Actuarial Assessment of Massachusetts House Bill No. 3024
Defining Eating Disorders as Biologically-Based Illnesses

Prepared for

Division of Health Care Finance and Policy
Commonwealth of Massachusetts

Prepared by

Compass Health Analytics, Inc.

Actuarial Assessment of Massachusetts House Bill No. 3024
Defining Eating Disorders as Biologically-Based Illnesses

Table of Contents

Executive Summary **2**

Proposed Legal Requirement **3**

Description of Impact Calculation **3**

Discussion of Major Assumptions **4**

Insured Population *4*

Definition of Eating Disorders *4*

Intensity of Care in Those Above and Below Age 19 ..... *5*

Results **5**

General Results *5*

Service-Specific Results *6*

Five-Year Impact Estimates *7*

Appendix A: Development of Population Estimates *9*

Actuarial Assessment of Massachusetts House Bill No. 3024
Defining Eating Disorders as Biologically-Based Illnesses

Executive Summary

Massachusetts House Bill No. 3024 would require insurers to include eating disorders in the list of conditions that are considered biologically-based illnesses for purposes of their inclusion under the Mental Health services mandate applicable under current Massachusetts law. Compass Health Analytics, Inc. ("Compass") was engaged by the Commonwealth's Division of Health Care Finance and Policy ("the Division") to develop an actuarial assessment of the likely increased healthcare costs resulting from the proposed mandate over the next five years. The results are based on analysis using data provided by the Division to Compass.

Currently, Massachusetts law contains a mandate for mental health services, which includes a list of conditions considered for purposes of that law to be biologically-based. The mental health mandate requires coverage of the diagnosis and treatment of biologically-based conditions for all age groups. Children under 19 years of age are covered for non-biologically-based disorders if the disorder is documented as serious or evidenced by conduct with consequences like missing school, needing hospitalization, or posing a danger to self or others. HB 3024 would make the required benefit for those 19 and over on par with the benefit that currently applies for those under 19.

Costs for the proposed mandate were calculated by using a health care claims extract summary to identify costs for eating disorder-related services. The per-person per-year costs for individuals using these services for both the under-19 group and the 19 and over group were computed from these data. It was assumed that under the proposed mandate, paid claim cost per person treated per year in the 19 and over group would rise to the level of the paid claim cost per person treated per year in the under-19 group. The assumption that treatment requirements would be similar in the two groups was validated with input from clinical experts.

Using this approach, Compass has estimated costs over a five year time frame. A summary of these estimates appears in Exhibit E1. The rightmost column shows the mean annual premium change over the 5 years and the total dollar impact. Health reform-related enrollment increases could increase the dollar impact by up to 23%.

Exhibit E1
Summary of Cost Impact of Eating Disorders Mandate

	2008	2009	2010	2011	2012	5-Year
Total Impact (000)	$ 9,380	$ 9,859	$ 10,364	$ 10,894	$ 11,451	$ 60,405
Total Monthly Premium Impact	$ 0.30	$ 0.32	$ 0.33	$ 0.35	$ 0.37	$ 0.33
Percent of Premium	0.09%	0.09%	0.09%	0.09%	0.09%	0.09%

Proposed Legal Requirement

Currently, Massachusetts law contains a mandate for mental health services, which includes a list of conditions considered for purposes of that law to be biologically-based (MGL, c. 175 § 47B, c. 176A § 8A, c. 176B § 4A, c. 176G § 4M). The mental health mandate requires coverage of the diagnosis and treatment of biologically-based conditions for all age groups. Children under 19 are covered for non-biologically-based disorders if the disorder is documented as serious or evidenced by conduct with consequences like missing school, needing hospitalization, or posing a danger to the self or others. The proposed mandate, HB 3024, would make the required benefit for those 19 and over on par with the benefit that currently applies for those under 19. The relevant insured population consists of commercially fully-insured individuals less than 65 years of age, including those in both employer-sponsored plans and direct-purchase (i.e., non-group) policies.

