DHCFP

Comprehensive Review of Mandated Benefits in Massachusetts

Report to the Legislature

July 7, 2008

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Executive Summary

Background

Chapter 58 of the Acts of 2006, An Act Promoting Access to Affordable, Quality, Accountable Health Care, contained a provision that the Massachusetts Division of Health Care Finance and Policy (the Division) provide a comprehensive review of mandated health benefits in effect on January 1, 2006. This report provides an analysis of the cost and clinical efficacy of the 26 mandated benefits in Massachusetts in effect on that date.

Mandated benefits are laws passed by states, and in specific instances by the federal government, in order to require state licensed health insurance plans to include selected health care benefits in their coverage plans. Mandated benefits laws can achieve a number of important public policy goals:

- **Promote access to important health services that insurers and purchasers may undervalue and/or that have positive impacts on the public's health:** Some mandated benefits laws, such as maternity, which is required under both state and federal law, cover the cost of care. Insurers historically did not consider pregnancy an "insurable event" because it was viewed as a "predictable" expense rather than an unpredictable and high-cost service more appropriately financed by insurance. Other mandates, such as preventive care for children, have positive externalities in that they provide benefits not only to the children who receive the services, but to society generally.

- **Mitigate adverse risk selection:** Other mandated benefits laws, such as coverage for diabetes-related services and supplies, help to protect insurers against adverse risk selection. If such services were optional and one health insurer covered them while others did not, the insurer that provided coverage would likely attract more consumers with diabetes, resulting in higher expenses for that insurer and its members.

- **Reduce cost shifting to government programs:** When critical benefits are not covered by health insurers, the associated expenses are often covered through publicly subsidized programs. For example, state mental health and substance abuse treatment programs often wrap around private insurance coverage. In another example, when maternity care was not covered, the state developed programs to cover maternity care for low-income, otherwise insured women.

It can, however, be a challenge for mandated benefits laws to keep apace with evolving clinical standards of care. For example, bone marrow transplant for women with metastatic breast cancer

was not found to be an effective treatment. The state should consider establishing expert review panels to assess the efficacy of emerging or new technology before mandating coverage. In addition, mandated benefits laws need to be reevaluated regularly to ensure they remain relevant.

Although mandated benefits provide protections for insured populations, they may also impact the ability of health insurers to offer affordable health care coverage options. The broad scope of Massachusetts' landmark health reform law prompted discussion about the characteristics of minimum health benefit packages that would strike a balance between affordable health care coverage and protection of key benefits. This study is intended to help inform this discussion by providing information about the cost and medical efficacy of Massachusetts mandated benefits.

Methodology

The Division contracted with Compass Health Analytics, Inc., an economics and actuarial firm, to complete the cost analysis portion of the study. Compass worked with claims obtained from four major health plans that provide health coverage in Massachusetts (Blue Cross Blue Shield of Massachusetts, Fallon Community Health Plan, Harvard Pilgrim Health Care, and Tufts Health Plan), are subject to mandated benefit laws, and provide insurance to approximately 70% of people who are covered in the fully-insured commercial market in Massachusetts. These health plans provided claims data, participated in the development and review of the analytic methodology used to perform the study, and provided feedback on the actuarial analysis.

In order to make the best use of available resources, the Division's study workgroup (comprised of representatives from the Division, health plans and Compass) categorized Massachusetts mandated benefits into two groups and designed a separate research methodology for each. The 13 mandates in the first group were each analyzed using claims data from each of the four health plans (primary data). These mandates met one or more of the following criteria:

- The mandate required benefits judged by the study group as likely to be reduced or eliminated if the mandate were repealed;
- The mandate covered benefits that were judged to be currently clinically relevant (and in some cases controversial, e.g., hormone replacement therapy) and being drawn on and paid for by the plans; and
- The services related to the mandate could be readily identified and extracted from claims history files.

Table 1
Mandates in Primary Data Analysis

Chiropractic services
Contraceptive services
Diabetes-related services and supplies
Early intervention services
Home health care
Hormone replacement therapy (HRT)
Human leukocyte antigen testing (HLA)

Infertility treatment
Low protein food products for inherited amino acid and organic acid diseases (PKU)
Mental health care
Nonprescription enteral formulas
Scalp hair prostheses for cancer patients
Speech, hearing, and language disorders

The remaining 13 mandates were analyzed using data available in the research literature (secondary data). These mandates were identified for this research approach because they were:

- Benefits that the plans would likely provide regardless of the mandate law (due to proven cost-effectiveness and/or demand from members and/or redundancy with federal mandates),
- Mandates that had become clinically obsolete, or
- Mandates that were difficult to measure because obtaining the required utilization information would be technically unfeasible.

Table 2
Mandates in Secondary Data Analysis

Alcoholism rehabilitation
Bone marrow transplants for treatment of breast cancer
Cardiac rehabilitation
Clinical trials for treatment of cancer
Cytologic screening (Pap smear)
Hearing screening for newborns
Hospice care
Lead poisoning screening
Mammography
Maternity health care (including minimum maternity stay)
Preventive care for children up to age six (including specific newborn testing)
Off-label uses of prescription drugs to treat cancer
Off-label uses of prescription drugs to treat HIV/AIDS

Findings

Total spending on the mandated benefits was $1.32 billion, or 12% of premiums. For the one-year study period (July 1, 2004 through June 30, 2005), total spending associated with the benefits described in the 26 mandated benefit laws was approximately $1.32 billion for the three million people covered by fully-insured plans. This represents approximately 12% of total health insurance premiums paid.

A few mandates account for most of the spending. Five mandates—maternity, mental health, home health, preventive care for children, and infertility services—account for 80% of the total cost of the mandated benefits ($1.07 billion, or 10% of premiums).

The true *net* cost impact of mandated benefits is likely significantly lower (in the range of 3-4% of premiums) because of federal laws and the likely behavior of insurers and employers in the absence of state mandates. A more accurate estimate of the actual costs of the mandates would be the *marginal* costs, or those costs that would not have been incurred in the absence of the state mandates. This cost would be the total spending on care associated with the mandated benefits less the cost of benefits that would have been offered even without the legal requirement imposed by the mandates. It is impossible to accurately predict the behavior of commercial or self-insured plans in the absence of mandates, especially in the dynamic health care market shaped by Massachusetts' innovative health reform law. However, there is reasonable evidence that the marginal costs are significantly lower than the total spending estimate of $1.32 billion.

There are two reasons why the marginal costs of Massachusetts mandates are likely to be lower than the total spending associated with the mandated benefits. First, the federal government also mandates some benefits that are mandated by the Commonwealth. Therefore, the plans would need to offer these benefits even if the Massachusetts laws were not in force. As a result, the marginal cost of the corresponding Massachusetts mandate law to the Massachusetts health care system would be zero. For example, one-third of the total spending on Massachusetts mandates ($402 million) is for one of the mandated benefits required by federal law: maternity care. Since health insurance policies are required to provide this benefit in the absence of the state mandate, the incremental cost of the state mandated benefit is actually much lower than $1.32 billion. Excluding the costs of maternity care, the total spending on the other mandated benefits is about $916 million, or 8.5% of premiums. Similarly, though less comprehensive than the existing state mandate, a federal mandate exists for mental health services, and therefore, also would reduce the estimate of the marginal cost of the existing Massachusetts mental health mandate.

The second reason why the marginal costs of mandates are likely to be significantly lower is that plans would offer some of these benefits even in the absence of state or federal mandates. For example, it is unlikely that plans would choose not to cover popular benefits such as mental health care (as noted, also subject to a federal mandate) or diabetes care. Review of the cost information collected in the study suggests that significant benefits might be offered in the absence of the mandates, and that as a result, the marginal cost is significantly less than the total spending associated with the mandated benefits.

The estimate of the marginal cost of the health insurance mandates ranges from a lower-bound estimate of $132M (1.2% of the average premium) to an upper-bound estimate of $687M (6.4% of the average premium). For both estimates, the marginal costs for the 13 mandates assigned to the secondary data analysis group were estimated to have a marginal cost of near zero because these benefits would: likely be provided by the plans in the absence of the mandate due to their proven cost-effectiveness and/or demand from members; be provided due to similar federal mandates, which require health plans to cover such services; or have zero net direct costs due to the fact that the benefit is clinically obsolete, and therefore, would have no utilization even if the benefit were mandated.

For the group of 13 mandates analyzed utilizing health plan claims data (the primary data analysis group), estimates of their marginal cost impact were derived by analyzing health spending associated with the mandated benefits by self-insured accounts administered by some of the health plans that participated in this study. These self-insured accounts are not subject to the mandated benefit laws. The lower-bound methodology for this group assumed that the difference between the self-insured and the fully-insured spending represents the marginal costs associated with the mandates. The marginal cost impact estimated using this methodology was $132M. That is, spending for these benefits in the self-insured plans (which are not subject to the state mandate laws) was 81% of the level in the fully-insured plans where the spending was $687M. The upper-bound methodology assumed that the self-insured plans would not offer these benefits at all, and therefore would have zero costs for them rather than the 81% of mandated levels that they actually spent.

