010 does. The utilization rates for behavioral therapy for ASD may be five to ten times greater than the combined rates for PT/OT/ST.
7. **NEWBORN INFANTS:** Requires coverage of newborn infants from the moment of birth. Clinicians often define newborn care to include all post-partum care through the first 28 days of life. The mandate specifies 31 days. This mandate has been in existence for over 35 years. At the time it came into law, insurers could choose not to cover certain newborns in some instances. This mandate is effectively a guaranteed issue regulation for newborn infants. A good deal of the cost of this mandate is associated with the neonatal intensive care of infants, such as those born prematurely and underweight and those born with other medical problems that require immediate post-partum medical attention. Medical technology over the past couple decades has enabled hospitals and medical providers to keep premature and underweight babies alive that would not have survived in the past. Technology has also emerged that allows surgery to be performed on newborns with certain developmental defects.

8. **BLOOD LEAD SCREENING:** This mandate applies to individual insurers only; however, coverage of blood lead screening is also required under group policies in mandate 11 as explained below. Lead exposure is a significant public health risk. Lead poisoning can lead to permanent health problems, especially for children. Hazardous concentrations of lead may be present in food, water, and air. Paint and even urban dust are cited as sources. Lead poisoning is the leading environmentally induced illness in children, and it is in decline. Children under the age of six are at greatest risk because they are undergoing rapid neurological and physical development. The highest such risk is for children at two years. The blood lead screening test establishes whether the concentration of lead in an individual's blood exceeds safe levels. According to the Centers for Disease Control and Prevention (CDC), about 250,000 children in the United States between the ages of 1 and 5 years have blood lead levels (BLL) that are higher than 10 micrograms per deciliter, the concentration at which the CDC recommends public health measures be taken. In a study of approximately 1.2 million children tested in 19 states in 1996, 1997, and 1998, the prevalence of elevated BLL in CT was roughly the same as the national average. CT's highest counties were still lower than those in states such as Alabama, Ohio, Michigan, Iowa, and Wisconsin. Elevated BLL is more prevalent in lower income communities and those with older housing. The number of children treated in CT annually for acute cases of lead poisoning has declined over the past twenty years due to increased awareness and testing and environmental measures such as the elimination of lead from paint and gasoline. An advanced case of lead poisoning may involve seizures or coma and require chelation for the patient. It is customary in CT to test at ages one and two. Pediatricians require parents to fill out a risk assessment survey as part of an annual child physical examination. The assessment results may indicate the need to test further. There is not a separate charge for the assessment. For children less than three years of age with elevated BLL, the Birth to Three program will become involved. The CDC recommends all children be tested at least once.
9. **PRESCRIPTION FOOD:** Requires coverage of specific preparations and food products for the treatment of inherited metabolic diseases if prescribed and under the direction of a physician. (Oct. 1997). A revision on Oct. 2007 revised the mandate to no longer include the requirement that the specialized food be prescribed, only that it be administered under the direction of a physician. The mandate protects those individuals who are born with rare disorders that prevent them from enjoying a normal diet.

There is an FDA definition of "medical food." It is "prescribed by a physician when a patient has special nutrient needs in order to manage a disease or health condition, and the patient is under the physician's ongoing care. The label must clearly state that the product is intended to be used to manage a disease or health condition, and the patient is undergoing the physician's ongoing care." The FDA further excludes certain categories of foods from the definition such as low sodium, reduced fat, and weight loss products. One oft-cited example of medical food is food free of the amino acid phenylalanine, which cannot be processed by those with phenylketonuria. This is a clear example of a medical food, but the definition may be unclear elsewhere. As more companies market so called "medical" or "functional" foods to an increasing audience, the FDA is working to more clearly define this category of food that is required by a very small number of people. The FDA does not approve these

products, however, and some manufacturers advertise that they are FDA approved if an ingredient has been recognized by the FDA as generally recognized as safe.

The disease phenylketonuria, PKU, is caused by the absence of a single enzyme, phenylalanine hydroxylase. This enzyme normally converts the essential amino acid, phenylalanine, to another amino acid, tyrosine. Failure of the conversion to take place results in a buildup of phenylalanine. Through a process that is not well understood, excess phenylalanine is toxic to the central nervous system and causes the severe problems normally associated with PKU. Children may have differing degree of the enzyme deficiency. Some children have enough enzyme activity that their diet is not entirely restricted. Others must have a very strict diet. The nature of the diet for an individual child must be determined by an experienced PKU treatment program.

Phenylketonuria is carried through a "recessive" gene. The incidence of carriers in the general population is approximately one in fifty people. Although PKU affects only one out of every approximately 10,000 babies born in the US, there are several hundred babies diagnosed and put on a strict diet each year.

For the most severe form of phenylketonuria, the diet must eliminate all high protein foods since all protein contains phenylalanine. Any and all concentrated sources of protein must be eliminated to limit phenylalanine intake. Consumption of meat, fish, poultry, milk, eggs, cheese, ice cream, legumes, nuts, and some products containing regular flour is prohibited. A synthetic formula is used in place of the eliminated foods as a substitute.

There are three categories of special food covered by the mandate:

- Low protein modified food products
- Amino acid modified preparations, and
- Specialized formula

The dosing for these foods is 3 to 4 times daily. Their manufacture requires sterile conditions. Much of the cost of this mandate was for patients (usually babies but also young children) that are born with or develop extreme allergies to food. These include babies that fail to thrive.

Inherited metabolic disorders have been implicated in Sudden Infant Death Syndrome. In the opinion of the geneticists with whom we met, this mandate has improved the survival rate for the extremely small sub-population of individuals born with these rare conditions.

10. **DEVELOPMENTAL NEEDS FOR CHILDREN WITH CANCER:** Requires coverage, without prior authorization, for neuropsychological testing of children diagnosed with cancer to assess developmental delay due to chemotherapy and radiation therapy. This mandate came about less than four years ago as the medical community increasingly recognized the potential adverse affect of chemotherapy and radiation therapy on the neurological development of children undergoing such treatments for cancer. Managed care organizations are not permitted to require a gatekeeper to approve this testing, nor is any other form of prior authorization allowed. The removal

of a prior authorization requirement allows the insured patient's family to access neuropsychological testing services without any managed care impediment.

11. **PREVENTIVE PEDIATRIC CARE AND BLOOD LEAD SCREENING:** This mandate affects only group policies. It requires coverage of the same lead screening and risk assessment as individual policies, as of Jan 2009. It also requires coverage of pediatric preventive services, which include the periodic review of a child's physical and emotional health from birth through six years of age by or under the supervision of a primary care physician per schedule. Such review shall include medical history, complete physical examination, developmental assessment, anticipatory guidance, appropriate immunizations and laboratory tests in keeping with prevailing medical standards. Preventive care is the far more costly aspect of this mandate. Preventive care includes well child visits per a mandated schedule; it also includes immunizations. The schedule is approximately every two months for birth to six months, every three months from nine to eighteen months, and annually from two through six years of age. These well-child office visits involve screening tools to detect and diagnose autism and developmental delay. The visit is about 30 minutes. Physicians provide parents with anticipatory guidance to help them understand their child's development and medical needs.

### **II.3 FURTHER EXPLANATION OF THE MEDICAL COST OF THE MANDATES:**

Note: We have used the term PMPM (per member per month) and per insured person per month to mean the same thing in the following projections. The latter term is meant to convey that the cost of the mandated benefit, which is intended for a small and vulnerable subgroup, has been spread to the entire insured population.

In this report, the PMPM has been used as the main measure to represent mandate cost. In this report, the effect of the mandate on health insurance premiums is measured. The best way to assess this is to evaluate the cost of the mandate on a PMPM basis. We have also reviewed each mandate on a percent of total premium basis.

The primary data used for this project was supplied by the 6 carriers domiciled in CT. A data survey spreadsheet was developed for each mandate to collect carrier-specific data separately for 2007 and 2008 dates of services, as well as separately for individual and group policies. Carriers were provided with the spreadsheets and asked to complete them. The results were collected, interpreted, and analyzed. The carrier data was sent to a point person on the workgroup who de-identified the carriers and then passed the carriers' data along to the workgroup.

To supplement the carrier data, IC produced CT and national data when necessary. For example, the carriers were asked to provide the allowed and paid PMPMs for each mandate by year by group vs. individual. This allowed us to infer the average member cost-sharing (Cost-sharing = Allowed – Paid), but it did not allow the workgroup to see the distribution of cost-sharing by member for each and every member. For the latter, we were able to make use of IC data and outside literature. This gave us a better understanding of the financial burden of cost-sharing for some of the mandates, in addition to knowing the average PMPM cost-sharing. We also made use of a model that examined the effect of benefit richness on member cost-share as well as the effect of member income on member cost-share.

For some of the mandates, it was difficult for the carriers to produce an estimate of the mandate cost with a high degree of accuracy. One of the issues we encountered in tracking claims by diagnoses and procedure codes is that not every diagnosis is 100% certain. Other ambiguities made it difficult to determine the cost of some mandates.

In this report, we occasionally use the terms gross cost and net new cost. Gross cost is the total cost involved in the mandate. Net new cost is the incremental cost of the mandate in comparison with the absence of the mandate. It is difficult to distinguish the gross cost of the mandates from the net new cost because it is unclear what insurers would cover in the absence of the mandate. Only two of the mandates we examined in set two are extremely low cost. Other mandates may affect a much larger percentage of individuals in the insured pool.

In the section that follows, we look at each mandate and expand on the comments made in the executive summary.

**1. Breast Cancer Screening:** In a statement that proved controversial, the US Preventive Services Task Force announced in late 2009 that it was revising its standard recommendations for breast cancer screening. Instead of biennial exams beginning at age 40 for all women, age 50 became the recommended age. It was explained that some women should begin earlier, but it should be an individual decision. Their prior recommendation was a screening every year or two beginning at 40. The mandate in CT covers an annual mammogram that begins at age 40 and a baseline mammogram for those 35 to 39. A baseline mammogram is essentially the first one. To change the standard of care and begin at age 50 for the majority of women would reduce the overall cost of mammography. Reducing the frequency from annual to biennial would also reduce cost. Many physicians still hold to the view that annual screening as of age 40 is appropriate; these providers take issue with the USPSTF findings.

There are two categories of mammograms. The CPT codes cover traditional ones, and they around \$75 per mammogram. The G codes G0202, G0204, and G0206 cover the newer digital mammography, which is higher cost. These digital mammograms are recommended as more accurate for certain select subgroups.

**2. Maternity Stays:** This proved to be the most costly of the 11 mandates based on the full gross cost data submitted by the carriers. In the insurer data, the cost of delivery was included, even though the mandate applies to a minimum length of stay only. It was impossible for the carriers to determine how much extra time the patients spent in an inpatient setting as a result of this mandate. This is an example of where the literal language of the mandate was construed broadly to cover all costs associated with maternity. Maternity is generally perceived as the cost of delivery and subsequent hospital stay for mother. The minimum stay in mandate language can be interpreted to mean that the cost of delivery itself is not included, but the subsequent stay is. Most of the carriers seem to have adopted a broader interpretation of the mandate that includes the cost of delivery. Coding makes this more complicated because the 59400 CPT code is bundled and includes the cost of antepartum and postpartum care.

Two of the carriers submitted data that was lower than the others. If the weighted average is re-calculated omitting their data, the weighted average PMPM for the 2008 paid amount

increases from \$6.99 to \$8.39. This is the full gross cost—it includes delivery and hospital stay. Projected to 2010, the paid cost is \$9.23 PMPM

The net new cost of this mandate is less than the gross cost. It is the cost of the extra days that mother and baby spend in the hospital. Prior to the mandate, Kaiser Permanente doctors in CT had achieved an average LOS of about 1 day per normal delivery and 2 days per cesarean. They were able to achieve the same level of quality and satisfaction with outcomes. To establish a simplified proxy for the incremental cost of the mother and child's additional stay post-delivery, the following calculation can be used:

$.654 \times 1.8 \text{ days} \times \$1,940/\text{day} + .346 \times 3.6 \text{ days} \times \$1,940/\text{day} = \$4,700 \text{ per birth, post-mandate.}$

$.654 \times 1 \text{ days} \times \$1,940/\text{day} + .346 \times 2 \text{ days} \times \$1,940/\text{day} = \$2,611 \text{ per birth, pre-mandate.}$

The net new cost of the mandate for the additional length of stay is effectively \$2,089 per birth. Post mandate, the cost per birth is roughly \$10,000. Thus, prior to the mandate, it would be about \$7,911 = \$10,000 - \$2,089. This is roughly 20% of the post-mandate cost. Converting to a PMPM based on the adjusted gross cost of \$9.23 yields a net new cost of about \$1.85 PMPM for the increase in length of stay caused by the mandate.

The pre-mandate cost for Kaiser Permanente in CT was actually somewhat higher because they provided a visiting nurse and home health aide to the mother in the days immediately following discharge. They also emphasized pre-natal care to a greater extent. Some clinicians argue that there is no additional medical value for the increased length of stay caused by the maternity mandate, and, in fact, it may increase the possibility of mother or child acquiring a hospital based infection.

We obtained the cost per day from the data using a 122RV code, which is a one-day cost under the obstetrics revenue code. In the post-mandate calculation, we used the fact that 80% of mothers stay the two day minimum and 20% go home after one day for normal delivery. For cesarean, 80% use the full 4 days, and the remaining 20% have an average of two days. The CT cesarean rate was obtained from the 2007 national Vital Statistics Reports, Vol. 57, #12.

This reinforces the difficulty of determining the gross cost of the mandate vs. the net new. The gross cost itself is subject to carrier interpretation and coding differences. The net new cost of this mandate is less than the gross cost represented in the carrier data, but that is how the carriers interpreted the language of the mandate.