Description of Impact Calculation

Four Massachusetts health plans provided a claim extract summary with service dates in calendar 2005 of eating disorders service data from their fully insured, under-65 population. A careful quality control process was performed on the claim extracts to ensure compliance with the specification provided to the plans, and consistency of the results across plans. Data from one plan were excluded due to data quality problems, leaving a sample representing almost 2 million members in Massachusetts, or approximately two thirds of the applicable population of individuals under 65 covered by fully-insured commercial products.

The primary strategy for the analysis was to estimate the average cost per person treated for those under 19 and compare it to the same measure for those 19 and over.[1] The difference between the average cost per person treated is then multiplied by the number of people 19 and over receiving treatment to arrive at the total estimated claims cost in absolute dollars in the sample. This figure was divided by the total member months in the sample to arrive at a per member per month (PMPM) estimate. The PMPM number was assumed to be representative of the overall fully-insured under-65 population, and was multiplied times the overall fully-insured, under-65 membership in the Commonwealth to arrive at base-year (2005) total claim dollar estimates, which were then trended forward at a 5% annual rate, and adjusted for population growth, through 2012.

In addition to the incremental medical care costs calculated, the overall impact of a mandate on the costs of health insurance in the Commonwealth includes two other components: Incremental administrative expenses and incremental margins.

[1] Since the relevant population is under age 65, "19 and over" refers to individuals between the ages of 19 and 64.

Incremental administrative expenses would be incurred for activities associated with the implementation of the mandate such as modifications to benefit plan materials, claims processing system changes, training/communication material for staff, etc.

Incremental margin is required for the insurer to maintain adequate reserve levels as required by the Massachusetts Division of Insurance. Required reserves are based on the claim levels for the insurer, and since the mandate would increase claim levels, it would increase required reserve levels and therefore incrementally increase the total dollars of margin required to meet those reserve levels. Based on a review of published financial statements and other available information, we have assumed that administrative costs and profit margin constitute 14% of the total premium.

Discussion of Major Assumptions

Below we describe in more detail the major assumption made in the calculations.

Insured Population

Compass developed population projections for this analysis, estimating the commercially fully-insured individuals in Massachusetts under 65 years of age. Exhibit I displays the estimates. Appendix A contains a detailed description of the sources and calculations used for the population estimates.

Exhibit I
Fully-Insured, Under-65 Population Projections
2008-2012

	2008	2009	2010	2011	2012
Employer Fully Insured	2,764,106	2,769,203	2,773,657	2,777,261	2,780,663
Direct (Individual)	246,213	246,716	245,506	243,584	242,669
Total	3,010,318	3,015,919	3,019,163	3,020,845	3,023,332

Definition of Eating Disorders

For purposes of this study, eating disorders were defined as services with a diagnosis of Anorexia or Bulimia. All claim records with one of these diagnoses in the first five diagnosis fields on the claim were included.

Intensity of Care in Those Above and Below Age 19

The results of this study are based on the assumption that the care requirements for individuals aged 19 and older are similar to those for individuals under 19 years of age. Specifically, we assume that the difference in cost per-person treated between these two groups is explained by the current difference in benefits that are available to the two groups, which in turn assumes that the average "intensity" and care requirements of cases in the two groups are similar.

This assumption was discussed with several clinical experts, including the director of an eating disorders program at a major tertiary psychiatric medical center, and a psychiatrist specializing in eating disorders. It was agreed by all that there is no reason to assume that the clinical care required, on average, differs between these two age groups for these conditions.

Results

General Results

The results of the sample of 2005 eating disorder services are displayed in Exhibit II. Of the 4,682 users of service in the sample data, 1,290 were under 19 years of age, and 3,392 were 19 and older. The annual cost per user was $2,965 for the under-19 group, and $1,418 for those 19 and over, consistent with the difference in benefit levels between groups. As discussed above, the difference in annual cost per user, $1,548, was assumed to be due to the unlimited benefit available to those under 19. The per member per month cost for all eating disorders services was $0.37.