Therefore, the marginal costs associated with the mandated benefits – or the net cost impact – can be estimated as the marginal costs of the primary mandates and could be as low as the $132M lower bound and is likely to be no higher than the estimated $687M total direct costs of the primary mandated benefits, a range of 1.2% to 6.4% of the average premium.

While the range is relatively wide, the actual cost impact of the 26 health insurance mandates is likely to be somewhere in the middle part of the range. Since self-insured employers must compete in the labor market with fully-insured employers whose health insurance policies must include the mandated benefits, self-insured benefits are likely to be significantly influenced by the presence of the mandate laws and the laws' effect on benefit structures at competing, fully-insured employers. Therefore, it is likely that the 1.2% of premium marginal cost estimate understates the true impact of the mandated benefits laws. At the same time, it is unlikely that popular or cost-effective benefits like mental health and diabetes care would be completely removed from policies if the mandate laws were not in place, making 6.4% of premium a likely overstatement of the impact. Based on the foregoing discussion, mid-range estimates in the three to four percent of premium range (roughly $300 million to $400 million annually) may be a reasonable estimate of the mandate laws' marginal impact on health care costs directly associated with the covered benefits described in the laws.

The literature reviewed with respect to the efficacy of the mandated benefits suggests that most of the mandates appear to be cost-effective. **However, it may be appropriate to consider removing mandates for benefits that are no longer the standard of care, such as bone marrow transplants for breast cancer.**

Given the constantly evolving nature of clinical care, some states have decided that the medical efficacy of mandated benefits should be regularly examined. The Massachusetts General Court, particularly in the era of health reform, may decide that regular reviews of mandated benefits for ongoing clinical efficacy would help ensure that appropriate protections are offered to Massachusetts residents while reducing unnecessary additional premium costs associated with benefits that are no longer deemed clinical necessary or effective.

Estimated Annual Spending on Mandated Benefits, 2004-2005
(sorted by total annual spending)

Mandate	Claims costs PMPM (Required Direct Cost Claims)	Claims + Administration PMPM (Required Direct Cost PMPM w/Admin)	Percent of Premium	Total Annual Spending (000s) (Required Direct Annual Cost Total)
Maternity care (including minimum maternity stay)	$9.61	$11.18	3.73%	$402,071
Mental health	$5.70	$6.63	2.21%	$238,576
Home health	$4.98	$5.80	1.93%	$208,536
Preventive care for children up to age six (including specific newborn testing)	$2.89	$3.36	1.12%	$120,745
Infertility	$2.31	$2.68	0.89%	$96,469
Diabetes supplies and services	$1.28	$1.49	0.50%	$53,507
Contraception	$1.14	$1.33	0.44%	$47,756
Cytologic screening (Pap smear)	$1.07	$1.25	0.42%	$44,923
Mammography	$0.99	$1.15	0.38%	$41,262
Early intervention	$0.98	$1.14	0.38%	$41,033
Chiropractic services	$0.31	$0.36	0.12%	$12,806
Hospice care	$0.16	$0.18	0.06%	$6,648
Lead poisoning screening	$0.14	$0.16	0.05%	$5,894
HRT	$0.14	$0.16	0.05%	$5,824
Cardiac rehabilitation	$0.10	$0.11	0.04%	$4,099
Clinical trials for treatment of cancer	$0.07	$0.08	0.03%	$2,907
HLA	$0.09	$0.10	0.03%	$3,633
Hearing screening for newborns	$0.05	$0.06	0.02%	$2,152
Speech/Hearing	$0.03	$0.03	0.01%	$1,160
Nonprescription	$0.02	$0.02	0.01%	$814
Low protein	$0.01	$0.01	0.00%	$336
Scalp hair prostheses	$0.01	$0.01	0.00%	$263
Alcoholism rehabilitation	-	-	0.00%	-
Bone marrow transplants for treatment of breast cancer	-	-	0.00%	-
Off-label uses of prescription drugs to treat cancer	-	-	0.00%	-
Off-label uses of prescription drugs to treat HIV/AIDS	-	-	0.00%	-
GRAND TOTAL*	**$31.50**	**$36.62**	**12.2%**	**$1,320,000**

*Overlapping coverage between mandates has been removed from the total.

A. Introduction

1. Purpose of Report

Massachusetts Chapter 58, An Act Promoting Access to Affordable, Quality, Accountable Health Care, contained a provision that the Massachusetts Division of Health Care Finance and Policy provide a comprehensive review of mandated health benefits in effect on January 1, 2006. Specifically, Section 127 of Chapter 58 of the Acts of 2006 required that:

> It shall be the policy of the general court to impose a moratorium on all new mandated health benefit legislation until the latter of either January 1, 2008, or until the division of health care finance and policy has concluded review of, and published results from, a comprehensive review of mandated health benefits in effect on January 1, 2006.

This report provides the required analysis of the cost and clinical efficacy of the 26 mandated benefits in Massachusetts in effect on January 1, 2006.

2. Definition and Overview of Mandated Benefits

Health insurance mandates, often called mandated benefits, are regulations issued by states, and in specific instances by the federal government, that require state licensed group health insurance plans to include selected health care benefits in their coverage options.[1] In addition to the federal mandates, every state has its own list of mandates regulating coverage of health benefits, in some cases the availability of selected providers, or the extent of available coverage. As a result, there is great variability across states in the number and type of benefits mandated.[2] In Massachusetts, the range of group health insurance plans provided by commercial insurers, Blue Cross Blue Shield, and health maintenance organizations (HMOs) are subject to the state's General Laws that govern mandated benefits.[3] As of January 1, 2006, Massachusetts mandated 26 benefits. Since that time, two additional mandates were added; however, they were not included in this analysis as they were outside the scope of this report, the purpose of which was to analyze all mandates in effect on January 1, 2006.

Until the last decade, most decisions about mandated benefits were left to the states. Insurance mandates do not apply to governmental payers, and self-insured employers are generally exempt from mandated benefits under the Employee Retirement Income Security Act (ERISA).[4] A recent Supreme Court decision, however, indicates that states may have some authority to override ERISA.[5] In addition, four federally mandated benefits override the ERISA exemption on mandated benefits for self-insured employers.[6] These federal laws include:

- The Pregnancy Discrimination Act of 1978, which requires the same level of coverage for pregnancy as other medical conditions;
- The Newborns and Mothers Health Protection Act of 1996, which requires health insurers to cover a minimum number of hospital days after childbirth;
- The Mental Health Parity Act of 1996, which requires the same annual or lifetime dollar limits for mental health benefits as other health benefits;

- The Women's Health and Cancer Rights Act of 1998, which requires coverage of breast reconstruction after mastectomies.

Health plans are mandated to meet these minimum benefit requirements, although many states, including Massachusetts, require plans to offer additional benefits.

3. Policy Issues

During the 1990s there was a proliferation in the number of state mandated benefit laws, possibly in response to the growth of managed care plans.[7] Proponents of mandated benefits argue that mandating coverage of specific benefits ensures that individuals covered by employer-sponsored health insurance have access to benefits that their employers might otherwise choose not to cover.[8] Those in favor of mandated benefits have also argued that mandated benefits ensure that selected health care professions, as well as those that provide related services, have access to reimbursement for their services.

Detractors argue that mandated benefits increase the overall costs of health insurance, forcing some employers to either stop offering coverage altogether or limit employment opportunities in order to minimize health care costs.[9] Those against mandated benefits have also argued that because labor is a competitive market, employers would likely offer comparable health benefit packages in order to attract employees; thus, mandated benefits are not needed since employers would likely provide the coverage for popular benefits without a mandate in place.[10] Interestingly, research has not shown that employers are more likely to become self-insured as a response to mandated benefits.[11]

B. Methods

1. Overview

The report comprises an analysis of the cost and clinical efficacy of 26 mandated benefits in Massachusetts. The Division contracted with Compass Health Analytics, Inc. (Compass), an economics and actuarial firm, to complete the cost analysis portion of the study. To complete the analysis of the clinical efficacy of mandated benefits, Division staff conducted a thorough review of available medical literature for each benefit. Specific details about the methodology used in the analysis are in the Appendix, which contains the full Compass report.