One more factor that drives up the overall cost of deliveries is malpractice insurance for obstetricians and gynecologists—these providers are highly vulnerable to potential lawsuits.. The only other type of physician that pays as much for medical malpractice insurance is neurosurgeons. OB/GYNs in CT can expect to pay from \$50k to \$120k annually for their malpractice coverage. The average OB/GYN delivers about 80 babies per year. This adds roughly \$1,000 to the cost of each delivery.

**3. Mastectomy, Minimum Stay:** Included in the carriers' data was the cost of mastectomies as well as the hospital stays subsequent to these operations. As for maternity, it is difficult to separate the two, and carriers interpreted this mandate broadly. The mandate is clear, however, and it covers the post-surgical hospital stay, not the mastectomy surgery

itself. Using the 121RV code for a med/surg day at \$2,515/ day, the cost of the two-day stay itself, excluding the surgery cost, is about \$5,030. Reducing that stay by one day would reduce the cost per mastectomy by about \$2,500. Mastectomy is a low frequency surgery, and thus the gross cost is relatively low. The calculated net new cost for this mandate is \$0.05 - \$0.15 PMPM, with a point estimate of \$0.10 PMPM for 2010.

**4. Prescription Contraception:** Unlike the other 10 mandates, this one primarily involves the prescription drug benefit, which has a cost-sharing structure that is unlike that of medical plans. Cost-sharing for pharmacy plans differs depending on whether the drug falls into the generic, brand, or specialty tiers. For this mandate more so than the others, a larger portion of the cost is borne by the insured. For group plans, the insureds out of pocket cost was somewhat less than half of the full allowed cost. For individual plans, it was slightly more than half of the allowed cost. Less than 10% of the allowed cost of this mandate was attributable to J codes administered in a doctor's office, most of which were intrauterine contraceptive systems. For these, however, the cost sharing was similar to the other medical benefits. The annual allowed cost of a generic prescription for birth control pills may be roughly from \$180 to \$600, which is \$15 to \$50 monthly. This would be the cost to the patient without insurance who must pay for the entire cost out of their own pocket. One form of birth control pills, ortho tri-cyclen, which has about 20% of the market share, is available currently for \$9 per month through one of the major retail store pharmacies.

Contraception helps to enable family planning and avoid unwanted pregnancies. The cost of prenatal care and delivery is roughly in the range of \$10,000.

**5. Infertility:** Much of the cost of this mandate pertains to in vitro fertilization including injection devices used by women to assist ovaries to increase egg production. One of the costs of infertility treatment we have not quantified in this report is the effect that it has on multiple births. Multiple pregnancies, however, are increasing as advanced types of infertility treatment become more and more common. In the United States, the number of twin births has risen more than 50% over the last 2 decades since the advent of IVF (in vitro fertilization) in 1978, from about 68,000 to approximately 104,000 in 1997. The incidence of higher-order multiple pregnancies (triplets or greater) has increased by a factor of roughly one hundred. Births of single individuals (singletons) rose only 6% in that same time period. The trend is evident in other countries as well. In Sweden, for example, the incidence of twin deliveries has increased nearly 80% over the last 20 years.

The increase of multiple births is age related. According to the National Center for Health Statistics, over the last 20 years, multiple pregnancies in the United States have increased 400% among women in their 30s and 1000% in women in their 40s. This trend is due in part to the fact that older women are less able to get pregnant naturally and are thus more likely to undergo infertility treatment.

IVF is a successful infertility treatment in part because it usually involves implanting more than one embryo to increase the chance of a viable pregnancy. The chance of a multiple pregnancy increases with the number of embryos. IVF babies are 20 times more likely to be born as multiple birth babies; one study shows that about 45% of all IVF newborns are born as multiple birth babies.

About 5% of infertility treatment involves IVF or other forms of assisted reproductive technology. Another common method is the use of hormones, which stimulate



superovulation, combined with insemination. Superovulation involves the use of the hormone, gonadotropin, to induce ovulation of more than one ovum. The more ova available to be fertilized, the higher is the likelihood that a multiple pregnancy will result. Superovulation accounts for at least as many multiple births as IVF. Researchers estimate that one-third of the increased frequency of multiple births can be explained by IVF and another third by the use of ovarian stimulation.

No effort was made to calculate the indirect cost of infertility on maternity or newborns, but it is clear that infertility leads to an increased rate of multiples, multiple births, and low birthweight babies at higher cost.

In examining all the mandates in set two, the infertility mandate seems less directed toward health benefit because it involves the ability to procreate rather than one's own physical survival. It adds almost one percent to the cost of coverage. For a family policy in the group market with a total premium of about \$15,000 annually, this is approximately one hundred and fifty dollars—not an insignificant add-on to overall cost for the many that do not need this benefit in order to provide a relatively low cost benefit those people that do.

**6. Autism Spectrum Disorders:** This mandate is not a broad and far-reaching one that covers all aspects of autism. Rather, it mandates only the coverage of physical, occupational, and speech therapy (PT/OT/ST) for the treatment of autism spectrum disorders (ASD) to the extent that these three therapy services are covered for other diseases and conditions. All three of these therapies are reputed to be helpful for children with ASD because they address their problems with communication, physical control, and social development. Children with autism not only have communication difficulties but also problems with social interaction that stem from their frustration with their inability to communicate. There are many types of speech therapy. Some may use picture symbol communication for those children with minimal speech skills. Speech therapy may address behavior and actions. Speech and occupational therapy are utilized more often than physical therapy.

Children with ASD often have issues with gross and fine motor skills that interfere with basic day-to-day functioning as well as development both social and physical. Physical therapists may work with children and their parents to teach the child mobility and motor skills. Young children may receive assistance to help them learn how to sit, roll, stand, and play. Occupational therapists are trained to evaluate whether children are able to carry out activities expected at their age. They also treat children with ASD and promote self-help skills that will help with independent living. Services of therapists are often billed in 15 minute intervals that cost \$30 to \$58.

This mandate originally became law in Jan 2009. In Jan 2010, a revised and stronger version of this mandate went into effect that also covers behavioral therapies. In discussion with the director of the Birth to Three program, we learned that the utilization for behavioral therapy for ASD may be roughly five to ten times greater than that of PT/OT/ST.

Carrier data and IC data was surveyed from 2007, 2008, and 2009 for this mandate. The carrier data showed that many of the carriers were paying about as much for these services prior to 2009 as they did in 2009, after the mandate was passed. The amount was *de minimis*. The IC data, however, showed an increase in outpatient PT/OT/ST habilitation claims for autism spectrum disorders in 2009.

**7. Coverage for Newborn Infants in Health Insurance Policies:** This mandate has been in force for thirty-five years. It requires insurers to cover the newborn children of an insured from the moment of birth. It covers injury and sickness and includes necessary care and treatment for congenital defects and birth abnormalities according to the policy limits. The policy allows insurers to require notification of the birth and payment of premium, if necessary, within a thirty-one day period. Neither notification nor non-payment shall prejudice any claim originating in the thirty-one day period.

Two of the carriers submitted data that was lower than the others. If we re-calculate the weighted average omitting their data, the weighted average PMPM for the 2008 paid amount increases from \$4.51 to \$5.58.

Doctors generally define newborn as post-partum and up to 28 days of age. The mandate defines it as 31 days. It should exclude all delivery cost but include post partum care and follow-up visits during the first 31 days. It will be skewed by expensive neo-natal cases for premature births. This proved to be the case with the carrier data. The highest category of cost was for Neonatal intensive care, which is a level 4 revenue code of 174, the highest level of inpatient care for newborns. The PMPM cost decreased by level of care—level 3 followed level 4 and was followed by level 2 and 1. Almost  $\frac{1}{4}$  of the cost of newborns was the hospital charges for level 4 (NICU) babies who may have one or more nurses and medical personnel assigned to each. These are often premature infants with low birth weight. At one high-risk facility we visited, the average NICU stay was 22 days. These are highly expensive stays for a small subset of newborns, and some of these stays may exceed 31 days.

These should be baby claims only that do not include delivery. The CPT 59400 claims for delivery and antepartum and postpartum care that we saw in the maternity data were not present in the newborn data. Well baby stays are often bundled with the cost of maternity when mother and baby remain in the same hospital room.

It should be pointed out that when an infant is added to a policy, it will not increase the cost for someone enrolled in family coverage, but it will increase the cost for someone enrolled in either the single tier or the employee plus spouse tier of coverage. It increases the cost for the latter two because they are switching to the more expensive family tier. For someone with family coverage already, the additional child is added for free, regardless of how many children the employee has. In the self funded employer world, employers are not prohibited from requiring that the employee sign up the newborn during the initial month after birth and otherwise wait a year until the child is again eligible.

**8. Blood Lead Screening (Individual Only):** Lead screening blood test itself is low cost—it runs about \$12 - \$52 for an 83655 test. The vast majority of claims are for CPT code 83655, which is a blood test specifically to test for lead. For a child who tests positive, there are two additional codes for tests to measure whether the blood lead level is decreasing—84202 and 84203. These latter two codes can also be used to determine whether there is new exposure. Their cost may be somewhat greater than the cost of an 83655. The cost of treating a child with a severe case of lead poisoning can be very high and involve inpatient care. To the extent that such cases are avoided, there are savings. The cost of blood lead screening only was *de minimis* for both individual plans and group plans.

**9. Prescription Food:** One of the larger carriers showed a small number of claimants averaging about \$3,500 per year. The claims were generally coded using HCPCS terminology in the range of B4149 to B4162. Another carrier showed about \$4,000 per year, and others were less. It is possible that carriers are able to leverage their purchasing power to buy these medical supplies for a lower cost than individuals could.

As described in the prior section, there are three categories of special food covered by the mandate:

- Low protein modified food products
- Amino acid modified preparations, and
- Specialized formula

Much of the cost of this mandate was for patients (usually babies but also young children) that are born with or develop extreme allergies to food. These include babies that fail to thrive.

According to two experts with whom we met, the cost of special food is generally around \$300 per month.

**10. Neuropsychological Testing for Children Diagnosed with Cancer:** This testing is intended to assess the extent of cognitive or developmental delays in children that have undergone chemotherapy or radiation treatment. There were very few children in the carrier data reported to have had such testing. The paid cost was around \$500 for the testing and evaluation, and there was no member cost-sharing for these claims.

**11. Preventive Pediatric Care and Blood Lead Screening (Group only):** This mandate affects children through six years of age. The cost of well visits and immunizations are relatively low on a per service basis. The cost of an office visit for a new patient that is 1 to 4 years old is about \$155. The cost of a return visit is about \$135. The estimated total allowed cost of immunizations for a child is about \$600 in the first year of life and about double that for all immunizations from birth through adolescence. Preventive care generally enables the doctor to identify their patients' medical problems before those problems have time to become catastrophic. While there are savings that are achieved when many medical problems are detected early, they typically do not pay for the overall cost of preventive care. This was the finding of the US Congressional Budget Office in their 2009 study of preventive care. This is to say that there is an economic cost to preventive care, and it may be diminished by some savings, but it is likely that preventive care is not paid for by those savings. In the CBO's letter of August 7, 2009 signed by Douglas Elmendorf, Director, to Congressman Nathan Deal, they explained the following:

“Although different types of preventive care have different effects on spending, the evidence suggests that for most preventive services, expanded utilization leads to higher, not lower, medical spending overall.

That result may seem counterintuitive. For example, many observers point to cases in which a simple medical test, if given early enough, can reveal a condition that is treatable at a fraction of the cost of treating that same illness after it has progressed. In such cases, an ounce of prevention improves health and reduces spending—for that individual. But when analyzing the effects of preventive care

on total spending for health care, it is important to recognize that doctors do not know beforehand which patients are going to develop costly illnesses. To avert one case of acute illness, it is usually necessary to provide preventive care to many patients, most of whom would not have suffered that illness anyway.”

## PERCENTAGE CALCULATIONS

### Denominator Used in Medical Cost Percentage Calculations:

From the CT DOI, we were able to obtain these arithmetic (not weighted) averages for filed 2010 insured HMO premiums (includes administrative cost and profit) for medical and RX combined:

Individual	\$245.22
SG	\$316.06
LG	\$349.92

Note: This does not include any PPO or other non-HMO health insurance policies. To compute the premium, we used these assumed average retention factors (administrative cost plus profit):

Individual	25%
SG	18%
LG	14%

Using these admin percentages multiplied by the premiums provided by the CT DOI, yields the following average PMPM medical costs rounded to the nearest dollar:

Individual	\$184
SG	\$259
LG	\$301

The HMO premiums are expected to be less than the non-HMO plans, but non-HMO rates are not filed in CT, so it was assumed that, on average, they are 10% more costly than HMO.

In view of these numbers, it was decided that **\$300** should be used for the 2010 group medical cost in the denominator of our percentage calculations, which is within the range of the various filed and calculated 2010 medical cost amounts above. Note that this \$300 is the medical cost only and does not include administrative cost and profit. The fully loaded premium we used is **\$360**. This assumes a medical loss ratio of 83.3%. ( $\$300 / \$360 = 83.3\%$ ).

## II.4 DIFFERENTIAL EFFECT OF THE MANDATES ON INDIVIDUAL vs. GROUP INSURANCE:

The individual market is characterized by a larger percentage of leaner benefit plans that involve greater member cost-sharing, often in the form of a high deductible. Individual insurance is not inexpensive, however, and the policy-holder must bear the entire cost alone. Individual policies are subject to more adverse selection than group policies. As long as they can pass initial underwriting, individuals can purchase individual health insurance when they

think they will need it, and drop coverage when the economic value diminishes, or renew it when they know they will need it. The average cost of an individual health policy in CT is less than a group policy, and it typically provides less benefit, on average, than a group policy. For example, the cost-sharing on an individual plan may be higher—this means higher deductibles, copays, and more coinsurance. This is an important consideration when assessing the financial burden for those covered by individual plans, especially less healthy people. These people pay for all their own premium, as well as all the cost-sharing associated with their plan. Those with plans that have an out of pocket maximum have some assurance that their personal financial burden will not exceed that maximum.