Exhibit II
Statistics on Costs for Eating Disorders Services
Service Use and Payment from Sampled Health Plans
2005 Dates of Service

Users	Average Enrollment	Users of Service	Payments	Cost per User	PMPM
Total	1,958,130	4,682	$ 8,633,465	$ 1,844	$ 0.37
Under 19	469,951	1,290	$ 3,825,012	$ 2,965	$ 0.68
19 and Over	1,488,178	3,392	$ 4,808,453	$ 1,418	$ 0.27
Difference				$ 1,548	$ 0.41

The maximum cost per year (paid by the insurer) for one user of service was $157,000 for a person under 19 years of age. The 99th percentile for those under 19 was $56,000; for those 19 and over it was $29,000.

Service-Specific Results

Exhibit III displays cost data for the services contained in the eating disorders claims extract. Inpatient psychiatric, outpatient psychiatric, and residential programs are the primary services included; there are a variety of services including ancillary and diagnostic tests captured in the "other" category.

Exhibit III
Historical Profile of Service Use for Eating Disorders, All Users
By Age Group and Service Category

		Sample Dollars	Cost per User	PMPM	Estimated Full Population
Age Group 1 (< 19)	**Inpatient Psychiatric**	$1,988,739	$1,542	$0.35	$2,868,079
	Residential Treatment	$308,967	$240	$0.05	$445,580
	Outpatient Psychiatric	$780,892	$605	$0.14	$1,126,171
	Other Services	$746,414	$579	$0.13	$1,076,448
Age Group 2 (>= 19)	**Inpatient Psychiatric**	$1,899,563	$560	$0.11	$2,739,473
	Residential Treatment	$152,670	$45	$0.01	$220,175
	Outpatient Psychiatric	$1,862,064	$549	$0.10	$2,685,392
	Other Services	$894,156	$264	$0.05	$1,289,515
All Age Groups	**Inpatient Psychiatric**	$3,888,302	$830	$0.17	$5,607,552
	Residential Treatment	$461,638	$99	$0.02	$665,755
	Outpatient Psychiatric	$2,642,956	$564	$0.11	$3,811,563
	Other Services	$1,640,570	$350	$0.07	$2,365,963
	All Services	**$8,633,465**	**$1,844**	**$0.37**	**$12,450,833**

The cost per user of service (where users for all rows of the Exhibit are defined as any member appearing in the eating disorders claims extract) for inpatient psychiatric services, residential services, and other services are all much higher for the under 19 population than for the 19 and over population, presumably reflecting the more generous benefit available. The cost per user for outpatient psychiatric services is fairly similar at $605 for those under 19 and $549 for those 19 and over.

Exhibit IV displays the same cost information from the claim sample, but calculates cost per user as by dividing all costs for the service category by users of that service category only. The resulting cost per user estimates are total annual costs per person utilizing that service. For example, for those individuals under 19 years of age who were admitted to an inpatient unit, the average cost per person for inpatient care was $18,762.

Exhibit IV
Historical Profile of Service Use for Eating Disorders, Service-Specific Users
By Age Group and Service Category

Age Group 1 (< 19)	**Service**	**Dollars**	**Users**	**Cost Per User**
	Inpatient Psychiatric	$1,988,739	106	$ 18,762
	Residential Treatment	$308,967	11	$ 28,088
	Outpatient Psychiatric	$780,892	1,024	$ 763
	Other Services	$746,414	705	$ 1,059
	Service	**Dollars**	**Users**	**Cost Per User**
Age Group 2 (>= 19)	Inpatient Psychiatric	$1,899,563	156	$ 12,177
	Residential Treatment	$152,670	11	$ 13,879
	Outpatient Psychiatric	$1,862,064	2,879	$ 647
	Other Services	$894,156	1,069	$ 836
	Service	**Dollars**	**Users**	**Cost Per User**
All Age Groups	Inpatient Psychiatric	$3,888,302	262	$ 14,841
	Residential Treatment	$461,638	22	$ 20,984
	Outpatient Psychiatric	$2,642,956	3,903	$ 677
	Other Services	$1,640,570	1,774	$ 925