To conduct its cost analysis, Compass worked with claims obtained from four major health plans that provide health care coverage in Massachusetts, are subject to mandated benefit laws, and represent about 70% of the fully-insured commercial market in Massachusetts. The plans included were:

- Blue Cross Blue Shield of Massachusetts
- Fallon Community Health Plan
- Harvard Pilgrim Health Care
- Tufts Health Plan

The Massachusetts Association of Health Plans (MAHP) provided assistance with coordination and communication among its participating member plans.

The health plans provided claims data, participated in the development and review of the analytic methodology used to perform the study, and provided feedback on an earlier draft of the actuarial analysis. Government relations staff at each plan served as members of a workgroup developed to guide the analysis. In addition, a variety of other health plan staff also participated in the project, including medical directors, other clinical experts, actuarial staff, and data management and analysis staff.

In order to make the best use of available resources, the study workgroup categorized Massachusetts mandated benefits into two groups based on the type of data used to measure its cost impact. A group of 13 mandates underwent primary data analysis using claims data provided by each of the four health plans. The remaining 13 mandates underwent a secondary data analysis, which relied on data from secondary sources such as published studies.

The mandates included in the primary data analysis were considered for this type of analysis because each met one or more of the following criteria:

- The mandate required benefits, which the workgroup participants felt were likely to be reduced or eliminated if the mandate were to be repealed;
- The mandate covered benefits, which were judged to be currently clinically relevant (and in some cases controversial, e.g., hormone replacement therapy) and being drawn on and paid for by the plans; and
- The services related to the mandate could be readily identified and extracted from claims history files.

The mandates included in the primary data analysis group are shown in Table 1.

Table 1
Mandates in Primary Data Analysis

Chiropractic services
Contraceptive services
Diabetes-related services and supplies
Early intervention services
Home health care
Hormone replacement therapy (HRT)
Human leukocyte antigen testing
Infertility treatment
Low protein food products for inherited amino acid and organic acid diseases (PKU)
Mental health care
Nonprescription enteral formulas
Scalp hair prostheses for cancer patients
Speech, hearing, and language disorders

For the remaining mandates, the workgroup decided that it was not worthwhile to analyze claims to determine the costs of the benefits. These remaining 13 mandates were included in the secondary data analysis because they were:

- benefits that the plans would likely provide regardless of the mandate law (due to proven cost-effectiveness, demand from members and/or redundancy with federal mandates),
- mandates that had become clinically obsolete, or
- mandates that were difficult to measure because obtaining the required utilization information would be technically unfeasible because the benefit was not distinguishable from other covered benefits.

The mandates that were included in the secondary data analysis and the reason why the workgroup decided to include them in the secondary data analysis instead of the primary data analysis are shown in Table 2.

Table 2
Mandates in Secondary Data Analysis

Alcoholism rehabilitation
Bone marrow transplants for treatment of breast cancer
Cardiac rehabilitation
Clinical trials for treatment of cancer
Cytologic screening (Pap smear)
Hearing screening for newborns
Hospice care
Lead poisoning screening
Mammography
Maternity health care (including minimum maternity stay)
Preventive care for children up to age six (including specific newborn testing)
Off-label uses of prescription drugs to treat cancer
Off-label uses of prescription drugs to treat HIV/AIDS

2. Primary Data Analysis

The primary data analysis was based on claims extract data from the four participating health plans, which provide coverage to approximately 70% of the fully-insured, non-ERISA covered population in Massachusetts. Specifically, the data include claims from the one-year period beginning July 1, 2004 and ending June 30, 2005 for Massachusetts residents under age 65 with health insurance subject to health benefit mandate laws. The population enrolled in these four health plans was an estimated 2.079 million Massachusetts residents, or 69.3 % of the estimated 2.998 million total average Massachusetts fully-insured commercial health plan membership that year.[12]

Per-member per-month (PMPM) costs were calculated based on the claims data and an estimate of the administrative load (the additional costs over and above health care claims required to administer the health plan, set at 14%) was added to these PMPM estimates.[13] These estimated premium amounts were calculated as an approximate percentage of health care premiums in Massachusetts by assuming that the average premium during the 2004-2005 data period was $300 PMPM. This average was within the range of estimates produced by reviewing Best's Summary of Annual Statements and data provided by the MAHP.

Cost estimates used in the primary data analysis assume that the PMPM costs obtained from the four participating plans are representative of the overall fully-insured commercial under age 65 population. Therefore, total costs in the health care system associated with the mandated

benefits were computed by multiplying the loaded PMPM estimates by the estimated number of persons in the Commonwealth subject to these mandates (2.998 million Massachusetts residents).

3. Secondary Data Analysis

To estimate the cost of the mandates analyzed using secondary data sources, the following methodology was used:

- Estimates were produced for the same under age 65, commercial, fully-insured Massachusetts population analyzed for the primary data analysis mandates discussed above;
- Literature and internet sources were drawn upon to estimate the cost of each mandate;
- Total cost PMPM and percent of premium estimates were calculated for each mandate and adjustments were made to make the estimate applicable to the relevant population. For example, if a national commercial population estimate was available and deemed to be reasonably applicable to Massachusetts, the national per person rate was applied to the number of persons in the under age 65 commercial fully-insured population in Massachusetts; and,
- The enabling statutory language for each mandate was adhered to as closely as possible given the limitations of the study approach.

Using these data sources, PMPM costs were calculated for each mandated benefit and an administrative load of 14% was added on, similar to the primary data analysis. In addition, similar to the primary data analysis, the estimated costs were calculated as a percentage of average premiums (i.e., $300 PMPM).

Secondary mandate analyses were dependent on the data available, which meant that most secondary mandate cost estimates drew on data sources that did not specifically relate to the fully-insured population in Massachusetts. As a result, data from broader populations (e.g., Massachusetts statewide) were adjusted to the sub-population using population estimates drawn from a number of sources, including Census Bureau data and a model of the Massachusetts insured population developed by Compass for its work for the Division. More information about the methodology used for the secondary analysis is provided in the Appendix.

4. Costs Used in Data Analysis

The study estimates health care costs only for that part of the population in Massachusetts with health insurance subject to health benefit mandate laws, i.e., with coverage in fully-insured commercial products regulated by the Massachusetts Division of Insurance. The costs associated with mandated benefits were conceptualized as falling into the following categories:

- Total direct costs: costs associated with the utilization of services explicitly described in the mandate law (referred to as "required direct costs" in the attached Appendix),
- Base direct costs: costs associated with the utilization of mandated services that would be covered in the absence of the mandate,
- Marginal direct costs: costs associated with the utilization of mandated services that would *not* be covered in the absence of the mandate, and

- Indirect costs: Costs associated with services provided subsequent to and as a result of the provision of the mandated benefit (e.g., costs of additional births associated with fertility treatment) or costs avoided as a result of services delivered due to the mandated benefit (e.g., costs avoided due to the provision of preventive services such as diabetes related care).

Total direct costs were estimated using claims extracts provided by the plans (for the primary data analysis) and using published studies and other national and statewide databases (for the secondary data analysis).

To estimate the marginal direct costs in the primary data analysis, Compass examined a large dataset of summary-level costs associated with self-insured products since those plans are not subject to the state mandates. Caution should be taken when considering the behavior of self-insured plans as a proxy for estimating the marginal costs because self-insured employers operate within a competitive labor market where they are competing with firms offering fully-insured coverage subject to the mandates. Marginal direct costs for the mandates included in the secondary data analysis were assumed to be near zero due to those benefits being included in the secondary analysis because they were likely to be covered by the health plans in the absence of the mandate or because they were clinically obsolete.

Indirect costs are difficult to calculate given the inability to identify services and associated costs added or avoided solely due to the provision of the mandated benefits. Therefore, this analysis does not attempt to estimate the indirect costs and indirect savings, but instead focuses on estimating total costs and marginal costs.

C. Results

1. Overview

Total direct costs of the 26 mandated benefits in 2004-2005 were approximately $1.32 billion for the 2.998 million people covered by fully-insured plans. This represents about 12% of total premium paid. Five mandates—maternity, mental health, home health, preventive care for children and infertility services—account for 80% of the total cost of the mandated benefits ($1.07 billion). One-third of the total cost ($402 million) is for one of the mandated benefits required by federal law: maternity. Since health insurance plans must provide this benefit in the absence of any state mandates, the incremental cost of the state mandated benefit is actually much lower than $1.32 billion. Excluding the costs of maternity care, the total direct cost of the other mandated benefits is about $916 million, or 8.5% of premiums. In addition, it is unlikely that plans would not cover popular benefits such as mental health care (estimated at 2.2% of premium), which is also subject to a federal mandate—or diabetes care—in the absence of the mandates.

It is important to note, that the total direct cost may not accurately reflect the true system costs of mandated benefits. It could be argued that a more accurate estimate of the actual costs of the mandates are the marginal direct costs or those costs that would not have been incurred in the

absence of the mandates and net of the cost of benefits that would have been offered even without the legal requirement imposed by the mandates.