The medical cost of group plans in the CT data was significantly higher than individual plans both on an allowed and especially on a paid basis. There was also a significant difference between the Allowed Cost and Paid Cost for Group vs Individual. For group plans, paid cost was about 87% of allowed based on the CT data across all six carriers. For individual plans, paid cost was 75% of allowed. Thus, as a percentage of allowed cost, the member cost-sharing in individual plans is about twice as much as it is in group plans.

As explained in the prior section, we used \$300 PMPM as the assumed average medical cost for the CT insured population in 2010, since we do not have the exact number. We were provided with medical costs for 2007 and 2008 by each carrier. A weighted average paid medical cost was developed for **group plans** as follows:

	<u>2007</u>	<u>2008</u>
MEDICAL	\$263.03	\$284.76
<u>PHARMACY</u>	<u>\$46.83</u>	<u>\$49.10</u>
TOTAL	\$309.86	\$333.86

Similar information was also provided for **individual plans**:

	<u>2007</u>	<u>2008</u>
MEDICAL	\$162.92	\$177.82
<u>PHARMACY</u>	<u>\$19.52</u>	<u>\$20.14</u>
TOTAL	\$182.44	\$197.96

In both the group and individual data, a significant number of members have medical coverage but not pharmacy coverage.

Bearing in mind the relativities of the filed insurance premiums, it is assumed that this medical cost breaks down roughly as follows:

	<u>PREMIUM</u>	<u>MEDICAL COST</u>
Individual Policies	\$280	\$210
Small Group	\$340	\$275
Large Group	\$375.	\$320

There were more than ten times as many group members as individual in the 2007 carrier data submitted. There were about 1.2 million group members but only about 92 thousand individual members in the 2007 medical. Of these members, only 829 thousand and 79 thousand also had RX coverage.

The 2008 paid full gross cost total for all 11 mandates was \$19.77 PMPM for group coverage—this uses the full gross cost of maternity and mastectomy stays. We need to bear

in mind that individual does not include the preventive care for children mandate as do the group plans. If the eleventh mandate is removed (for pediatric preventive that applies to group only), group is \$18.03 PMPM. For individual health insurance, it was \$13.54 for the ten mandates in 2008. As a percent of premium, individual is somewhat greater than group for this second set of mandates on a full gross basis. Much of the individual gross cost was in maternity and newborns. The full gross cost of these two mandates represents a greater percentage of individual plans (70%) than group (64%), even when the cost of the mandate for preventive for children is removed from the total cost of group.

When the cost of the maternity and mastectomy mandates is shown on a net new basis, however, the ten mandates are 4.6% of the cost of individual plans. The ten mandates are also 4.6% of the cost of group plans.

Some of the mandates may be less desirable to the purchaser of individual coverage than group coverage by virtue of the fact that individual policyholders pay the full cost of premium. Infertility is an example of a benefit that may not be desirable to some purchasers of individual coverage, whether singles, couples, one or two-parent families. Infertility may add somewhere in the vicinity of \$100 annually to the cost of an individual health insurance policy for full family coverage.

One last point to note regarding individual coverage is that conversion policies fall into this category. These policies help provide access to insurance for those who lose group coverage. (This includes those whose COBRA coverage has run out.) Conversion policies tend to be purchased by those that need continued coverage, and they can experience significant adverse selection as the small pool acquires an increasing percentage of higher risk individuals with known health conditions. This would be particularly true for a mandate such as maternity. Conversion policies are sold to those singles, couples, and families who wish to maintain individual coverage after they lose group status. Unlike the vast majority of group policy holders, conversion policy holders pay the full cost of their coverage. If someone knows they are going to have a child or if they anticipate other medical costs, they are more likely to purchase conversion coverage than someone who is healthy and expects no upcoming medical expenses. Similarly, anyone who has individual coverage will be more likely to renew it if they know they are or will become pregnant. Consistent with this logic, it was observed that the individual carriers' cost of maternity and newborn represented a larger portion of total cost than they do for group.

## **II.5 DIFFERENTIAL EFFECT ON SMALL GROUP vs. LARGE GROUP:**

The mandates are expected to have roughly the same effect on the allowed cost of small group plans as large. Small groups tend to purchase lower cost, leaner plans than large groups. "Lean" plans have higher member cost sharing than "rich" plans; this means higher copays, deductibles, and coinsurance. Employees of small business also tend to pay a larger share of the premium. In this respect, the cost burden for the mandates will be somewhat greater for small group than large.

Like individual coverage, there is typically more adverse selection of benefits among small groups than large groups. This would be true for maternity and newborn costs for small groups as it was for individual plans. The small group market is more sensitive to the cost of health insurance. A 20% increase in premium cost, all else equal, is expected to cause more

small groups than large ones to drop health insurance coverage. In general, mandates push up the cost of health insurance for small and large groups alike, but a somewhat higher percentage of small groups may drop coverage as a result. This is driven in part by the fact that there is generally more variation in the annual premium increases of small groups relative to large. The small groups with the largest increases tend to lapse coverage first.

For the smallest employer groups, the owner who purchases group health insurance on behalf of the group may know more about the health conditions of the employees and their dependents. This may cause the employer to purchase a richer plan or to renew coverage when he might have otherwise terminated it.

One consequence of additional mandates is that some groups, especially very large groups, may switch to a self-funded approach, which enables them to avoid complying with the mandates if they wish. This will be discussed further in the next section.

## **II.6 EFFECT OF MANDATES ON THE AVAILABILITY AND COST OF HEALTH INSURANCE:**

Traditionally, the function of insurance, health insurance included, has been to provide financial security to those who are faced with economic uncertainty due to premature death, disease, accident, disability, loss of property, and the like. Insureds believe there is greater utility in paying a certain monthly premium than potentially sustaining the uncertain loss that could occur. Because of group coverage and the fact that most insureds are insulated from most of the cost of health insurance, most of which is borne by the employer, health insurance is different than life insurance. It is increasingly perceived as fundamental to the health, commonwealth, productivity, and health security of the nation. Those without access to health insurance, however, have difficulty maintaining the same level of health as the insured. Although the uninsured rate is lower in CT than the national average, it is estimated that there are still approximately 340,000 people in CT, younger than 65, without health insurance at this point in time. This number has been increasing over the past ten years as the cost of coverage (premium) has increased at a rate about double that of inflation.

Although the data show that the cost of the mandates is significant. It would be false to conclude that the mandates in isolation are the primary driver behind the growth in the cost of health insurance. A host of factors are behind the growth in the cost of health care at a rate that is roughly twice that of normal inflation.

In this section of our report, the increase in total insurance premium cost caused by the eleven mandates will be considered as it pertains to consumer decision whether or not to purchase or renew health insurance coverage. Some actuarial evaluations of new and revised mandates now consider not only the effect of the mandate on health insurance premiums, but also the number or percentage of policy holders that will choose not to renew coverage due to the premium cost increase. This may be an issue at the time a mandate is first introduced or revised, but less so once the mandate cost has been embedded in the cost of coverage for several years.

In the last section, we mentioned the difference in lapse rate between small and large groups that results from the same-sized annual premium increase. The likelihood of disenrollment due to cost increase is not easily calculated; it depends on the economic environment and

other factors. Disenrollment tends to occur more often as a result of an abnormally large increase to a specific policy-holder. As the cost of health insurance premiums rises, fewer residents of CT can afford coverage.

If normal medical trend is about 8%, and if an annual premium increase can be reduced to around 4% with some moderate increase in copays, coinsurance, and or deductible (benefit “buy-downs”), such a small cost increase is less likely to cause disenrollment. Groups may choose to “buy-down” their benefit plan somewhat further rather than lapse coverage altogether. If lapsation occurs as a result of a mandate, it would tend to occur in the year it is introduced because that is the time the price increase would be noticed.

This is a consideration that should be noted. As employer groups reduce the level of coverage by shifting more cost to the insureds year after year, two things happen. One is that members pay a larger portion of the total plan cost, and the other is that members may forego some medically important services to avoid the higher copays, deductibles, or coinsurance. Mandates generally increase the cost of insurance and, in conjunction with medical trend, individuals and groups will respond at time of renewal by purchasing a lower level of coverage with increased member cost-sharing. The end-game of all these buy-downs is a plan in which considerably more expense is shifted to the insured. Unless the plan makes high-value services available for reduced or no copays, under-insureds will tend to forego some necessary services, such as immunizations, diabetic medications and supplies, and other preventive services because the member cost-sharing acts as a barrier to access. Many carriers have shifted to plans that cover certain preventive services (or other high value services) at low or no cost to the member. This is intended to discourage underutilization of important care. The reforms to health care under the Patient Protection and Affordable Care Act (PPACA) of 2010 will also require insurers to offer plans that cover more preventive services for free. This report does not cover the effect of the PPACA on the CT health insurance system.

On an ongoing basis, the group or individual insurance consumer tends not to notice the cost of mandates buried in the plan. Although actuaries have estimated lapse rates as a function of premium increases, there is not a great deal of hard data to work with. As a result, many of the expected lapse rate estimates tend to be “soft.” In this study, for the eleven mandates, the cumulative incremental value of the mandates is significant, but the mandates have been part of CT insurance plans for so long that there is little lapsation specifically on account of them. The level of cost of health insurance plans is high enough today, however, that some groups can not afford coverage.

The other group response to consider is that some groups, especially larger ones, will choose to move to a self-funded approach as a result of additional mandates that add to the cost of health insurance and that they perceive as low value. By switching to self-funding, groups can avoid mandates. Roughly half of the commercial health coverage in CT is now self-funded. The carriers were surveyed to determine whether they already provide these mandated benefits in their self-funded plans. The majority of CT mandates are included. That being the case, there is little evidence to support the claims that groups are leaving the fully insured sector on account of mandates. Self-funded groups pay less in profit charges, and the largest self-funded groups are able to exert considerable leverage on the level of administrative fee that the insurer charges them to administer their self-funded business. It is likely that these economies of scale play a much more important role in the size of the self-funded sector than the existence of mandates. In addition, self funded groups do not pay state premium tax.



These 11 mandates add approximately 5.2% to the cost of group health insurance plans. Some groups or individuals might choose to purchase or retain coverage if the financial burden of the insurance premium were less. Nonetheless, it would not be practical for an insurer to remove the benefits covered by most of the mandates as they are written. In other words, these are not entirely avoidable costs for a health insurer due to the breadth of the mandate language, which covers much of the benefit that insurers covered prior to the passage of the mandate. Since all carriers in CT are subject to the mandates, the playing field is level and affects all insurers equally.

The last point to cover in this section pertains to the cost of health insurance. When health insurance is priced, it is broken into cost categories depending on the “tier” that is purchased. A single person buys a single policy. A couple that wishes coverage will purchase a couple policy, also known as the employee plus dependent tier. A single parent with one or more children will purchase an employee plus children policy. And a couple with a child or children will purchase a family policy. Based on a PMPM medical cost of \$300 and a PMPM premium of \$360, we approximate the following costs by tier for group coverage:

	<u>MONTHLY</u>	<u>ANNUAL (rounded)</u>
Single	\$430	\$5,000
Couple	\$930	\$11,000
Parent + Child(ren)	\$860	\$10,000
Family	\$1,250	\$15,000

The objection to mandates that is raised by some organizations is that the cost of mandated services, when added to overall cost of care, adds a substantial increment to the cost of health insurance. This argument is raised more forcefully when mandates are for services that are perceived to be non-essential. To reiterate the example described earlier for infertility, an additional 1% of cost per year adds about \$150 annually to the cost of a family plan under group coverage. This is a complex problem because if insureds are allowed wide-ranging choice to pick and choose the benefits they wish to include in their coverage, they will tend to select those they expect to best meet their medical needs. Too much self selection of benefits can defeat the underlying insurance principle of pooling. At the other extreme, an insurance plan that covers all possible services for all insureds would be prohibitively expensive. Such a “rich” plan would need to impose substantial member cost-sharing in order to make it a reasonably priced insurance product. This describes the two-edged problem of covered benefits vs. member cost-sharing. As health technology evolves and increasingly expensive services are added to health insurance plans, there needs to be a trade-off established between covered benefits and cost-sharing, otherwise plans become prohibitively expensive. This is a bigger issue for individual plans. It is less an issue for group plans because employers substantially subsidize their premium cost, and they receive a tax credit for doing so. The cost burden for individual plans includes 100% of the premium cost. For group plans, however, employees may pay roughly 5% to 50% of the premium cost of their group coverage

## **II.7 EFFECT OF MANDATES ON PUBLIC HEALTH:**

The public health gains resulting from the mandates will be discussed in this section. Depending on the nature of the mandate, their positive medical effect occurs over a

continuum ranging from those that affect everyone to those that affect only a vulnerable minority. Mandates that serve to improve the health of individuals also increase their productivity. Due to the small number of individuals affected by the narrow focus of some mandates, their overall affect on the public health of the entire insured population will not be as sweeping as a mandate that affects all. For the few that are affected, however, these mandates provide strongly beneficial health interventions that will enable them to live higher quality, more productive lives.

Most studies of the cost of disease, illness, and injury include not only the direct cost of medical care but also the cost of lost productivity. The mandates pertaining to prescription contraception, autism, and blood lead all have sociological ramifications. Blood lead and autism are conducive to higher quality of life and productivity for those affected. A similar result is expected from the mandate that requires developmental assessment for children with cancer undergoing chemotherapy or radiation treatment. Coverage of prescription contraception helps to enable family planning, fewer unwanted pregnancies, and fewer abortions.