The largest differences between the age groups are for inpatient and residential care, with inpatient claims paid per person approximately 50% higher for the under 19 group, and residential services per person treated of approximately 100% higher. The under 19 group also has higher use for outpatient and other services, but the differences are smaller.

Five-Year Impact Estimates

The calculations used to convert the sample results into the five year impact estimates are displayed in Exhibit V.

Exhibit V
Estimated Impact of Eating Disorders Mandate
Service Use and Payment from Sampled Health Plans

	2005 Sample	Full Population	2008	2009	2010	2011	2012	5 Year
Per Patient Impact	$ 1,548	$ 1,548	1,791	1,881	1,975	2,074	2,178	
Monthly Premium Impact - Claims	$ 0.22	$ 0.22	$ 0.26	$ 0.27	$ 0.29	$ 0.30	$ 0.31	
Administration Premium Impact	$ 0.04	$ 0.04	$ 0.04	$ 0.04	$ 0.05	$ 0.05	$ 0.05	
Total Monthly Premium Impact	$ 0.26	$ 0.26	$ 0.30	$ 0.32	$ 0.33	$ 0.35	$ 0.37	
Percent of Premium	0.09%	0.09%	0.09%	0.09%	0.09%	0.09%	0.09%	
Without Adjustment for Health Reform								
Dollar Impact - Claims (000)	$ 5,249	$ 8,076	$ 9,380	$ 9,859	$ 10,364	$ 10,894	$ 11,451	$ 51,948
Administration (000)	$ 855	$ 1,315	$ 1,527	$ 1,605	$ 1,687	$ 1,773	$ 1,864	$ 8,457
Total Impact (000)	$ 6,104	$ 9,390	$ 10,907	$ 11,464	$ 12,051	$ 12,667	$ 13,315	$ 60,405
With Maximum Health Reform Impact								
Dollar Impact - Claims (000)	$ 5,249	$ 9,899	11,498	12,086	12,704	13,354	14,037	$ 63,679
Administration (000)	$ 855	$ 1,612	$ 1,872	$ 1,967	$ 2,068	$ 2,174	$ 2,285	$ 10,366
Total Impact (000)	$ 6,104	$ 11,511	$ 13,369	$ 14,053	$ 14,772	$ 15,528	$ 16,322	$ 74,045

The $1,548 difference in cost per user in the sample, when multiplied times the 3,392 users aged 19 and older in the 2005 sample, produced an estimate of $5.2 million, which is equivalent to a full population (all fully-insured, under 65 individuals) amount of $8.1 million in 2005. That is, it is estimated that if the 19 and older population had the benefit implied by defining eating disorders as biologically based, an additional $8.1 million would have been paid through the insurance system for fully-insured individuals aged 19 years and older in 2005. Inflated to 2008 and adding administrative costs, the impact is projected to be $10.9 million, which is $0.30 PMPM or approximately 0.09% of total premium. Over the five years 2008-2012, the estimated total cost is $60.4 million.

These projections do not take into account the increase in enrollment in fully insured plans that may occur due to Massachusetts health reform. At this point, it is uncertain how many additional persons will be insured under health reform. In Exhibit V, the last block shows the spending impact of modifying eating disorders legislation if the approximately 677,000 persons uninsured in Massachusetts were to be covered under fully insured plans, and if the health status related to eating disorders was comparable in the expanded coverage group as compared to those currently fully insured. Under the extreme assumption that all uninsured become covered due to health reform, the 2008 impact would increase to $11.5 million, and the five year 2008-2012 impact would increase to $74 million, a 23% increase.