A lower bound for marginal direct costs for the primary mandates was estimated by using a large dataset of summary-level costs associated with these benefits, which were provided under the self-insured accounts administered by some of the plans that participated in this study. These self-insured accounts are not subject to the mandated benefit laws. The methodology assumed that the difference between the self-insured and the fully-insured total direct costs represents the marginal direct costs associated with the mandates. The marginal impact estimated using this methodology was $132M or 19% of the $687M for the primary mandated benefits.

To fully understand the marginal cost impact of mandated benefits, a more comprehensive study would be required to control for several variables that might impact this estimate. Currently, self-insured plans face some pressure to offer mandated benefits in order to compete in the same market as fully-insured commercial plans. It is impossible to accurately predict the behavior of self-insured or commercial plans in the absence of mandates, especially in the dynamic health care market shaped by Massachusetts' innovative health reform strategy.

The marginal direct costs for the secondary mandates were estimated to have a lower bound of near zero because in most cases these benefits would either:

1) likely be provided by the plans in the absence of the mandate due to their proven cost-effectiveness and/or demand from members; or

2) be provided due to similar federal mandates, which require health plans to cover such services; or

3) have zero net direct costs due to the fact that the benefit is clinically obsolete, and therefore, would have no utilization even when it is mandated.

Therefore, the marginal direct costs associated with the mandated benefits—or the net cost impact—could be as low as $132M and is likely to be no higher than the estimated $687M total direct costs of the primary mandated benefits, a range of 1.2% to 6.4% of the average premium. Table 3 displays the medical costs in the fully-insured population for each percent of premium in this range.

Table 3
Cost Implications of Impact Assumptions

Percent of Premium	PMPM	Dollars (millions)
1%	$3.00	$108
2%	$6.00	$216
3%	$9.00	$324
4%	$12.00	$432
5%	$15.00	$540
6%	$18.00	$648
7%	$21.00	$756

While the range in Table 3 is relatively wide, and the scope of this study does not allow an empirical basis for narrowing the range, the actual direct cost impact is likely to be somewhere in the middle part of the range. As self-insured employers must compete in the labor market with fully-insured employers whose health insurance policies must include the mandated

benefits, self-insured benefits are likely to be significantly influenced by the presence of the mandate laws and the laws' effect on benefit structures at competing, fully-insured employers. Therefore, it is likely that the 1.2% of premium marginal cost estimate understates the true impact of the mandated benefits laws. At the same time, it is unlikely that popular or cost-effective benefits like mental health and diabetes care would be completely removed from policies if the mandate laws were not in place, making 6.4% of premium (which assumes all costs of the 13 mandates in the primary data analysis group are marginal direct costs) a likely overstatement of the impact. Based on the foregoing discussion, mid-range estimates in the three to four percent of premium (roughly $300 million to $400 million annually) range, while not empirically supported, may be a reasonable estimate of the mandate laws' marginal impact on health care costs directly associated with the covered benefits described in the laws.

The literature reviewed with respect to the efficacy of the mandated benefits suggests that the primary mandates appear to be cost-effective. Among the secondary set of benefits, it may be appropriate to consider removing mandates for benefits that are no longer standard of care, such as bone marrow transplants for breast cancer.

2. Primary Total Direct Cost Data Analysis Results

Results of the primary total direct cost data analysis are provided below, in the order of their impact on PMPM costs, starting with the mandated benefit that had the greatest total direct cost (mental health) and ending with the mandate that had the lowest total direct cost (scalp hair prostheses). Table 3 shows a summary of the total direct costs and utilization associated with each of the mandates based on the claims analysis of primary data as described above. More specific information about the cost of each benefit is in the Appendix.

Table 4
Annual Total Direct Cost* Summary of Primary Data Mandates
Based on 2004-2005 Data

Mandate	Units per Thousand Members	Estimated Penetration Rate	Required Direct Cost Claims PMPM	Required Direct Cost PMPM w/ Admin	Percent of Premium	Required Direct Annual Cost Total Dollars (000s)
Chiropractic services**	N/A	N/A	$0.31	$0.36	0.12%	$12,806
Contraception	709	10.55%	$1.14	$1.33	0.44%	$47,756
Diabetes	366	2.34%	$1.28	$1.49	0.50%	$53,507
Early intervention	791	0.95%	$0.98	$1.14	0.38%	$41,033
Home health	4,580	8.07%	$4.98	$5.80	1.93%	$208,536
HRT	98	1.75%	$0.14	$0.16	0.05%	$5,824
HLA	87	0.08%	$0.09	$0.10	0.03%	$3,633
Infertility	116	1.21%	$2.31	$2.68	0.89%	$96,469
Low protein	15	0.01%	$0.01	$0.01	0.00%	$336
Mental health	793	6.66%	$5.70	$6.63	2.21%	$238,576
Nonprescription	23	0.00%	$0.02	$0.02	0.01%	$814
Scalp hair prostheses**	N/A	N/A	$0.01	$0.01	0.00%	$263
Speech/ Hearing	4	0.07%	$0.03	$0.03	0.01%	$1,160
TOTAL***	N/A	N/A	$16.42	$19.09	6.36%	$686,650

* Total direct cost measures the expenditures for the benefit described in each mandate but does not remove from this cost the amount that would be provided in the absence of a legal mandate, and thus does not represent the net cost impact of the mandate law.
** Chiropractic and Scalp Hair Prostheses were analyzed using previously prepared studies based on 2003 data.
*** Overlapping coverage between mandates has been removed from the total.

a. Mental Health

The mental health care mandate requires insurers to "provide mental health benefits on a nondiscriminatory basis…for the diagnosis and treatment of"[14] a range of biologically-based disorders, such as schizophrenia or obsessive-compulsive disorder.[15] Coverage is also mandated for rape-related mental or emotional disorders for "victims of a rape or victims of an assault with intent to commit rape"[16] as well as non-biologically-based mental, behavioral, or emotional disorders in children and adolescents ages 18 and under that significantly limit or impair their ability to function.[17] The mandate specifies that the health insurers must pay for "a range of inpatient, intermediate, and outpatient services"[18] that constitute "medically necessary and active and non-custodial treatment for said mental disorders to take place in the least restrictive clinically appropriate setting."[19] For patients with all other mental illnesses not mentioned in the mandate, health insurers must cover at least 60 days of inpatient treatment per year and 24 outpatient visits per year for the diagnosis and treatment of their illness.[20]

To estimate the impact of this benefit mandate on PMPM costs, claims were identified for mental health procedures and psychoactive pharmaceuticals incurred by members with a diagnosis for one of the specified disorders during the study period. Total estimated required direct cost (RDC) claims PMPM was $5.70, with a total PMPM of $6.63 (or 2.21% of the total average premium after administrative loading).

Numerous studies attribute the increase in costs related to mental health services to the growth in the number of people receiving appropriate treatments for their mental illnesses.[21] Since the 1990s, practice patterns for mental health care have changed, and service delivery for mental health providers has shifted from more costly inpatient to less costly primary care settings.[22] Attempts to rein in mental health costs by limiting mental health benefits have proven to be ineffective; a 1999 study found that the expected savings from a reduction of mental health services were offset by both the increased use of non-mental health services and the increase in sick days among those who would otherwise use services if they were available.[23] A recent Institute of Medicine (IOM) report on mental health care concludes that, "Overall, research is increasingly demonstrating that [appropriate, high-quality] care for M/SU [mental and substance use] problems and illness is both effective (it works) and cost-effective (it is a good value)."[24]

b. Home Health Care

The home health care mandate requires that health plans cover "expenses arising from the provision of home health care services,"[25] which are defined as "health care services for a patient provided by a [qualified] public or private home health agency…in a patient's residence;… [where] such residence is neither a hospital nor an institution primarily engaged in providing skilled nursing or rehabilitation services."[26] The RDC for this mandate was calculated as all claims for all procedures where the place of service indicated on the claim was the patient's residence. Total estimated RDC home health claims PMPM was $4.98, with a total PMPM of $5.80 (or 1.93% of the total premium after administrative loading.)

Home health services include nursing, therapies, and a range of other services.[27] Home health care has been found to be cost-effective in a variety of scenarios. In the best case scenario (which included high savings of $472 per day, low home health care costs of $3,000, and high hospital day savings of 17 days), each dollar invested in home health services yielded $2.675 in benefits (via reduced hospital costs).[28] In the worst case scenario (which included low savings of $315 per day, high home health care costs of $4,000, and low hospital day savings of 13 days), each dollar invested in home health care yielded $1.024 in benefits.[29]

c. Infertility Treatment (Including In Vitro Fertilization)

The infertility treatment mandate "requires health maintenance organizations and insurance companies that cover pregnancy-related benefits to cover medically necessary expenses of infertility diagnosis and treatment."[30] The RDC for this mandate was calculated from all claims for infertility-related procedure codes and pharmaceuticals, as well as Evaluation and Management (E&M) procedures for members with a diagnosis of infertility. The total estimated RDC claims PMPM were $2.31, with a total PMPM of $2.68 (or 0.89 % of the total premium) after administrative loading.