Mammography and preventive care for children are examples of preventive services. Mammography, in particular, is credited with helping to reduce the breast cancer mortality rate.

The minimum stay mandates for maternity and mastectomy do little or nothing to improve public health, but they do dispel the fear that women will be sent home too soon after their operations are performed or babies delivered.

The newborn mandate is an assurance that babies born with expensive medical conditions will not be born uninsurable. As universally acceptable as this mandate is, there is a cost that comes with this assurance, and it is exacerbated by the advances in medical technology that allow more low-weight premature babies to be kept alive now than ever before. This technology can lead to birth claims that exceed one million dollars. This new technology cost is further exacerbated by the infertility mandate that pays for in vitro fertilization and other methods that lead to an increased incidence of multiple and premature births.

The mandate for prescription food affects so few individuals that it is difficult to speak of it in a public health context except to say that it provides a health benefit and financial security to the small vulnerable sub-population that is affected by it. The experts with whom we met were convinced that the mandate saves lives for the very small sub-population affected by these inborn conditions.

## **II.8 EFFECT OF MANDATES ON THE DELIVERY OF HEALTH CARE INCLUDING THE UTILIZATION AND UNIT COST OF HEALTH CARE SERVICES, MEDICAL SUPPLIES, AND DEVICES:**

One of the consequences of any benefit mandate is reactionary change elsewhere in the system for the finance and delivery of health care. Sometimes the consequence is anticipated and intended; other times not. If one observes the evolution of Medicare over the past forty plus years, we can see similar actions and reactions as the package of benefits, provider reimbursement methods, and eligibility standards changed over time.

Any mandate that adds to the list of things health insurers must cover generally adds to the cost of medical care and insurance. Although there is often initial hope that certain advances produce savings, most mandates as well as advances in medical technology are additive in cost. The market reacts to the mandate in many ways. The mandate may induce utilization, and providers may increase the rate at which the service is performed. It may increase the unit cost of medical goods and services as increased demand increases price. Or it may decrease unit cost over time as efficiencies are gained and economy of scale is achieved.

These eleven mandates are all “service” mandates, which by definition require the provision of a specified medical service in health insurance plans. Another type of mandate requires that the services of certain providers be covered. Yet a third category of mandates defines the individuals who are eligible for group or individual coverage.

Some mandates, such as breast cancer screening, can lead to subsequent medical cost such as biopsies and lumpectomies, which are tests or treatments following the screening. That is, the mandate may set a sequence of medical treatment into motion after the initial screening.

**II.8.a Based on a review of each mandate, these provider and supplier reactions are described:**

One of the aspects of the mandates that was asked to be addressed as part of the workgroup’s effort is the effect on public-private cost-shifting. Generally, the public sector, due to its authority and purchasing power, is able to establish lower provider reimbursement rates for its programs, especially Medicare and Medicaid, than private sector insurers pay for the same services. Historically, Blue Cross Blue Shield plans had larger market share and were able to negotiate somewhat lower rates than their competitors in the private sector, but both paid more than public payers. The conventional wisdom maintains that private payers must pay more because public payers reimburse providers at cost or less than cost. The shortfall, it is argued, must be made up by charging commensurately more to those with private coverage.

In general, because the vast majority of private insurance is group coverage provided through employers that pay for the majority of the premium, most people are buffered from the true cost of health care. Employers are tax-subsidized to provide insurance to employees and their dependents. Some policy experts argue that this situation contributes to the high and increasing cost of health care. Part of this high cost stems from the unnecessarily high utilization of services that is, in part, caused by the fact that insured people are buying those services with the help of “other people’s money.” Without the employer subsidy for the cost of health insurance premiums, the member cost-sharing would have to be much greater; it is also likely that many services would have to be cut out of the insurance coverage to keep premiums affordable. The same experts argue that this induced demand in group coverage drives up the unit cost per service. Others counter-argue that it eventually drives down unit cost through economy of scale and increased efficiency. This affects all medical care--not just the care covered by the mandates. Either way, if a benefit is covered by an insurance plan and most of the cost is borne by the insurer, some marginally necessary services may be deemed to be more essential than they would be if the insured had to pay the full cost of care out of their own pocket. If the benefit is not covered and the individual must pay the entire cost of it, there is a greater tendency to avoid utilization unless absolutely necessary.

Especially in the private health insurance market, healthcare is not a pure market-based system, so it is difficult to apply the usual laws of supply and demand to health care. Nonetheless, it seems likely that the employer subsidy in the group market helps to drive up the demand for and the overall cost of care. The presence of mandated benefits in conjunction with that employer subsidy also pushes cost in the same upward direction.

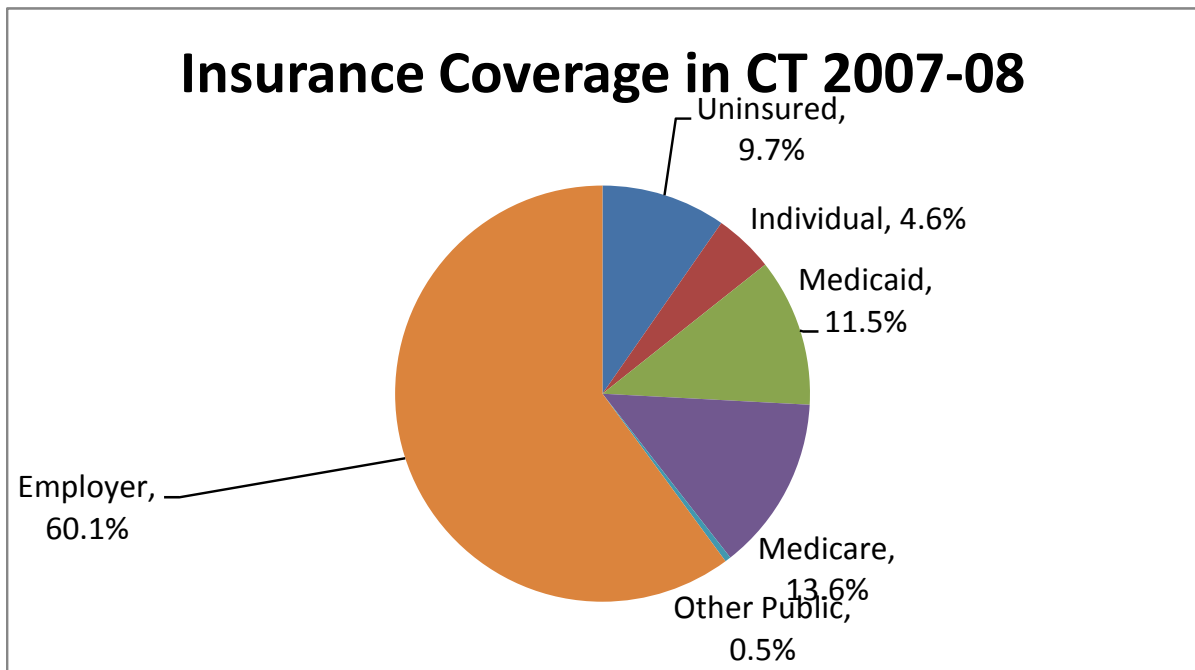
We were unable to find studies that compare, for example, the unit cost of mammography in states that require it vs. those that do not. As such, we cannot definitively conclude that any of these 11 mandates affect the supply or unit costs of providers or suppliers and the extent to which they might. Consistent with the argument above, mandated benefits may be associated with higher utilization of marginally necessary mandated services in comparison with the utilization that would be experienced if the benefit were not cover by the insurance plan.

### III. FINANCIAL AND ECONOMIC ASPECTS OF THE MANDATES

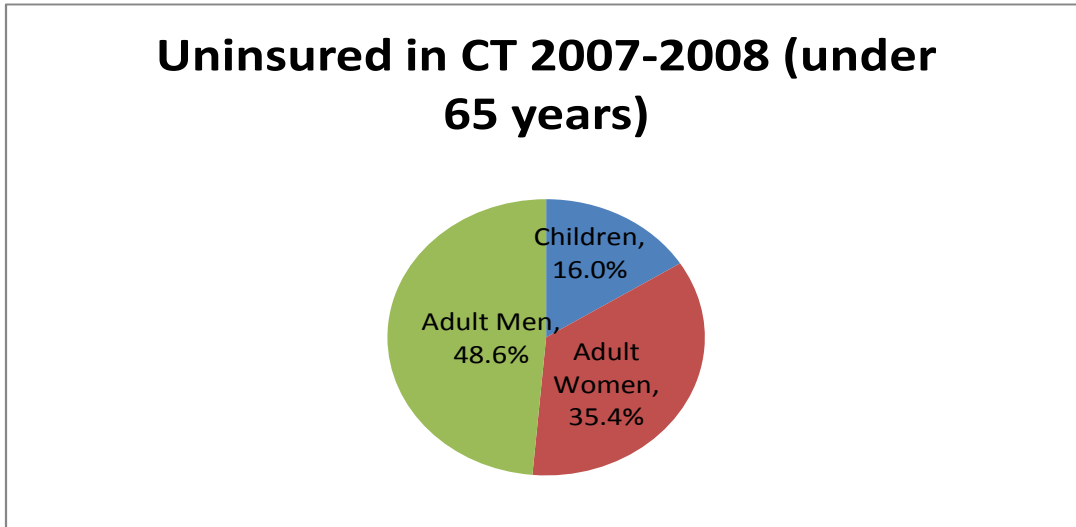
In this section of the report, the financial burden of the services covered by each mandate will be considered. This will be done both in the presence and absence of the mandate. A broader interpretation was taken of the financial burden analysis to include socioeconomic factors in addition to the cost burden considerations. The medical aspects of the mandates and elaboration on the mandates were covered in the earlier sections of this report and therefore not reported here.

In 2008, about two-thirds of Connecticut residents were covered<sup>1</sup> by private insurance (60.1% had employer based policies and 4.6% had individual policies); about a quarter were covered under public programs (Medicare 13.6% and Medicaid 11.5%); and 9.7% did not have any insurance. Among the privately insured, a third<sup>2</sup> were enrolled in HMO plans and the rest had PPO or other non-HMO coverage. Of those with HMO coverage, about 66% are fully insured. Of those with non-HMO coverage, about 45.6% are fully insured. Unless stated otherwise, the mandates discussed here, in general, apply to these fully insured group and individual policy holders only, that is, about 32% to 35% of the CT population. Although 60.1% of CT residents have private, employer-based group coverage, about half of that is self-funded (not fully insured) and is not subject to the state health insurance mandates. The charts below provide the overall coverage information as well as the demographics of the uninsured. Even though the state mandates are not applicable to this population, it provides us a baseline against which we can measure the impact of the mandates on the cost and financial burden.

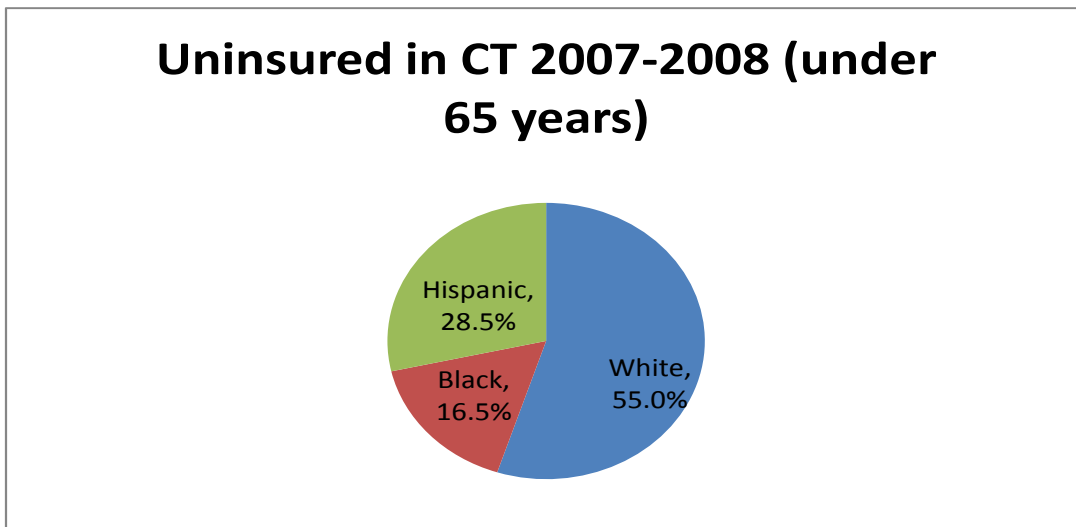
FIGURE 1(a)



**FIGURE 1(b)**



**FIGURE 1(c)**



Source: Urban Institute and Kaiser Commission on Medicaid and the Uninsured estimates based on the Census Bureau's March 2008 and 2009 Current Population Survey (CPS: Annual Social and Economic Supplements). Accessed August 20<sup>th</sup>, 2010 <http://www.statehealthfacts.org/profileind.jsp?ind=125&cat=3&rgn=8>