Division research into the clinical effectiveness of infertility treatments focused specifically on in vitro fertilization (IVF). Studies have shown that IVF "can be cost-effective if steps are taken to minimize high-order multiple (triplet or more) pregnancies"[31] Even when insurance companies are not responsible for IVF costs (i.e. couples pay for their IVF treatments out-of-pocket), they are financially responsible for the delivery and care of any children born. When costs associated with maternal and neonatal complications are factored into the cost of IVF, one 1996 study estimated that "[t]he cost per woman delivered of singleton or twin pregnancies was approximately $39,000, whereas the cost per woman delivered of triplet and quadruplet pregnancies was approximately $340,000."[32]

d. Diabetes Related Services

The diabetes-related services and supplies mandate in Massachusetts covers items that are medically necessary for diabetes care in an outpatient setting: durable medical equipment, prosthetics, and prescription drugs such as blood glucose monitoring strips, insulin, and oral medications.[33] The RDC of this mandate was calculated as the cost of all claims incurred by target-population members with at least two claims with a primary or secondary diagnosis of diabetes for diabetes-related services, devices, or drugs. Total estimated RDC claims PMPM was $1.28, with a total PMPM of $1.49 (or 0.50% of the total premium) after administrative loading.

Regular use of preventive and monitoring services to control diabetes is linked with "short-term decreases in health care utilization [among diabetics]" and can result in cost-savings "within one to two years"[34,35] Despite its effectiveness, many diabetics, including those with health insurance, do not receive all the preventive care recommended by diabetic experts. Research showed that 16% of those with health insurance (compared to 38% of those without health insurance) were deemed to have poor diabetes control that increased their risk for severe health complications.[36,37,38,39] Research has shown that nephropathy prevention for Type 1

diabetes and improved glycemic control as well as diabetes management interventions such as eye care and pre-conception care are "clearly cost-saving" for insurers.[40]

e. Contraceptive Services

The contraceptive services mandate requires health plans to cover outpatient services related to the use of all contraceptive methods to prevent pregnancy.[41] This mandate does not apply to insurance policies purchased by a church or church-controlled organization.[42] RDCs of this mandate included all claims for outpatient contraceptive procedures and consultations, all claims for evaluation and management with a contraception-related diagnosis, and all pharmacy claims for contraceptive drugs and devices. Total estimated claims PMPM were $1.14, with a total PMPM of $1.33 (or 0.44% of the total premium) after administrative loading.

Research suggests that contraceptives are generally effective; however, effectiveness varies with both the type of contraceptive used and its user. When comparing the rate of pregnancies among people who "typically use"[a] contraceptives, abstinence and surgical sterilization are the most effective forms of contraception available.[43] Among prescribed, reversible contraception methods, implants are the most effective (0.05 pregnancies per 100 women), while cervical caps are the least effective (14 to 29 pregnancies per 100 women).[44] Cost-effectiveness research done with people on Medicaid found that contraceptive services reduced Medicaid funded costs for pregnancy-related health care and medical care of newborns,[45] as well as other costs such as those associated with high risk pregnancies.[46] Mandating coverage of contraceptive services increases the range of contraception methods available to women who do not wish to become pregnant. Covering contraceptives may also have the added benefit of drawing women who may otherwise not seek out medical care to clinics to have routine check-ups.

f. Early Intervention Services

The early intervention services mandate requires health insurance plans to "provide coverage for medically necessary early intervention services delivered by certified early intervention specialists"[47] for children ages 3 and under (and their families) who have "identified handicapping conditions" or are "at risk for developmental delays due to biological, established, or environmental factors."[48] There is a "maximum benefit of $5,200 per year per child and an aggregate benefit of $15,600 over the total enrollment period."[49] The RDC of this mandate was calculated including all claims with early intervention procedure codes (H2015, T1015, T1023, T1024, T1027, 96153) plus all claims for evaluation and management procedures performed by certified early intervention providers[b] for members under age 3 in the target population and period. Total estimated RDC claims PMPM were $0.98, with a total PMPM of $1.14 (or 0.38% of the total premium) after administrative loading.

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[a] Typical Use" refers to failure rates for women and men whose use is not consistent or always correct; as opposed to "perfect use," which refers to failure rates for those whose use is consistent and always correct.

[b] The participating plans differed in the method used to identify EI providers in the claims system: Some plans use specific early intervention procedure code modifiers, others use an early intervention provider type code. Each plan used the criterion appropriate to its specific claims system to identify E&M EI claims.

Early intervention services include, but are not limited to, a range of therapies, assistive technology, nursing services and other ancillary services. Research has repeatedly found that, "[d]espite great variability of child and family function and of the types and extent of services offered, most young children in early intervention programs improved in all domains of function."[50] A survey of Massachusetts children enrolled in Early Intervention programs found that, for all infants and toddlers who completed their Early Intervention program in federal FY04 (excluding at-risk children), 90% of children experienced at least some level of improvement in social and emotional skills, 69% experienced at least some level of improvement in communication and language skills, and 78% experienced at least some level improvement in adaptive skills after enrolling in the program.[51]

g. Chiropractic Services

To calculate the effect of the chiropractic services mandate on commercial insurance costs in Massachusetts Compass drew upon the report prepared previously by the Division on the chiropractic services mandate.[52] The mandate in place requires only Blue Cross Blue Shield of Massachusetts to cover chiropractic services. The Division study assessed a proposed bill that would have required other insurers in Massachusetts to also provide coverage for these services (even though such coverage is already offered to employers in the form of a rider to existing policies by these other insurers). The bill did not pass, so the effective mandate assessed in this report applies only to Blue Cross Blue Shield products. Results of this previous study show a cost of $0.36 PMPM across all fully-insured individuals, comprising approximately 0.12% of the statewide fully-insured under age 65 commercial premium for 2004-2005.[c]

The cost of treating a person's symptoms depends primarily on whether he/she uses chiropractic care as a substitute for or to supplement other methods of treatment. In the case of low-back pain, if a patient uses chiropractic treatment as a substitute for expensive surgery, then chiropractic coverage would decrease the cost of treatment. However, if a patient chooses to use chiropractic services in addition to other therapies, this could increase the overall cost of treatment. Data suggest that the majority of patients substitute chiropractic care for some types of medical care, but do not often seek chiropractic treatments as a substitute for surgery or physical therapy.[53] The medical efficacy of chiropractic services has been addressed in a prior report published by the Division in January 2005. The report indicated that:[54]

A review of the scientific literature revealed some uncertainty about the quality of clinical trials designed to test the effectiveness of chiropractic services. Nonetheless, some trials provided "moderate" evidence of chiropractors' efficacy in treating uncomplicated low-back pain. In comparison to other treatments for back pain, chiropractic care appears to provide similar results, as well as high patient satisfaction. However, its efficacy in treating other conditions is uncertain at present.

h. Hormone Replacement Therapy

[c] Despite the fact that the costs associated with the mandate only fall on Blue Cross Blue Shield of Massachusetts, Compass average it across all fully-insured business so that it can be expressed as a percentage of the average Commonwealth-wide premium.

The hormone replacement therapy (HRT) mandate requires health plans to cover "hormone replacement therapy services for peri and post menopausal women."[55] The RDC for this mandate was calculated to include all claims for specific HRT procedures and pharmaceuticals as well as evaluation and management procedures with a diagnosis (in any of the top five diagnosis columns) associated with menopause-related hormone regulation. Total estimated RDC claims PMPM was $0.14, with a total PMPM of $0.16 (or 0.05% of the total premium) after administrative loading.

In the past, HRT was thought to offer health- and youth-preserving benefits to postmenopausal women [such as decreasing the risk of heart disease and bone fractures caused by osteoporosis, in addition to alleviating symptoms of menopause].[56,57] However, recent findings from the Women's Health Initiative (WHI) have shown otherwise and as a result, the U.S. Preventive Services Task Force (USPSTF) issued recommendations against using HRT for preventive health measures.[58] The U.S. Food and Drug Administration (FDA) recommends HRT only for short-term treatment of menopause symptoms and select cases of osteoporosis prevention and treatment – not for disease prevention.[59]

i. Human Leukocyte Antigen Testing

The human leukocyte antigen (HLA) testing mandate covers "the cost of [HLA] testing or histocompatibility locus antigen testing that is necessary to establish bone marrow transplant (BMT) donor suitability."[60] Only costs related to testing for A, B, or DR antigens, or any combination of the three antigens, are covered by the mandate.[61] In the past, serologic typing (through a serum assay) was the standard for typing HLAs; however, numerous recent studies have shown that DNA typing yields better, more accurate results than serum typing, especially for typing HLA-DR, and therefore, have become the standard medical practice for HLA testing .[62,63] Total estimated RDC claims for the testing were $0.09 PMPM, with a total PMPM of $0.10 (or 0.034 % of the total premium) after administrative loading.

Research suggests that a good match between donor and recipient will improve the rate of success for BMTs thus avoiding the cost of catastrophic BMT complications.[64] Investing in HLA testing may also lead to an increase in the number of people available in the donor registry. Any efforts made "to improve donor availability (especially among minorities) and to increase the number of patients with access to the NMDP Registry may prove to be [a] more cost-effective means of increasing transplants."[65] The subsequent BMT that follows HLA testing is the most substantial incurred cost of the HLA testing mandate and this cost is not included in the cost estimate of the mandate.

j. Speech, Hearing and Language Disorders

The speech, hearing, and language disorders mandate requires health plans to cover all "expenses incurred in the medically necessary diagnosis and treatment of speech, hearing and language disorders by individuals licensed as a speech-language pathologist or audiologist."[66] Services provided in hospitals, clinics, or private offices must be reimbursed; however, services provided in a school-based setting are not included in the mandate.[67] The RDC of this mandate includes all claims for speech and audiology procedures performed by the indicated provider

types where the primary diagnosis indicates a covered speech, hearing, or language disorder. Total estimated RDC claims PMPM was $0.03, with a total PMPM of $0.03 (or 0.01% of the total premium) after administrative loading.

A speech-language pathologist and/or an audiologist treat people affected with speech-language and/or hearing disabilities. Medical literature reviewed for this report indicates that services provided by speech-language pathologists and audiologists are generally efficacious.[68,69,70,71,72]

k. Nonprescription Enteral Formulas

The mandate covers "nonprescription enteral formulas for home use for which a physician has issued a written order and which are medically necessary for the treatment of malabsorption [caused by various disorders]."[73] All claims with procedure codes indicating purchase of such formulas where the primary diagnosis indicated one of the disorders covered were analyzed. Total estimated RDC claims PMPM were $0.02, with a total PMPM of $0.02 (or 0.01% of the total premium) after administrative loading.

Although the nature of each disease varies, nutritional therapy using enteral formula is an integral part of treatment for those with gastrointestinal tract disorders. These formulas ensure affected individuals receive the necessary nutrients to grow and develop properly.[74,75,76,77,78,79,80,81,82,83] Nonprescription enteral formulas can be easily purchased through drugstores, grocery stores, etc., but are quite expensive. In 1996 a case of enteral formula (24 cans, each 240 ml) averaged $35 to $45; patients relying solely on enteral formula often consume six cans per day[84] and so total costs for nonprescription enteral formula can accumulate to more than $4,000 per person per year.

l. Low Protein Food Products

The low protein food products mandate covers "food products modified to be low protein"[85] for treatment of phenylketonuria (PKU) and other inherited amino acid and organic acid diseases for infants, children, and pregnant women up to $2,500 per year. Low protein formula costs also count towards the $2,500 annual limit set by the mandate.[86] Costs of the mandate were estimated to include all claims incurred in the study period for procedure codes indicating the purchase of low protein food products. Total estimated RDC claims PMPM were $0.01, with a total PMPM of $0.01 (or 0.003% of the total premium) after administrative loading.

Research shows that adherence to a low protein diet is essential for avoiding high-cost health consequences, including costs associated with hospital admissions to treat liver failure, heart disease, and other acute health ailments that arise from non-treatment of disease.[87] Low protein food is difficult for many affected patients to obtain due to its high cost and limited availability.[88] Low protein foods for people affected with PKU can range from "110% to more than 3500% of the price of comparable regular food items, with the average being approximately 700%."[89]

m. Scalp Hair Prosthesis

Massachusetts has a mandate in place that requires that all fully-insured plans to cover up to $350 per year for scalp hair prosthesis (wig) for a member experiencing hair loss secondary to cancer or leukemia treatment.[90] Compass previously performed a study for the Division on a proposed (but not passed) mandate related to scalp hair prostheses.[91] The proposed mandate sought to extend coverage of scalp prostheses to people with alopecia areata, alopecia totalis, non-classical 21-hydroxylase deficiency, or permanent hair loss that is due to injury, and increase coverage maximum to $3,000 per enrollee within a three-year period.[92] Compass's prior study found a rate of individuals accessing the benefit of 0.21 per thousand members. Based on total membership in the fully-insured commercial products this would imply approximately 645 individuals in Massachusetts access this benefit annually. Assuming that the full $350 benefit is utilized each year by each person produces an estimated annual cost of $225,750, which is six-tenths of a penny PMPM, seven-tenths with administration ($263,000 total), or approximately 0.002% of the annual premium. Fewer than 3% of claims received by the four major MCOs in the state in 2003 were for scalp prostheses, at an average annual cost for each MCO of $304-$380 per claim.[93]

It is difficult to estimate the clinical efficacy of a scalp hair prosthesis. It seems reasonable to assume that a wig may help a patient cope with the effects of chemotherapy by fostering a better self-image, allowing the patient to focus on treatment and recovery.

3. Secondary Data Analysis Results

Results of the RDC and efficacy analyses for the 13 mandates included in the secondary analysis are provided below, beginning with the highest cost mandate and ending with the lowest-cost mandates. Table 4 shows a summary of the costs and utilization associated with each of the mandates based on information available in the literature. Since these RDC estimates were not computed using claims data, there is greater uncertainty associated with them than the primary mandate calculations. More detailed information about the methods used for the secondary data analysis is in the Appendix.

Table 5
Annual Total Direct Cost* Summary of Secondary Data Mandates
Based on 2004-2005 Data

Mandate	Required Direct Cost Claims PMPM	Required Direct Cost PMPM w/ Admin	Percent of Premium	Required Direct Annual Cost Total Dollars (000s)
Alcoholism rehabilitation	-	-	0.00%	-
Bone marrow transplants for treatment of breast cancer	-	-	0.00%	-
Cardiac rehabilitation	$0.10	$0.11	0.04%	$4,099
Clinical trials for treatment of cancer	$0.07	$0.08	0.03%	$2,907
Cytologic screening (Pap smear)	$1.07	$1.25	0.42%	$44,923
Hearing screening for newborns	$0.05	$0.06	0.02%	$2,152
Hospice care	$0.16	$0.18	0.06%	$6,648
Lead poisoning screening	$0.14	$0.16	0.05%	$5,894
Mammography	$0.99	$1.15	0.38%	$41,262
Maternity care (including minimum maternity stay)	$9.61	$11.18	3.73%	$402,071

Preventive care for children up to age six (including specific newborn testing)	$2.89	$3.36	1.12%	$120,745
Off-label uses of prescription drugs to treat cancer	-	-	0.00%	-
Off-label uses of prescription drugs to treat HIV/AIDS	-	-	0.00%	-
TOTAL	$15.08	$17.53	5.84%	$630,700

* Total direct cost measures the expenditures for the benefit described in each mandate but does not remove from this cost the amount that would be provided in the absence of a legal mandate, and thus does not represent the net cost impact of the mandate law.

a. Maternity Health Care

To determine the effect of the maternity health care mandate on commercial insurance costs, Compass consulted a study that estimated the average 2004-2005 Massachusetts childbirth cost to be $8,233.[94] Since there are approximately 42,000 births annually in Massachusetts that occur with fully-insured commercial coverage, Compass then estimated the yearly total spent on all maternity health care claims to be $346 million ($9.61 PMPM). With administrative loading, the PMPM estimate is $11.18 ($402 million), or 3.7% of premium.

Numerous studies have proven the cost-effectiveness of prenatal care in preventing low birth weight babies. A 1987 Government Accountability Office (GAO) report cited a study by the National Academy of Sciences' Institute of Medicine that showed that "for every dollar spent on prenatal care for high-risk women, over three dollars could be saved in the cost of care for low birth-weight infants."[95] Cost-effectiveness studies "suggest…that the influence of mandatory minimum hospital maternity stays on total system costs, although measurable and significant, is probably not severe."[96] Data indicate that while the average length of stay (LOS) for a normal vaginal delivery increased by 37%, the cost involved with the stay was increased only 10%. In addition, the average LOS for a normal cesarean delivery increased 17%, but the cost involved with the stay increased only 6%.[97]

b. Preventive Care for Children up to Age Six

To calculate the effect of the preventive care mandate on commercial insurance costs in Massachusetts, Compass reviewed a 2005 study that examined components of preventive care for both "not-at-risk" and "at-risk" children.[98] Multiplying each average preventive service cost by the estimated 42,000 children and summing the products results in an estimate of $106 million, or $2.95 PMPM. These costs do not include neuropsychiatric evaluations, as they were not included in the cited cost study. However, the costs do include newborn hearing screening, costs for which were estimated in the "Newborn Hearing Screening" section below. Lacking more specific data, Compass assumes that the costs for hearing screening and neuropsychiatric evaluations are approximately equal, and that any difference is within the range of estimation error for the preventive care mandate as a whole. Based on this assumption, Compass estimated that preventive care for children in 2004-2005 was $2.89 claims PMPM ($104 million), $3.36 PMPM ($121 million) with administrative loading, or 1.12% of premium.