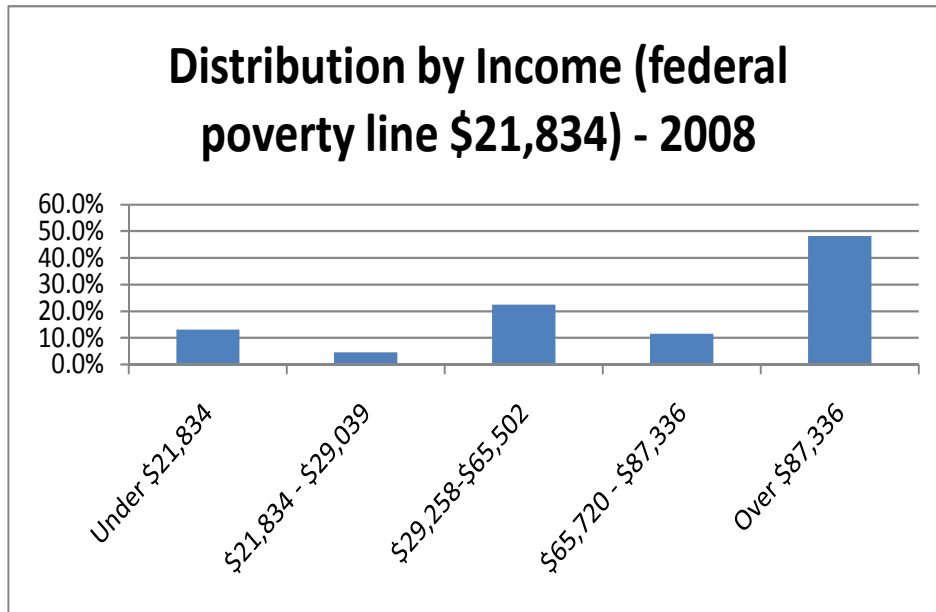
The healthcare landscape has changed significantly since most of the mandates considered in this report were enacted. For instance, the high deductible plans were not very common at the time most of the mandates under consideration were implemented. America's Health Insurance Plans (AHIP) estimates that over ten million lives are covered in 2010 under Health Savings Account/High-deductible Health Plans (HSA/HDHP).<sup>3</sup> In Connecticut, 7.1% of the lives covered by commercial health insurance have a HSA plan. These plans have an inflation indexed minimum deductible for individual and family coverage (for 2010, the minimum family deductible is \$2,400). Without some modification of benefit design, the high deductible in such plans can be a deterrent to services that are high value and much needed. For example, if one had to wait until a \$2,400 deductible is satisfied in order to get a medically

necessary service, the tendency might be to wait rather than pay. The tendency to wait is greater for people at a lower income level. It is possible that due to the increasing deductibles in particular, as time has gone by, some of the mandates are less readily accessed than they were when introduced. Similarly, the impact of the mandates which work mainly through the pharmacy benefits of an insurance policy or have a significant pharmacy services component has been somewhat reduced by the penetration of fourth or even fifth copayment tiers. These higher tiers may require members to pay \$100 or more for a prescription. Some aspects of the mandates regarding prescription contraception, infertility, and prescription foods fall under the pharmacy benefits.

Insurers recognized this propensity to delay care and countered with new and improved plan designs that are designed to encourage access to benefits that bring higher value for their cost. Preventive benefits, such as cancer screening in general and mammograms in particular, are often covered without satisfying the deductible or even requiring any cost-sharing at all. Certain high value services may be generally made available in high deductible plans, with or without a copay, prior to satisfying the deductible. The idea is that the benefit design should help the member obtain high-value needed services with minimal economic barriers to access. Health insurers may refer to these as wellness or preventive benefits. This would apply to mammograms, which would not be subject to the deductible.

From the carrier data, we were able to establish average cost-sharing for each mandate using the PMPM difference between allowed and paid claims for each mandate. Even for a seemingly low-cost mandate, the cost-sharing can be significant to the family. In examining the financial and economic aspect of the mandates, and in particular, the burden of cost on patients and their families, Ingenix Consulting adopted an approach that makes use of a model. We examined the cost burden with respect to two primary variables—1) member or family income level, and 2) level of cost sharing in the member's benefit plan. Those with the lowest income who are enrolled in plans with high cost-sharing have the largest cost burden of care. With respect to family income, a member in the lowest income bracket will pay a larger percentage of their income toward cost sharing. The income distribution in Connecticut in 2008 is shown in Figure 2. For our analysis we modeled the percent of income families with income of \$50,000, \$80,000, and \$160,000 would spend on services associated with each mandate. These illustrative family incomes were chosen to show the cost burden for a family with income slightly below, and a little above the median income in CT (\$68,595) and for a high income family. Our cost burden analysis was done for the incremental cost of each mandate only and did not include the member contribution to the premium. Families benefiting from the mandates would have paid the premium even in the absence of the mandates. We did not find a usable source for the information regarding the copayments, coinsurance and other forms of member share which would represent the State averages. Therefore we used our knowledge of health insurance plans to define a "rich" plan with member share of 10% and a representative plan with member share of 20%. Our model also looked at the high-deductible plans, and we used AHIP data as the source for the annual deductible limit. It was assumed that the members in a high deductible plan will pay a copayment/coinsurance of 20% after meeting the annual deductible limit. Detailed results of our calculations are presented in the Appendix.

**FIGURE 2**



Source: Urban Institute and Kaiser Commission on Medicaid and the Uninsured estimates based on the Census Bureau's March 2008 and 2009 Current Population Survey (CPS: Annual Social and Economic Supplements). Accessed August 20, 2010. <http://www.statehealthfacts.org/profileind.jsp?ind=9&cat=1&rgn=8>

The following table provides an overview of the financial and economic aspects of the mandates covering services for women. It summarizes a few of our findings and is followed by the analysis for each of the mandates. Table 2 provides a summary of our findings related to the laws covering health care for children and is followed by our analysis of those mandates.

**TABLE 1**

	<b>Impact on Premium (Paid PMPM in 2008)*</b>	<b>Financial Burden due to Non-Coverage</b>	<b>Medical or Social Need</b>	<b>Preventive Service/Any Savings to Health Care Cost</b>	<b>Limits Set by Mandated Coverage/Mandated Limit enough to Cover Cost</b>	<b>Richness of Insurance Type Matters</b>
Mammography & Breast Cancer Screening	\$2.31	Lack of coverage does not add financial burden	Medical	Preventive with positive clinical and cost outcomes associated with early detection of breast		No



**cancer**

Minimum Maternity Stay	\$1.85	There is a financial burden due to non-coverage	Social		Minimum number of days is specified.	Yes
Minimum Mastectomy Stay	\$0.10	Lack of coverage does not add large financial burden	Mostly social		Minimum number of days is specified.	Possibly
Prescription contraception	\$1.10	There is a financial burden due to non-coverage	Mostly social	Preventive with significant cost savings		Copay level of RX plan matters
Infertility	\$2.56	Significant financial burden	Social		Age and service level limits	Yes

\* Weighted average cost (group insured) across all carriers.

**MAMMOGRAPHY AND BREAST ULTRASOUND**

Breast cancer is the second leading cause for cancer-related deaths among women in Connecticut. According to the CT Department of Public Health, Connecticut had the third highest rate of new breast cancers in the nation in the 2000 – 2004 period.<sup>4</sup> During the same period, the state was ranked 26<sup>th</sup> in deaths from breast cancer. In 2008, 84% of the 40+ women in CT had a mammogram within the previous two years (the national average was 74%) and this number was 85% for women over fifty (the national average was 80%). White, non-Hispanic women were more likely to get breast cancer than other races or ethnicities. However, black non-Hispanic women were most likely to die from breast cancer, suggesting the possibility of a disparity in the quality of care. There was some regional variation in the incidence of the disease too. Based on the 2003-2007 data, the southwest CT counties (Fairfield and New Haven) had the highest incidence of the disease.

The mammography law mandates a baseline mammography for women under forty and a yearly mammography from the age of 40 and above. Comprehensive ultrasound screening is also allowed under certain conditions. The services covered under this mandate are relatively

inexpensive. A mammogram can cost the patient from nothing to around couple of hundred dollars depending on the test (traditional or digital) and the type of insurance. Ultrasounds can cost in the \$250 to \$300 range. Associated costs not covered under this mandate can include cost of outpatient visit, although visits for preventive care are often covered. We do not believe the direct cost burden of this mandated service to be onerous for individuals or their families. Using an average cost of \$150 for an annual test (\$75 per mammogram), our model estimated a cost burden of less than a third of a percent of income for a family with a \$50,000 income, even with no insurance.

There is a widespread recognition that these preventative tests are cost effective. For this reason, insurers and employers generally do not impose any substantial financial barriers to this service. The Patient Protection and Affordable Care Act 2010 will remove cost sharing for this service thereby further decreasing any financial burden. Uninsured women, and even insured ones with some limitations, can get free mammograms and associated services free of charge at any of the fifteen designated clinics in the state. This service is offered by the Connecticut Breast and Cervical Cancer Early Detection Program.

The out of pocket cost of mammography is not a direct barrier to early screening of breast cancer for three reasons—mammography itself is a relatively low cost service, there is widespread coverage through insurance, and free services are also available. However, social and demographic variations do exist. In a study by the Centers for Disease Control and Prevention<sup>5</sup>, women with insurance, higher income, and education reported a significantly higher rate of mammography in the previous two years. These findings suggest that lack of health awareness and education among the poor and the less educated may be a barrier to early detection of breast cancer. The breast cancer screening mandate passed by the California state assembly included a provision that would have required insurers to send out written notice to women who become eligible for testing as per national guidelines for mammography but it was vetoed.

This mandate covers a preventive medical need. Studies have shown mammography and breast cancer screening in general, to be cost effective<sup>6</sup> thereby saving the affected families as well as the insurers and the health care system significant expenses for cancer treatment down the road. The cost of treatment for breast cancer varies, among other things, by the type of treatment and services provided, by cancer stage and by the age at diagnosis. It can range from \$31,000 to \$50,000 on average, with some cases costing \$100,000.

## **MATERNITY CARE, MINIMUM STAY**

This law mandates a minimum of 48 hours of inpatient care for a mother and her newborn after a vaginal delivery and 96 hours following caesarean delivery. The mandate allows for an early discharge from the hospital if the health care providers, in consultation with the mother, decide to do so. In the case of an early discharge, the law mandates coverage for two visits within seven days of discharge for a number of clinical, educational and testing services. This Law was passed in CT within days of the enactment of a similar federal law, the Newborns' and Mothers' Health Protection Act of 1996 (NMHPA). The NMHPA has similar minimum post-partum stay provisions.

These state and federal laws were passed as a reaction to declining post-partum length of stay (LOS) for the mother and the infant. The average LOS after a vaginal delivery in 1970

was 3.9 days and for a caesarean delivery was 7.9 days. These averages had fallen to 2 days and 3.9 days<sup>7</sup> respectively by 1993. This decline in LOS was the result of payers pushing for reduction in inpatient hospital costs. The rationale for the legislation regarding minimum LOS was that longer stay at the hospital would reduce the risk of diseases like jaundice, facilitate newborn screening and early detection of conditions like congenital heart disease, and allow mothers to get trained in proper infant care. In a survey done in 1996, 43% of the responding pediatricians associated adverse outcomes with shortened LOS<sup>8</sup>.

There are about 40,000 births per year<sup>9</sup> in Connecticut. A significant part of the state's health care utilization is related to the maternity and infant care. For instance, about 10% of the hospital inpatient discharges in 2009 were for infant born in hospital (caesarean or otherwise). Assuming that most of the births are for single infants and using the population distribution by insurance type, roughly 15,000 women are impacted by this mandate every year. The median pregnancy and childbirth related hospitalization in CT has increased from 2 days<sup>10,11</sup> in 1998 to 3 days in 2007. The average LOS has stayed at 3 in the 2007 to 2009 period. Studies have shown increases in LOS after the passage of the NMHPA and state legislations in other parts of the country too.

The actuarial part of this report discusses the net cost of this mandate to be \$1.85 PMPM in 2010. It also estimates the cost of an additional day of maternity related stay to be around \$2,089. Using this figure, our Income-Benefits Model shows that a family with income of \$50,000 may end up spending up to 0.84% of its income (assuming 20% cost sharing) on an additional day at the hospital. The corresponding figure for a family without insurance is 4.18%. A family with a high deductible plan will have its cost share anywhere from nothing to a part of the cost, since for most plans the deductible requirement will most likely have been met due to the expenses incurred for the prenatal care.

For most of the uncomplicated caesarean and vaginal deliveries, it can be argued that this mandate fulfills a social rather than a medical need, especially from the mother's perspective. The mandated minimum stay allows mothers to learn proper feeding and infant care techniques. The evidence<sup>12-16</sup> in the literature regarding the clinical outcomes for a newborn with a longer stay in the hospital ranges from no impact to positive outcomes. There is some evidence of cost-effectiveness in terms of net savings incurred by reducing readmissions.

## **MASTECTOMY MINIMUM STAY**

Similar to the mandate on maternity stay, this law was passed to stop so-called "drive-thru mastectomies." The law requires coverage of 48 hours of inpatient care following a mastectomy or a lymph node dissection. The surgical and other advances pertaining to mastectomy have been reducing the need for inpatient breast surgeries and shortening the length of stay post-mastectomy. According to the Agency for Healthcare Research and Quality, the breast cancer hospitalization rate has been steadily declining<sup>17</sup> (from 91.3 per 100,000 women in 1997 to 60.5 in 2004). During the same period, the inpatient mastectomy and lumpectomy rates per 100,000 women have declined from 65.2 to 44.5 and from 20.4 to 11.3 respectively. According to the same source, the Northeast region had the highest breast cancer hospitalization rate in the country in 2004 (75.8 per 100,000 women as compared to 53.6 – 57.4 range for other regions).

According to the Connecticut hospital discharge data<sup>18</sup>, the median length of stay (LOS) related to breast cancer was 2 days in 2007. This LOS was the same in 1998. In CT, there were 1,123 breast cancer related hospital discharges (not the same as unique patients) at a rate of 53.2 hospitalizations per 100,000 women for a total cost of over \$25 million. Both the number and the rate of hospitalizations have decreased since the passage of the mastectomy stay law (there were 1,659 discharges in 1998 at a rate of 89.0 per 100,000 women).

For the insured patients who do need and decide to stay for the mandated 48 hours in the hospital, the type of insurance creates a cost burden similar in magnitude to the maternity stay. For the uninsured patient, the cost of mastectomy can be prohibitive, as can the cost of childbirth.