It has been shown that preventive services are cost effective, especially if they can be delivered fully in a single visit. Moreover, research indicates that "Medicaid children who are

up-to-date with well child check-ups have a 48% lower chance of having an avoidable hospitalization."[99]

c. Cytological Screening (Pap Smear)

Available data indicate that 89% of women in Massachusetts and 90% nationally get a pap smear at least every three years.[100,101] Extrapolating from these data, Compass estimated that 792,000 women receive the test annually. Compass assumed the average cost of a Pap smear to be $50 for insurers in Massachusetts. Using adjusted 2004-2005 dollars, the cost for Pap smear claims totals $38.6 million ($1.07 PMPM), $44.9 million ($1.25 PMPM) including administration, or 0.42% percent of premium.

Since the development of the Papanicolaou (Pap) test or Pap smear in 1943, mortalities from cervical cancer have decreased by 75%.[102] As a result, pap smears are generally viewed as being cost-effective.

d. Mammography

Based on data in the literature, Compass assumed the average cost to insurers of a mammogram in Massachusetts to be $125 and that there are 290,000 women in Massachusetts ages 40-64 that are fully-insured under a commercial plan and received a mammogram once a year. The estimated claims cost for these mammograms is $36.2 million, or $1.01 PMPM, and with administration the result is $1.17 PMPM, $42.1 million. Adjusting these numbers to 2004-2005 levels results in a final estimated claims cost of $35.5 million, or $0.99 PMPM, $41.3 million or $1.15 PMPM after administrative loading, representing 0.038% of total premium.

There is strong evidence that "[r]egular 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% for women in their 40s, and 30% for women in their 50s and 60s.[103] Mammography is also a superior method of abnormal tissue detection when compared with other cancer-detecting procedures; "[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."[104]

e. Hospice Care

Hospice care refers to "a program of palliative and supportive care services providing physical, psychological, social, and spiritual care for dying persons, their families, and their loved ones."[105] To calculate the effect of the hospice care mandate on commercial insurance costs in Massachusetts, Compass drew upon a report by the Hospice Association of America[106] that suggests that the private insurance expense for hospice care is estimated at $5.7 million.[d] This represents claims PMPM of $0.16, $0.18 with administration ($6.6 million total dollars), or 0.06% of premium.

[d] Medicare costs account for 70.2% of total hospice care costs, so dividing the $41.4 million Medicare costs by .702 yields the total system cost estimate, 59 million, 9.9% of which is assumed to be paid by commercial insurance.

The *2000 National Home and Hospice Care Survey* estimates that approximately 20% of patients receiving hospice care were under age 65 (approximately 19,600 people).[107,108] Hospice users under age 65 appeared to use fewer assistance services than those over age 65, with the majority of them (57%) receiving assistance with at least one activity of daily living (bathing or showering, dressing, eating, walking, etc.), but not needing help with instrumental activities of daily living, vision or hearing impairments, or incontinence. However, a higher percentage of hospice users under age 65 used high-tech therapeutic care (i.e., enterostomal therapy, intravenous therapy, respiratory therapy, enteral nutrition or dialysis) than those over age 65.

Because the overwhelming majority of hospice patients are Medicare enrollees (approximately 80% of hospice users), most reliable studies on hospice efficacy and cost-effectiveness use Medicare data. Recent studies found that hospice care generally improved patients' end-of-life experiences by increasing the lifespan of those under hospice care by 20 to 69 days (compared to patients that did not seek hospice care), and by demonstrating a "small [but statistically significant] benefit on patients' pain, other symptoms, and a non-significant trend towards benefits for satisfaction, and therapeutic interventions."[109,110,111] Research has also found hospice care to be generally cost-neutral or cost-saving.[112,113,114]

f. Lead Poisoning Screening

Coverage for lead poisoning screening is required for all children under age 6. From a Massachusetts Department of Public Health Childhood Lead Poisoning Prevention Program analysis, Compass estimate that 51.4% of children under age 6 were screened for lead poisoning in 2005.[115] Applying this to the 252,000 children in our population produced an estimate of 129,000 children screened for lead poisoning in Massachusetts under fully-insured commercial insurance plans. Extrapolating from U.S. Environmental Protection Agency data, Compass assumed the cost of the average blood test for lead screening in Massachusetts to be $40. With these data, Compass estimated the cost effect of the Lead Poisoning Screening mandate to be $5.1 million for medical claims, which is $0.14 PMPM for testing, $0.16 PMPM with administration ($5.9 million), or 0.05% of premium.

Centers for Disease Control and Prevention (CDC) guidelines recommend universal lead screening for children most at risk for lead poisoning, and targeted screening, based on the physician's assessment of risk, is recommended for all other children.[116] Research has shown that "[c]hronic low-level exposure [to lead] may result in cognitive and behavioral changes and learning disabilities [in preschool children],"[117] while acute exposure can cause significant acute disorders and even death. The federal government believes that blood lead levels (BLL) "as low as 10μg/dL are associated with harmful effects on children's learning and behavior, and that screening for lead poisoning is cost-effective."[118]

g. Cardiac Rehabilitation

Compass estimated that there are about 2,650 non-fatal heart attacks per year in the under age 65 commercial fully-insured population in Massachusetts. Approximately 47% of people who are eligible for enrolling in a cardiac rehabilitation program after a heart attack utilize this form of rehabilitation.[119] Moreover, the CPI-adjusted cost per rehabilitation episode was

estimated at $2,820. Compass multiplied the number of people using cardiac rehab in Massachusetts (1,250) by the cost for a cardiac rehabilitation episode, to arrive at an estimated cost of cardiac rehabilitation of $3.5 million in 2004-2005. Based on the 2.998 million individuals in the commercial under age 65 fully-insured population, this resulted in an estimated PMPM of $0.10 for medical services; allowing for administrative loading makes the total $0.11 PMPM, or 0.04% of premium in this population.

Research suggests that, although this form of therapy is underutilized, cardiac rehabilitation has the potential of reducing cardiovascular disease mortality by up to 25%.[120, 121]

h. Cancer Clinical Trials

It is estimated that approximately 10 million adults in the United States have cancer, and of those, approximately 3-5% are involved in clinical trials.[122] In addition, annual costs for cancer care are estimated to be at least $65 billion, or approximately $6,500 per patient per year. Based on the proportion of the U.S. population residing in Massachusetts, the number of people participating in cancer trials, and the proportion that are in the commercial fully-insured population, Compass estimated that there are approximately 3,900 Massachusetts residents covered by fully-insured commercial plans in clinical trials, and based on a study in the Journal of the National Cancer Institute, added approximately 10% to the costs of care for cancer patients to account for the cost of clinical trials.[123] This would imply total clinical trial costs for cancer of roughly $2.5 million annually, or $0.07 PMPM in claims, $0.08 PMPM ($2.9 million total), or 0.03% of premium, after administrative loading.

Many health experts consider clinical trials to be "the backbones of medical progress."[124] Despite the fact that "[s]ometimes the best hope for a person with a serious illness is to become a subject in a clinical drug trial,"[125] only 3% to 5% of cancer patients take part in clinical trials each year.[126] Financial considerations and "[m]isconceptions about the nature of clinical trials, along with insurance hurdles, contribute to the reluctance of many cancer patients to join clinical trials and, often, their doctors' reluctance to suggest that they participate."[127] Scientists believe that coverage for cancer clinical trials may lower barriers to trial enrollment.[128, 129]

i. Hearing Screening for Newborns

Compass estimated that approximately 42,000 newborns in Massachusetts had coverage from fully-insured commercial plans in 2004-2005, and an analysis of health care claims data using the hearing screening service codes confirmed an average cost per test of approximately $45. Using these figures, Compass estimated total claims costs of $1.85 million ($0.05 PMPM) after adjusting to a 2004-2005 basis using the medical CPI. With administrative loading, this yields a total cost estimate of $2.15 million ($0.06 PMPM), or 0.02% percent of premium.