There is very little evidence in the literature showing different clinical outcomes associated with shorter LOS or even with outpatient mastectomies as compared to the mandated LOS. The main clinical outcomes which have been studied in the literature include postoperative infection, postoperative drain care, and hospital readmission. Both the long term trends in the number of inpatient surgeries for breast cancer patients, as well as the LOS show that the medical need for this mandate may be less than it once was. The same trends also indicate that the incremental cost of this mandate for insurers and employers may be decreasing.

This mandate came about during a time of managed care backlash, and support for the mandate was particularly strong because it involves women's health. At the same time that insurers were looking for ways to reduce length of inpatient stay and thereby cut cost, medical technology was also finding ways to do the same by means such as laparoscopic surgery which superseded more invasive surgical approaches. In the meanwhile, people may generally have become more accepting of reduced hospital length of stay today than they were ten, twenty, or thirty years ago.

## **PRESCRIPTION CONTRACEPTION**

This mandate ensures that insurance providers and employers provide coverage for prescription contraceptives if they offer prescription drugs benefit in general to their members. Connecticut and 24 other states have a mandate covering contraceptive services for women. Another four states have some provisions in this regard. There were an estimated 738,410 women of reproductive age (aged 13 – 44 years) in the State of Connecticut in 2008<sup>19</sup> and 423,570 out of these women needed contraceptive services and supplies because they were sexually active, able to get pregnant, and neither pregnant nor trying to get pregnant. About 14% of the women who needed contraceptives were under the age of 20. The racial/ethnic mix of the women needing contraceptives in 2008 was 72% non-Hispanic white, 13% non-Hispanic black and 15% Hispanic.

As the actuarial part of this reports states, there are a number of options for female contraceptives and the cost of the contraceptives (allowed and member share) has a wide range too. Using an average annual spend of \$251 by a family<sup>20</sup>, our model estimates the cost burden ranging from 0.05% to 0.5% of the annual income for a family with an income of \$50,000. The lower end of the cost burden is for rich plans and the higher end is for the high deductible plans (assuming member has to pay the entire cost of contraceptives before the deductible requirement is met) and for the uninsured. This cost burden estimate is based on

an average cost and should be considered while bearing several factors in mind. First, the cost of oral contraceptives could be as low as \$108 per year even for the uninsured, as the generic form of one of the popular contraceptives is available through the generic drugs programs offered by Wal-Mart and several other retail pharmacies. Second, despite all the contraceptive products being highly effective in birth control, there are tolerance and side effect issues which may cause selection of more expensive products for some patients.

In general, there are few supply side limitations to the use of female contraceptives. Women can choose from a number of oral and other products. Most of the insurers and employers cover this service (even though some restrictions on the number of products covered and the member share for the covered products exist). Similarly, Medicaid has fairly generous provisions for contraceptives. Some retail pharmacies chains offer two oral contraceptives for \$9 per month supply. Despite no obvious major limitations to access to contraceptives, studies show that a large percentage of the pregnancies in the U.S. are unintended. Some of the strongest predictors<sup>21</sup> of unintended pregnancies are being young, single, having lower educational attainment, having other children, consuming alcohol, and being a woman of color. Evidence suggests that certain segments of women have cost or other access issues and/or compliance issues. For instance, women under the age of 20 have the highest rate of unintended pregnancies. Compared to the insured, uninsured women are 30% less likely to report using prescription contraceptives<sup>22</sup>.

This mandate covers a mainly social need of preventing unintended and unwanted pregnancies, especially teen pregnancies, as well as avoiding abortions. There is a significant body of evidence showing the efficacy and the cost effectiveness of use of contraceptives in women, although most of the studies we found have focused on the populations served by public funding. Almost all of these studies have found a high degree of effectiveness in reducing the number of unintended or unwanted pregnancies as well as significant cost savings associated with reducing the number of these pregnancies.<sup>23-25</sup>

This mandate and similar services covered under public funded programs have reduced the overall cost of health care in the state. We were not able to find a good source of the savings caused directly by this mandate, but the available data from the public programs provides an indication of the mandate's effectiveness. In 2008 over eighty thousand women<sup>26</sup> were provided contraceptive and birth control services by the publicly funded clinics and by Title X in CT. These services averted 16,600 pregnancies, 7,400 births, and 6,900 abortions. The annual cost of the family planning program was \$21 million in 2008 and the estimated cost of averted Medicaid births (@\$14,307 per birth) was \$91 million thus a net saving of \$71 million.

## **INFERTILITY TREATMENT**

Connecticut is among the 16 states with a law providing coverage for infertility related services. These laws vary by state. The mandate in CT is among the more comprehensive ones as far as the types of services that are covered. However, a neighboring state, Massachusetts, covers more in vitro cycles. The services are covered for both genders with an age limit of 40 years for the women. The law allows for limiting the coverage by the number of cycles, the number of embryo implantations per cycle, the type of facilities where treatment can be provided, etc. In order to provide some protection to the insurers regarding adverse selection, the law allows for minimum duration of the policy prior to the initiation of

mandated services. It also allows for disclosure of previous treatments for infertility. The insurers are allowed to require that less expensive treatments should be used prior to more expensive ones; however, this requirement may be waived at the recommendation of the physician. The covered services include prescription drugs for the treatment of infertility even if the policy holder does not have prescription drugs benefit coverage in general.

According to the last published statistics (2002 data) from the National Survey of Family Growth, about 9% of women aged 15-44 in the U.S. reported receiving infertility services<sup>27</sup> sometime in their life. The three most common services were advice seeking (66.1%), infertility testing (21.2%), and drugs to improve ovulation (7%). In addition to medication therapy to treat ovulation related issues, other common treatments for women include intrauterine insemination (IUI) and assisted reproductive technology (ART) methods. In vitro fertilization (IVF) is by far the most commonly used ART technique. About 1%-2% of all live births in the U.S. over the last three decades are linked to IVF. The CT carriers' data shows that most of the cost associated with this mandate was for the IVF services. The CDC reports clinic level data<sup>28</sup> for the seven clinics in CT providing IVF services. The information includes types of IVF cycles performed with fresh and with frozen embryos and by various age groups of the women being treated. In 2007, the fresh embryo cycles were by far the most common. For most of the clinics, the highest number of cycles was for the women under 35 followed by the women between 38-40 years of age. The average number of embryos transferred ranged from 2.1 to 2.6. The percentage of fresh embryos transfers resulting in live births ranged from 44% to 61% and was significantly higher than that for the frozen embryo transfers.

The cost of treating infertility is high and varies significantly based on the type of treatment, the prestige of the clinic, and on the number of clinics available in a particular geographical location. The National Infertility Association<sup>29</sup> estimated the average cost of an IUI cycle to be \$865 in 2006. The average cost of an IVF using fresh embryo was \$8,158. The additional average cost of intracytoplasmic sperm injection and preimplantation genetic diagnosis procedures was \$1,544 and \$3,550 respectively. The average medications cost for IVF ranged from \$3,000 - \$5,000 per fresh cycle. The American Society of Reproductive Medicine estimates the average price of IVF cycle in the U.S. to be \$12,400. According to the CT carriers' data for 2008, the paid cost for the services related to this mandate was \$2.56 PMPM. The actuarial part of this report estimates that this mandate adds about \$150 to the annual premium for a group insurance policy for a family. Using the \$865 for an IUI cycle and \$12,400 for an IVF cycle, our model show that an uninsured family with \$50,000 annual income will end up spending about 2% of its income on an IUI cycle and about a quarter of its income on an IVF cycle. For a family with this income and covered by a high deductible group policy, the respective cost burden will be about 2% and 8.6% for an IUI or an IVF cycle. The percentage for the two types of treatment for a family with a 20% cost sharing plan will be 0.35% and 4.96%.

High cost is a barrier to getting infertility treatment. Research<sup>30</sup> shows that the population segments associated with higher income (older women, non-Hispanic white women, and women with higher level of education) are more likely to be treated for infertility. Published literature does not show that these racial and socioeconomic disparities are reduced by the state mandated coverage. In CT, Medicaid covers infertility diagnosis but not treatment. A recent study<sup>31</sup> reviewing the economic consequences of ART suggests that the financial burden associated with infertility treatment not only causes disparities in access but also impacts the clinical practice and consumer choices regarding the number of embryo transfers,

etc. That is, families going through IVF and other expensive treatments have an incentive to seek higher probability of success with as few cycles of treatment as possible. While a higher number of embryo transfers does improve the probability of success, it also increases the odds of multiple and low birth deliveries, more use of neonatal intensive care and other expensive services downstream. This adds to the cost of total health care for the insurers, families and society. If the cost of maternal and neonatal complications, loss of productivity and other factors are taken together, the cost of an IVF could range from \$44,000 per delivery to well over \$211,000 per delivery in rare instances.

While we did not find published evidence of the state mandates increasing access to care or decreasing socioeconomic disparities in the infertility treatment, research shows<sup>32</sup> that states like CT which allow limits on covered cycles and embryos per cycle have lower rates of multiple births as well as lower live birth rates per cycle. This may contribute to the lowering of the incidence of birth problems and of the health care cost associated with IVF.

**TABLE 2**

	<b>Impact on Premium  (Paid PMPM in 2008)*</b>	<b>Financial Burden due to Non-Coverage</b>	<b>Medical or Social Need</b>	<b>Preventive Service/Any Savings to Health Care Cost</b>	<b>Limits Set by Mandated Coverage/Mandated Limit enough to Cover Cost</b>	<b>Richnes s of Insuranc e Type Matters</b>
Autism	\$0.03	Lack of coverage does add financial burden even though some services are covered by schools	Social	Indirect savings in gained productivity and lesser need for care later in life	Only certain types of services covered	Yes
Newborn Care	\$4.51	There is a financial burden due to non-coverage. This burden can very substantial in some cases	Medical		Number of days limit	Yes
Blood Lead Screening	\$0.01	No financial burden due to inexpensive test	Medical	Preventive service with significant savings		No
Prescription Foods	\$0.22	Lack of coverage does add financial burden	Medical		Only certain types of foods covered	Yes
Neuropsych ological Testing for	\$0.00	No financial	Both	Preventive service with documented		No



Pediatric Cancer		burden		clinical outcomes but not financial outcomes		
Preventive Care for Pediatrics	\$1.74	Financial burden for some families	Medical	Preventive services with positive health outcomes but mixed evidence of cost effectiveness	Office visits limited by age	Yes

\* Weighted average cost (group insured) across all carriers.

## AUTISM SPECTRUM DISORDER

There are 15 states with mandates specifically for services related to Autism Spectrum Disorder (ASD). Another 13 states cover some of these services under general mental health or other laws. Compared to some of the states, Connecticut's law defines a narrow set of services and their coverage. The law covers speech, physical, occupational, and behavior therapies (the latter in a revision in 2010) to the extent such services are covered for other conditions and services.

ASD consists of a number of mental and behavior conditions. The actuarial part of this report discusses some clinical aspects of these conditions. The prevalence of ASD has dramatically increased over the last few years. According to the Centers for Disease Control and Prevention's 2009 report<sup>33</sup> one in 110 children has some form of ASD. This is a 57% increase in prevalence from only four years ago. Researchers and clinicians have yet to identify definitive causes for this increase in prevalence, but some of the factors may include increased awareness and diagnosis and broader definition of condition itself. The prevalence of ASD is higher in boys than girls and higher in non-Hispanic whites and blacks than Hispanics. Research shows that significant racial and income disparities exist in the diagnosis and access to treatment for ASD.

The cost of speech, physical, and occupational therapy ranges from \$100 to \$150 per hour. Using the cost of services (minus behavioral therapy) to be around \$600 for a year, our cost modeling shows that a family with \$50,000 income may spend 0.24% of its income for these services. If uninsured, in a high-deductible plan, or in a plan which does not cover these service for non-ASD conditions, this family may end up spending up to 1.2% of the income. Although not covered by this law, the medical care expenditure for those with ASD has been shown<sup>34</sup> 4-6 times higher than for those without ASD. If we include the lost productivity and other associated costs, the average life time cost of care for an individual with ASD has been estimated \$3.2 million.

This mandate covers a social need more so than a medical need in that the services covered improve the quality of life of the patients and their families. Some of the services covered under this law are provided at public schools free of cost under the federal Individuals with Disabilities Education Act. This mandate has been interpreted by some as an example of cost shifting from the public to the private sector. Given the prevalence trends for ASD, the cost and this cost shifting could increase with the passage of time. We expect the cost burden to increase for the insurers and employers because of the addition of behavioral therapy to the services covered under the state mandate as of January 2010.

## **NEWBORN INFANTS**

The mandate regarding medical care coverage for newborn infants has existed since 1974. At this point in time, under existing insurance policy language, there is effectively guaranteed coverage of newborns whose parents are insured. In part, this may be the result of the mandate. In our culture and healthcare system today, there would be strong disapproval of any health insurance policy that failed to cover a newborn of insured parents,

All other states have legislation covering newborns. This mandate has had two related, yet distinct effects. First, the law ensures that all health care needs of newborns are covered for the first 31 days of their lives. Second, the state mandate and a federal mandate, oblige insurers to allow the parent(s) an option of a guaranteed coverage for infants beyond the 31 postpartum days. Our analysis is focused on the former aspect of the mandate.

The health care needs of newborns can be divided into four broad categories – 1) the normal postpartum care of a healthy infant, 2) neonatal and specialized care for sick, pre-term, low birth weight (LBW) or infants with birth defects, 3) screenings for a number of conditions, and 4) readmissions or treatment of infections, injuries or conditions such as jaundice and congenital disorders. All of these service categories are covered by this mandate.

In the year 2008, there were over forty thousand births<sup>35</sup> in Connecticut. During the same year, 240 infants died with most of the deaths occurring in the neonatal stage (within a short period after birth). The percentage of babies with low birth weight (<2,500g) was 8.0%, those with very low birth weight (<1,500g) was 1.5%, and those born premature (gestational age of 36 weeks or less) was 10.9%. The data regarding infants born with all birth defects was not available, but in 2008, 58 babies were born with Down syndrome, 42 with orofacial defects, 56 with a cardiovascular defect and 12 with spina bifida without anencephalus.

There are significant demographic disparities related to the incidence of premature births, low birth weight (LBW) and birth defects. Based on the 2008 data, incidence of LBW and very LBW was twice in the black non-Hispanic women in CT. The incidence for premature babies was also significantly higher for this segment. Studies have linked the birth of sicker babies with teen births, late or inadequate prenatal care and smoking. Non-Hispanic blacks and the Hispanics mothers had higher rates for all these categories except for the smoking. Similarly, studies<sup>36</sup> have shown racial, ethnic and income disparities in the rates of newborn screenings and the incidence of birth defects.

The average cost of this mandate in 2008 was \$4.51 PMPM which makes it among the more expensive mandates. We did not model the cost burden because the cost of various services covered under this mandate ranges from very little to very great (the cost of screenings is

minimal while a few weeks stay at a neonatal intensive care unit may be as high as several hundred thousand dollars). For some of the birth conditions, especially some birth defects, the cost of service may be low for the first 31 days but the lifetime cost may be much higher. For the very expensive services, a family's cost burden will be determined by its being insured or not. For those that are insured, cost burden depends on their specific policy benefits like cost sharing and maximums.

This mandate was passed to cover a medical need and adds significant cost to the overall health care cost as well as to the cost burden for the insurers and the families. For instance, the Institute of Medicine estimated<sup>37</sup> in 2007, the cost of in-hospital expenses for pre-term babies accounted for \$18.1 billion or half of the total cost of care for all newborns. Many of the poor birth outcomes are preventable through better education, prenatal care and early screenings, etc. The rate of poor birth outcomes can be the result of a deliberate choice by parents who choose to have children at a very early or late age of the mother or through advances in the infertility and birthing technologies. Significant societal and bioethical issues drive cost for newborn care. Caregivers and healthcare professionals are involved in decisions around what is in the best interest of a sick newborn and when to withhold or withdraw medical treatment for neonates.

## **BLOOD LEAD SCREENING**

The screening for blood lead in infants and children is a stand alone mandate for the individual policy issuers but is part of a broader set of preventive services for the group policies. Our analysis here holds true for lead screening service for both types of insurance. Later on, when we discuss all preventive pediatric services we will exclude lead screening from the discussion.

Lead poisoning in younger children is less of a problem today than it was in the 1970s and 1980s. The proportion of children with elevated blood lead levels (EBLL) has decreased<sup>38</sup> by over 80% after some of the major causes like leaded gasoline, lead in canned foods, house paints, and other consumer products have been eliminated. Leaded paint in older housing is the remaining major cause of blood lead pollution. Among all dwelling units in CT where environmental investigations<sup>39</sup> for children with EBLL were conducted in 2006, 85.3% were identified with paint hazards and a third each were identified with soil and dust hazards. A small fraction had hazardous drinking water. In general, the problem associated with older housing is more severe in the Northeast and the Northwest of the country.

Due to the efforts of the CDC, the state governments and private organizations, increasingly more children are being screened for blood lead poisoning in recent years. The latest CT data we found was for the year 2006. During that year a quarter of the children from birth to six had at least one blood screening done. The percentage of children between 1-2 years of age with a test was 49%. In general, children enrolled in Medicaid had a higher rate of screening.

The prevalence and the incidence of EBLL have a demographic dimension. The children from poor families living in rented older housing have the highest incidence (some affluent children living in renovated houses also have EBLL). Connecticut data shows that among the children less than 6 years of age who had a confirmed blood test in 2006, blacks or Native

Americans were twice as likely to have EBLL as whites or Asians. Similarly, Hispanics (2.1%) were more likely to have EBLL than non-Hispanics (1.3%) and males were slightly more likely to have EBLL than females.

The cost of testing for EBLL is minimal (\$12-\$15) and based on the data provided by the carriers, the average cost of this mandate in 2008 was \$0.01 PMPM. A number of studies have shown positive clinical and behavioral outcomes from early detection and prevention of lead poisoning in children. High lead levels can adversely impact the nervous, hematopoietic, endocrine, and renal systems. Other damages include learning disabilities, ADHD, mental retardation seizures and even death. Similarly, research shows prevention of lead poisoning to be highly cost effective. A recent study<sup>40</sup> estimated net benefit of controlling lead hazards in the range of \$181 to \$269 billion or a return of \$17-\$221 for a dollar spent on controlling lead hazards. This rate of return is even higher than that shown for vaccinations for children. Another study estimated<sup>41</sup> an overall saving of \$1.2 trillion and an additional 4.8 million quality of life adjusted years as a result of controlling lead poisoning. These studies include savings from avoided medical costs, lost earnings, increased tax revenue, savings due to reduction in crime and increased productivity in their calculations.

This mandate covers a medical need. Even though the cost of testing all children is substantial, the cost for the individual families is low and the return for the society far exceeds the cost.

## **PRESCRIPTION FOOD**

The mandate regarding medically necessary foods for inherited metabolic disorders has evolved in several aspects since its introduction in 1997. The age limit for the coverage of specialized formula has been increased from 3 to 12, cystic fibrosis has been added as a specific covered condition, and the requirement of a prescription has been removed. This mandate covers an expensive need for a small number of patients. The population impacted by the law is usually infants and children but also includes adults. Some of these conditions are more prevalent in certain racial or ethnic groups. A number of these conditions can be detected by screenings at a very early age. In 2004, the incidence in Connecticut<sup>42</sup> of PKU was one in 11,000, galactosemia (1:51,000), cystic fibrosis (1:4,100), hypothyroidism (1:4,000) and sickle cell disease (1:2,000).

The mandate covers protein and amino acid modified food and specialized formulas. Spread over all covered lives, the CT carriers' data shows an average cost of \$0.22 PMPM in 2008. The annual cost of these foods varies by the type of food and by the consumption level (adults consume more than children or infants) and can vary over two thousand dollars to over thirteen thousand dollars. For the purpose of our cost modeling, we used \$4,000 annual cost (the carriers reported in the range of \$3,500 - \$4,000). Our calculations show a family with \$50,000 will spend between 0.4% to 2.4% of income on specialized food supplies assuming 0.8% or 1.6% member share respectively. The same family will spend up to 5.55% of its income if in a high deductible plan. The uninsured family could end up spending up to 8% of its income. The mandate covers these products with the same level of benefits as prescription drugs. Prescription drugs are usually covered at a higher level of member cost-sharing than medical benefits.

Given the cost of the covered products, we would expect the cost burden to be higher on the uninsured, those with lower income and minorities. There was relatively little in the literature on socioeconomic status and patient cost-sharing associated with insurance coverage for medical foods used to treat inherited metabolic disease. The most cited inherited<sup>43</sup> metabolic disease was phenylketonuria (PKU), but other cited conditions were homocystinuria, tyrosinemia, methylmalonic academia, propionic academia, isovaleric academia, glutaric aciduria, and urea cycle disorders. A Cochrane literature<sup>44</sup> review of effects of dietary interventions for PKU found that blood phenylalanine levels were significantly lower in patients following a low-phenylalanine diet compared to those on a less restricted diet and intelligence quotient was significantly higher in patients who continued the diet than in those who stopped the diet. A study<sup>45</sup> of adults with PKU found that those who maintained a phenylalanine-restricted diet vs. those who discontinued the restricted diet had higher intellectual and achievement test scores and they reported fewer problems with respect to increased rates of eczema, asthma, mental disorders, headache, hyperactivity and hypoactivity.

Although this mandate covers a medical necessity, there are some difficult societal choices involved. The main issue being whether society (through higher premium, bigger public outlay, or higher over all health care cost) should pay for the need for a very few persons. In other similar situations, for instance covering treatment and other services for cancer patients, there is a widespread acceptance of a societal responsibility likely because a vast amount of literature has shown the cost-effectiveness of the approach. In the case of specialized food for persons with inherited metabolic disorder, we did not find any research related to the cost-effectiveness and any downstream societal savings (however, as noted in the preceding paragraph, there is evidence of positive clinical outcomes). A report<sup>46</sup> analyzing a House Bill in Pennsylvania to cover these foods concluded that the proposed legislation was not justified by the cost of covering needs for a few. The report also pointed out the lack of clear definition or boundaries of what could be defined as medically necessary food. However, 32 states have a mandate covering metabolic disease formulas.

## **NEUROPSYCHOLOGICAL TESTING FOR CHILDREN WITH CANCER**

According to the National Cancer Institute, more than ten thousand children under the age of 15 years were diagnosed with cancer in 2007 in the US. In Connecticut, the incidence rate<sup>47</sup> of childhood cancer (under 20 years of age) has averaged around 18 per 100,000 over the 2003 – 2007 period. This incidence rate was higher than the national average of 16.7 per 100,000 during the same time period. Although the incidence of children diagnosed with an invasive cancer has increased over the years, the disease still impacts a very small portion of the population. At the same time the survival rate of children with cancer has dramatically improved. More than 70% of the children with cancer now survive the disease. Rising incidence and survival rates means there are increasing number of childhood cancer survivors who are going to need medical and mental health care for a long period of time. This mandate is aimed at providing testing for neuropsychological needs of children with cancer resulting from chemo- and/or radiation therapies.

Children who go through chemotherapy or radiation face high risk of cognitive and developmental challenges. This is especially true for patients with brain or central nervous system (CNS) cancers. Studies focused on childhood cancer survivors<sup>48,49</sup> show that they have higher rates of psychological problems compared to their siblings. Children with cancer

and childhood cancer survivors may experience severe anxiety, behavior problems, intense stress, academic problems and peer relationship issues. The psychological and behavioral problems lead to increased risks for smoking and alcohol use, and obesity. The poor health behavior could lead to future chronic medical conditions and secondary neoplasms.

This mandate covers services which are medical and social necessities for a small number of families. The cost of care to the health care system is negligible (the CT carriers' data had an average paid cost of \$0.00 PMPM). The cost of testing and evaluation was around \$500 in 2008, and there was no cost sharing by the members. Medicaid in CT also covers these services without any prior authorization, and social services support exists for the uninsured. So we estimate little cost burden associated with these services. We did not find any research regarding the cost effectiveness of these services for children with cancer per se, but the net savings from early testing and prevention of neuropsychological and behavioral problems in general is well documented in the literature.

## **PREVENTIVE PEDIATRIC CARE**

This mandate covers the preventive care for all children from birth to the sixth year. The preventive care includes regular physical examinations, developmental assessments, immunizations and laboratory tests. The law applies to group insurance policies only and added blood lead testing as a covered service in 2009. The service was already covered for individual policies.

This mandate is one of the more expensive ones. According to the carriers' data for 2008, the average cost of the mandate was \$1.74 PMPM when spread across the entire insured population. For a healthy baby receiving all the recommended care, the total cost for the first year of life is about \$1,400. This includes 5 office visits (@\$150), cost of immunization (\$600) and lab tests (\$50). In 2008, there were over 40,000 infants of less than a year age in CT. If all of those infants were to go through the recommended visits, immunizations, and lab tests, the cost of care would be over \$56 million (this calculation is for illustrative purposes only. It underestimates the cost by excluding infants over 1 year of age, and it overestimates the cost since only half of the infants utilize all the recommended services). The cost per child decreases for the second to the sixth year as the number of office visits decreases. An uninsured family with \$50,000 annual income would spend 2.8% of their income for these services. If this family has an insurance plan with 20% cost sharing, the cost burden will be about 0.56% of income. For high deductible plans, the cost burden will be somewhere in between the above two cases depending on the remaining deductible requirement for the benefit year.

The services covered under this mandate are generally covered by self insured employers, Medicaid, and SCHIP. Therefore few families pay the full cost of these services, and the cost itself may not be a major barrier to access. However, other financial and socioeconomic factors such as lack of medical care access in general due to income, education and other constraints cause demographic disparities as well as lack of compliance. Improved compliance has been shown<sup>50</sup> to provide positive health outcomes through reduction in avoidable hospitalizations in children from low income families regardless of race, level of poverty or health status.

This mandate covers a medical need of infants and young children. There is sufficient evidence of positive health outcomes associated with early detection and prevention of diseases in children and some of the research shows these measures to be cost effective too. In general, studies which focused on the direct savings from a preventive care measure<sup>51</sup> have found mixed results. However, when indirect savings like lost productivity, potential tax revenue etc. are added to the benefits column, there are positive net savings. If we divide preventive care into three categories—childhood preventive care including vaccination, etc; preventive care and screening for cancers; and preventive care for chronic conditions, then the evidence in favor of the first category being cost effective is very strong. For the other two categories, the evidence is mixed but more studies show cost effectiveness than not. One study<sup>52</sup> has shown a benefit-cost ratio of 16.5 for childhood vaccinations.

#### **IV. CONCLUSION OF ACTUARIAL REPORT:**

Ingenix Consulting examined eleven of the forty-eight CT health benefit mandates and calculated their expected costs. With retention included, this was \$18.74--about 5.2% of the per member premium for a group plan. The language of some of the mandates is broad, however, and covers many medical expenses that carriers were already covering prior to the passage of the mandates. Thus the net new cost of the mandates may be less than the gross cost. Two of the mandates involve a minimum inpatient stay for maternity or mastectomy, and they are presented at the net new cost level, which is considerably less than the full gross cost submitted by the carriers.

The data for individual plans was considerably less credible than for group plans because there are more than 12 times as many group members as individual members in the submitted carrier data. The ten individual mandates represented about 4.6% of the cost of individual plans. The gross cost of the maternity and newborns was a larger portion of individual plans than group. There is one mandate that applies to group but not individual plans. When it is removed, the ten remaining group mandates are 4.6% of group premium, the same as individual plans.