Significant hearing loss is the most common congenital disorder among infants, affecting 1 to 6 out of every 1000 newborns.[130,131] A 2002 cost-effectiveness study found that the incremental cost per infant whose deafness was diagnosed by age 6 months by uniform newborn hearing screening (UNHS) was higher than a selective screening program ($60,700 versus $16,400, respectively).[132] However, the incremental total savings over the lifetime of a deaf child

was higher for UNHS ($2,332,500) compared to selective screening ($1,460,200).[133] The study concluded that, UNHS's "short-term cost-effectiveness…is comparable to the cost per case diagnosis of other newborn screening programs and could be improved by increasing the rate of follow-up to diagnostic evaluation after positive screening test results."[134]

j. Treatment for Alcoholism

The mandate for alcoholism treatment was made redundant by the passage of the mandate for biologically-based mental health conditions, and costs associated with this mandate are already captured by the mental health mandate costs detailed above. Due to the high incidence of co-occurring mental health and substance abuse illnesses, and the lack of clarity in how services for these two illness types are distinguished when billed, segregating alcoholism treatment costs from the mental health data cannot be performed with the data available for this study.

According to 2004 data, approximately 19,309 people procured treatment for alcohol abuse only or alcohol with other drugs in the Commonwealth of Massachusetts.[135] Furthermore, there are an estimated 352 facilities in Massachusetts providing substance abuse and mental health related treatment—not all of which provide treatment for alcoholism.[136] Massachusetts also provides state-sponsored substance abuse services, using state and federal dollars. Mandating treatment for alcoholism as a privately insured benefit promotes public/private coverage for this service.

Of the two million alcohol dependent people seeking treatment in the United States, 90% relapse within four years.[137] Previous analyses have shown that some contributions to outpatient treatment failure were younger age, multiple prior treatments, and employment problems.[138] Additionally, some researchers feel that, traditionally, "the vast majority of treatment efforts in the U.S. were based on [Alcoholics Anonymous]'s 12-step program, requiring behavioral changes and faith in a higher power"; however, with new pharmacological research and a growing understanding of the brain, new treatments that combine behavioral therapy with "drugs that target the brain's addition pathways" are showing promising results in treating alcoholism.[139]

k. Bone Marrow Transplant for Treatment of Breast Cancer

Treatment of breast cancer with bone marrow transplant is no longer considered clinically effective and a review of 2005 Massachusetts hospital discharge data found only two such cases. Bone marrow transplant, used in conjunction with high-dose chemotherapy, became a popular treatment for breast cancer throughout the 1980s and early 1990s.[140] However, numerous studies published since 1997 have discredited this method as an effective tool in combating breast cancer.[141] "In April 2000, the New England Journal of Medicine reported the results of a major randomized controlled trial of bone marrow transplant for the treatment of metastatic breast cancer… [which] found no survival advantage … relative to standard-dose chemotherapy, corroborating the results of four other recent randomized trials."[142] Following this important finding, the American Society of Clinical Oncology issued a statement stating that: bone marrow transplant for breast cancer "should be performed only in the context of a high quality clinical trial."[143] The National Cancer Institute at the National Institutes of Health agreed, stating in their

most recent online publication on available treatments for breast cancer that "for now, high-dose chemotherapy should be tested only in clinical trials."[144]

l. Off-label Use of Prescription Drugs to Treat HIV/AIDS

An estimate of the costs of off-label drug use for HIV/AIDS would require a large, dedicated research effort, a comprehensive claims database (preferably from Massachusetts), and extensive clinical definition of potential off-label use, associated diagnoses, etc. Even with such an effort, ambiguities would likely remain in the results. It was the opinion of the participating health plans that these costs would be incurred by the plans even without the mandate laws in place because it would be difficult for the health plans to identify and monitor such prescribing practices, and therefore, the marginal cost of the mandate is estimated to be zero.

Using off-label prescriptions is an integral part of the community standard of care to treat AIDS and/or prevent HIV-related opportunistic infections.[145] Health care providers also turn to off-label drugs when no licensed therapies are available to treat various AIDS conditions.[146] AIDS providers have found that third-party payers are reluctant to reimburse for off-label drug use.

m. Off-label Use of Prescription Drugs to Treat Cancer

Similar to the problem of how to measure costs associated with off-label use of prescription drugs to treat HIV/AIDS, it is also not feasible to measure off-label prescription drug use for the treatment of cancer in Massachusetts. Moreover, it was also the opinion of the participating health plans that these costs would be incurred by the plans even without the mandate laws in place (and therefore, the marginal cost of the mandate is zero) because it would be difficult to identify and monitor such prescribing practices. While there was general consensus among the plans about the treatment benefits of using off-label drugs, the cost-effectiveness of such treatments have not been studied comprehensively.

D. Discussion

Mandated benefits provide two types of protection: 1) protections for the health of the general public, such as the mandated Pap smear benefit; or 2) protections for the health of a vulnerable sub-group, such as the benefit that mandates coverage of supplies for people with diabetes. However, mandating health benefits may impact the ability of health insurers to offer affordable health care coverage options if mandates include benefits that carriers would otherwise not cover or would choose to cover with limitations not permitted under the mandate. The broad scope of Massachusetts' landmark health reform legislation prompted discussion about characteristics of minimum health benefit packages that would strike a balance between affordable health care coverage and protection of key benefits. This study was intended to help inform this discussion by providing information about the cost and medical efficacy of Massachusetts mandated benefits. Although there are challenges in measuring the impact of mandated benefits as described above, study results indicate that mandated benefits comprise slightly more than 12% of premium costs in Massachusetts. The study methods, results and implications are discussed briefly below.

Using a collaborative workgroup approach, Compass worked with major Massachusetts health plans to design this study and interpret the results. With guidance from the plans, Massachusetts' 26 mandated benefits were divided into two groups based on the data sources used to analyze them. The primary analysis estimated costs of 13 mandated benefits using claims data from four major Massachusetts health plans. The cost of the second set of 13 mandated benefits was examined using less precise secondary data sources. Information about the efficacy of each benefit was obtained through a comprehensive literature review; available scientific and medical studies were assessed for data about the clinical efficacy and other benefits gained from each mandate.

The results of the Compass analyses showed that, in Massachusetts, mandated benefits account for slightly more than 12% of premium costs: the total direct costs for the set of 13 mandates analyzed using primary data comprise 6.36% of the health insurance premium and the remaining 13 mandates analyzed using secondary sources comprise 5.84% of the premium. These estimates likely overstate the impact of the mandate since some benefits would be provided even without the mandate. On the other hand, although the primary RDC estimates are reasonably accurate, they do not account for the range of possible indirect costs that are associated with each benefit, such as the actual bone marrow transplant after HLA testing or labor and cost reductions from effective diabetes care. Moreover, secondary cost estimates could not be accurately estimated with claims data at this time.

The literature reviewed with respect to the efficacy of these benefits suggests that the primary mandates appear to be cost-effective. Among the secondary set of benefits, it may be appropriate to consider removing mandates for benefits that are no longer the standard of care, such as bone marrow transplants for breast cancer.

Additionally, about 30% of Massachusetts residents are covered by self-insured plans, and data were not available to conduct a parallel analysis of the costs associated with benefits among this self-insured group. It may be reasonable to assume that since self-insured Massachusetts employers compete in the labor market with fully-insured firms that offer the mandated benefit package, the benefits in the self-insured firms are likely to be richer than they would be in the absence of the mandate laws. This competitive labor market may thus shrink the cost difference between fully-insured and self-insured plans and under-state (or provide a lower bound for) the implied impact of benefit laws on health care costs.

This assessment of mandated benefits reveals some of the difficulties in measuring the impact of mandated benefits. The data that were available to assess the cost impact provide information about only part of total mandated benefit costs; for example, it is difficult to determine with precision the cost of mandated benefits within self-insured plans. Moreover, mandated benefits promote the use of other services, such as in the case of HLA testing prior to bone marrow transplant, and also deter the use of services such as the cost-effectiveness of early intervention services. In addition, the imperative to mandate selected benefits also changes with advancements in medical science; the use of bone marrow transplant for breast cancer treatment, for example, is no longer considered best medical practice, and therefore, the mandate for this benefit may no longer be appropriate.

Given the evolutionary nature of the issue some states have decided that the cost and medical efficacy of mandated benefits should be regularly examined. About half of all states have passed legislation requiring the regular review of mandated benefits, to assess the cost, medical efficacy, or public health impact.[147] The Massachusetts General Court, particularly in the era of health reform, may decide that regular reviews of mandated benefits for ongoing clinical efficacy would help ensure that appropriate protections are offered to Massachusetts residents while reducing unnecessary additional premium costs associated with benefits that are no longer deemed clinical necessary or effective.

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Publication Number: 1557