Some of the mandates have a more positive effect on public health than others. Some affect a small but vulnerable special population; this affected subgroup is so small that their cost is small or de minimis when spread to the entire pool of insureds.

The mandates for newborns and infertility, in that order, were the most costly of the 11 mandates. Five of the other eight mandates all cost less than \$1 PMPM each. All the mandates are required to be covered by CT insurers and, as such, they add to the medical and administrative cost of insurance plans for all fully insured residents of CT.

The cost of the most expensive mandate for newborns reflects the broad and general nature of the mandate language. As written, these mandates have been interpreted by carriers to cover a broad range of medically necessary claims associated with these two benefits. Thus the net new cost of each mandate may be substantially less than the full gross cost that the carriers reported. In this report, the 11 mandates in Set Two are commented upon. IC will provide two more similar reports for the rest of the mandates covered by Sets Three and Four.

#### **LIMITATIONS IN USE:**

This study was conducted by IC exclusively for the State of CT, specifically and solely as it applies to the evaluation of the eleven mandates that constitute Set Two of the forty-five mandates covered by Public Act Number 09-179. This Limitations section applies to the actuarial report. The financial / economic report included in this Set Two report is not part of the actuarial report.

I, Daniel Bailey, am Director of Actuarial Services with Ingenix Consulting. I am a fellow of the Society of Actuaries and a member of the American Academy of Actuaries, in good standing, and I meet the Qualification Standards of the American Academy of Actuaries to render the



actuarial opinion contained herein. Please contact me if you have questions. My e-mail address is [Daniel.Bailey@IngenixConsulting.com](mailto:Daniel.Bailey@IngenixConsulting.com), and my office phone is 860-221-0245.

Daniel Bailey, FSA, MAAA

A handwritten signature in cursive script that reads "Daniel Bailey".

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**APPENDIX ONE OF ACTUARIAL REPORT**

**WEIGHTED AVERAGE COST OF EACH MANDATE  
ACROSS ALL CARRIERS**

MANDATE	DESCRIPTION	GROUP				INDIVIDUAL			
		ALLOWED		PAID		ALLOWED		PAID	
		2007	2008	2007	2008	2007	2008	2007	2008
1	Mammog	\$ 2.22	\$ 2.43	\$ 2.10	\$ 2.31	\$ 1.87	\$ 2.11	\$ 1.49	\$ 1.71
2	Maternity *	\$ 1.71	\$ 1.79	\$ 1.61	\$ 1.68	\$ 1.39	\$ 1.30	\$ 1.22	\$ 1.16
3	Mastectomy *	\$ 0.08	\$ 0.09	\$ 0.07	\$ 0.08	\$ 0.07	\$ 0.07	\$ 0.06	\$ 0.06
4	Birth Control	\$ 1.85	\$ 2.03	\$ 0.99	\$ 1.10	\$ 1.55	\$ 1.82	\$ 0.67	\$ 0.85
5	Infertility	\$ 2.53	\$ 2.79	\$ 2.35	\$ 2.56	\$ 1.14	\$ 1.46	\$ 1.01	\$ 1.27
6	Autism	\$ 0.03	\$ 0.04	\$ 0.03	\$ 0.03	\$ 0.00	\$ 0.00	\$ -	\$ 0.00
7	Newborn	\$ 4.16	\$ 4.62	\$ 4.04	\$ 4.51	\$ 4.34	\$ 3.74	\$ 4.17	\$ 3.60
8	Blood Lead	\$ 0.01	\$ 0.01	\$ 0.01	\$ 0.01	\$ 0.01	\$ 0.01	\$ 0.00	\$ 0.00
9	Prescrip Food	\$ 0.15	\$ 0.22	\$ 0.14	\$ 0.22	\$ 0.06	\$ 0.08	\$ 0.06	\$ 0.07
10	Dev for Cancer	\$ -	\$ -	\$ -	\$ -	\$ 0.00	\$ 0.00	\$ -	\$ 0.00
11	Prev	\$ 1.76	\$ 1.80	\$ 1.69	\$ 1.74				
<b>TOTAL</b>		<b>\$ 14.51</b>	<b>\$ 15.83</b>	<b>\$ 13.03</b>	<b>\$ 14.24</b>	<b>\$ 10.44</b>	<b>\$ 10.60</b>	<b>\$ 8.69</b>	<b>\$ 8.73</b>

\* Estimated Net New Cost of Minimum Length of Stay Only

**APPENDIX TWO OF ACTUARIAL REPORT**

**AVERAGE COST SHARING  
ACROSS ALL CARRIERS**

MANDATE DESCRIPTION	GROUP		INDIVIDUAL	
	2007	2008	2007	2008
1 Mammog	\$ 0.12	\$ 0.12	\$ 0.39	\$ 0.39
2 Maternity *	\$ 0.09	\$ 0.11	\$ 0.17	\$ 0.14
3 Mastectomy *	\$ 0.01	\$ 0.01	\$ 0.01	\$ 0.01
4 Birth Control	\$ 0.87	\$ 0.93	\$ 0.88	\$ 0.97
5 Infertility	\$ 0.19	\$ 0.22	\$ 0.12	\$ 0.19
6 Autism	\$ 0.01	\$ 0.01	\$ 0.00	\$ 0.00
7 Newborn	\$ 0.12	\$ 0.12	\$ 0.17	\$ 0.14
8 Blood Lead	\$ 0.00	\$ 0.00	\$ 0.01	\$ 0.01
9 Prescrip Food	\$ 0.00	\$ 0.01	\$ 0.01	\$ 0.01
10 Dev for Cancer	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00
11 Prev	\$ 0.07	\$ 0.06		
<b>TOTAL</b>	<b>\$ 1.48</b>	<b>\$ 1.58</b>	<b>\$ 1.75</b>	<b>\$ 1.87</b>

\* Based on net new cost of minimum length of stay

**COST SHARING AS % OF ALLOWED CHARGES**

MANDATE DESCRIPTION	GROUP		INDIVIDUAL	
	2007	2008	2007	2008
1 Mammog	5.5%	4.8%	20.8%	18.7%
2 Maternity	5.6%	6.1%	12.0%	11.0%
3 Mastectomy	10.4%	9.2%	9.5%	15.4%
4 Birth Control	46.7%	45.8%	56.6%	53.2%
5 Infertility	7.4%	8.0%	10.8%	13.3%
6 Autism	16.6%	26.4%		
7 Newborn	2.9%	2.5%	3.8%	3.8%
8 Blood Lead	19.6%	1.3%	72.4%	70.7%
9 Prescrip Food	2.6%	2.4%	9.5%	7.4%
10 Dev for Cancer	0.0%	0.0%	0.0%	0.0%
11 Prev	3.9%	3.4%		

**APPENDIX THREE**

**Appendix to Financial / Economic Report  
Percent of Family Income Spent on Mandate Related Services  
Results of the Income - Benefit Modeling**

**Global Assumptions**

- 1 A variety of sources were used for the cost assumptions including the Carriers' data, assumptions used in the actuarial report or in the previous phase of the project, and service cost in the literature.
- 2 Calculations shown here for the high deductible plans are for group insurance. The cost burden will be higher for the individual insurance plans because the deductible levels are higher for individual insurance plans. For a broader discussion of how group plans compare to the individual plans, please see the actuarial report.

**MAMMOGRAPHY**

Assumptions:

- 1 Annual cost of two mammograms \$150 (@\$75)
- 2 High-ded plan family has not met any ded prior to this service

		BENEFIT →			
INCOME		Rich Plan (10% Mbr Share)	Member Share 20%	HD Plan	Uninsured
↓	50,000	0.03%	0.06%	0.30%	0.30%
	80,000	0.02%	0.04%	0.19%	0.19%
	160,000	0.01%	0.02%	0.09%	0.09%

**MATERNITY STAYS**

Assumptions:

- 1 Cost of an additional day in hospital is \$2089
- 2 High-ded plan family has not met any ded prior to this service

		BENEFIT →			
INCOME		Rich Plan (10% Mbr Share)	Member Share 20%	HD Plan	Uninsured
↓	50,000	0.42%	0.84%	4.18%	4.18%
	80,000	0.26%	0.52%	2.61%	2.61%
	160,000	0.13%	0.26%	1.31%	1.31%

## MASTECTOMY STAYS

Model was not used for this mandate

## PRESCRIPTION CONTRACEPTION

Assumptions:

- 1 We have assumed the Guttenmacher Institutes's \$251 figure
- 2 High-ded plan family has not met any ded prior to this service

		BENEFIT →			
INCOME		Rich Plan (10% Mbr Share)	Member Share 20%	HD Plan	Uninsured
↓	50,000	0.05%	0.10%	0.50%	0.50%
	80,000	0.03%	0.06%	0.31%	0.31%
	160,000	0.02%	0.03%	0.16%	0.16%

## INFERTILITY

IUI Treatment

Assumptions:

- 1 Cost of an IUI cycle is \$865.
- 2 High-ded plan family has not met any ded prior to this service

		BENEFIT →			
INCOME		Rich Plan (10% Mbr Share)	Member Share 20%	HD Plan	Uninsured
↓	50,000	0.17%	0.35%	1.73%	1.73%
	80,000	0.11%	0.22%	1.08%	1.08%
	160,000	0.05%	0.11%	0.54%	0.54%

IVF Treatment

Assumptions:

- 1 Cost of an IVF cycle is \$1,240.
- 2 High-ded plan family has not met any ded prior to this service

BENEFIT →



INCOME		Rich Plan (10% Mbr Share)	Member Share 20%	HD Plan	Uninsured
↓	50,000	2.48%	4.96%	8.56%	24.80%
	80,000	1.55%	3.10%	5.35%	15.50%
	160,000	0.78%	1.55%	2.68%	7.75%

## AUTISM

Assumptions:

- 1 Annual cost of service is \$600.
- 2 High-ded plan family has not met any ded prior to this service

BENEFIT →

INCOME		Rich Plan (10% Mbr Share)	Member Share 20%	HD Plan	Uninsured
↓	50,000	0.12%	0.24%	1.20%	1.20%
	80,000	0.08%	0.15%	0.75%	0.75%
	160,000	0.04%	0.08%	0.38%	0.38%

## NEWBORN

Model was not used for this mandate

## BLOOD LEAD SCREENING

Model was not used for this mandate

## PRESCRIPTION FOOD

Assumptions:

- 1 Annual cost of food supplies is \$4,000.
- 2 High-ded plan family has not met any ded prior to this service
- 3 For this mandate 30% member share was used as copays are generally higher for pharmacy benefits

BENEFIT →

INCOME		Rich Plan (10% Mbr Share)	Member Share 30%	HD Plan	Uninsured
↓	50,000	0.80%	1.60%	5.55%	8.00%

80,000	0.50%	1.00%	3.47%	5.00%
160,000	0.25%	0.50%	1.73%	2.50%

**DEV NEEDS OF CHILDREN WITH CANCER**

Model was not used for this mandate

**PREVENTIVE CARE**

Assumptions:

- 1 Annual cost of office visits and other services is \$600.
- 2 High-ded plan family has not met any ded prior to this service

		BENEFIT →			
INCOME		Rich Plan (10% Mbr Share)	Member Share 20%	HD Plan	Uninsured
↓	50,000	0.28%	0.56%	2.80%	2.80%
	80,000	0.18%	0.35%	1.75%	1.75%
	160,000	0.09%	0.18%	0.88%	0.88%

# Appendix III

## Index of Health Insurance Mandates



# INDEX OF MANDATES

<b>Volume I</b>	
Chapter	Description
1	Diabetes Self Management Training
2	Prostate Cancer Screening
3	Ostomy-Related Supplies
4	Hearing Aids for Children Twelve and Under
5	Craniofacial Disorders
6	Inpatient, Outpatient or One-day Dental Services
7	Diabetes Testing and Treatment
8	Birth to Three Program
9	Lyme Disease Treatments
10	Colorectal Cancer Screening
11	Tumors and Leukemia

<b>Volume II</b>	
Chapter	Description
1	Mammography and Breast Ultrasound
2	Maternity Minimum Stay
3	Mastectomy or Lymph Node Dissection Minimum Stay
4	Prescription Contraceptives
5	Infertility Diagnosis and Treatment
6	Autism Spectrum Disorder Therapies
7	Coverage for Newborn Infants
8	Blood Lead Screening and Risk Assessment
9	Preventive Pediatric Care and Blood Lead Screening
10	Low Protein Modified Food Products, Amino Acid Modified Preparations and Specialized Formulas
11	Neuropsychological Testing for Children Diagnosed with Cancer

# INDEX OF MANDATES

<b>Volume III</b>	
Chapter	Description
1	Psychotropic Drug Availability
2	Mental or Nervous Conditions
3	Accidental Ingestion or Consumption of Controlled Drugs
4	Denial of Coverage Prohibited for Health Services to People with Elevated Blood Alcohol Content
5	Treatment of Medical Complications of Alcoholism
6	Occupational Therapy
7	Services of Physician Assistants and Certain Nurses
8	Services Provided by the Veterans' Home
9	Direct Access to OB/GYNs
10	Chiropractic Services

<b>Volume IV</b>	
Chapter	Description
1	Experimental Treatments
2	Off-label Use of Cancer Drugs
3	Cancer Clinical Trials
4	Hypodermic Needles and Syringes
5	Prescription Drugs Removed from Formulary
6	Home Health Care
7	Ambulance Services
8	Prescription Drug Coverage/Mail Order Pharmacies
9	Copayments Regarding In-Network Imaging Services
10	Comprehensive Rehabilitation Services (mandatory offer)
11	Mobile Field Hospital
12	Pain Specialist
13	Maternity Benefits and Pregnancy Care Following Policy Termination







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