The cost differences identified in the foregoing analysis, and attribution of the cost impacts implied by them to differences in benefit levels, are based on three important assumptions. First, it was assumed that the populations are clinically similar; this assumption was supported by interviews with clinical experts. Second, it was assumed that any differences in medical necessity criteria and utilization management processes carried out by health plans do not differ materially between children and adults. We do not have any information to support or refute this assumption. Third, for the additional costs associated with health reform coverage expansions, it was assumed that the prevalence of eating disorders in the uninsured population is similar to the prevalence in the insured population and that health reform will cover all uninsured individuals. It is likely that the estimates that include maximum health reform-related enrollment increases overstate the impact that House Bill No. 3024 would have on health care costs.

Appendix A: Development of Population Estimates

Overview of Population Projection Model

Compass maintains a Massachusetts population projection model to support its efforts to analyze the cost impact of various mandates enacted by the Massachusetts legislature. This model projects the Massachusetts population at the following level of detail:

- By year through 2013
- By gender
- By age grouping
    - Less than 18
    - 18-64
    - 65 or greater
- By insurance status for under 65 population
    - Uninsured
    - Insured by employer-sponsored fully insured plan
    - Insured by employer-sponsored self-insured plan
    - Insured by direct-purchase policy
    - Insured by MassHealth
    - Insured by other Medicaid programs

Detailed Description of Population Projection Model

The population projections for this analysis were developed by reference to various reports, tables, and other data sources at the following web sites:

- Massachusetts Division of Health Care Finance and Policy ("MADHCFP")
- United States Census Bureau ("Census Bureau")
- Massachusetts Institute of Social and Economic Research ("MISER")
- Kaiser Family Foundation
- Centers for Medicare and Medicaid Services ("CMS")

The first step was to determine the actual Massachusetts population split by age group. According to the Massachusetts "Quickfacts" exhibit on the Census Bureau website, the Massachusetts population in 2005 was 6,399,000. The current population was allocated by age by referring to percentages in the Quickfacts exhibit for "Persons Under 18 Years Old" and "Persons 65 Years Old and Over" for 2004. The current population was allocated by gender by referring to a report on the Census Bureau web site entitled: "Population Projections for States by Selected Age Groups and Sex: 1995-2020". From this report the female percentage by age category of the projected population could be determined.

To project future populations we used growth rates from a population projection on the MISER website which projected the Massachusetts population by gender and quinquenial age category out to 2010 and 2020. The growth rates implicit in the MISER projections for 2010 reflected the slowing in growth seen in recent years and appeared to be a suitable basis for projecting to 2013.

The MISER projections for 2010 included age and gender detail, which we used to allocate the projected 2010 population. The allocation by age and gender for intermediate years was based on interpolation of the 2005 allocation derived from 2005 Census data and the 2010 MISER projections.

The final step was to determine the insurance status for the projected population. To do this, we referred to several sources:

1.) Historical Health Insurance Tables HI-5 and HI-6 on the Census Bureau web site show a split of the Massachusetts population by health insurance status. Table HI-5 is for Children under 18 and Table HI-6 is for People Under Age 65.

2.) From the MADHCFP web site, we referred to a report entitled "Health Insurance Status of Massachusetts Residents (Fourth Edition)" with a publication date of November 2004. Table 1 of this report indicates that 3.2% of Massachusetts residents ages 0-18 are uninsured, the same rate as in 2002. The same table indicates that 10.6% of the non-elderly adult population of Massachusetts was uninsured in 2004, an increase over 9.2% in 2002.

3.) Overall Medicaid enrollment statistics were taken from the Kaiser Family Foundation State Health Facts Online web site. MassHealth enrollment statistics were taken from a Section 1115 fact sheet found on the CMS web site.

4.) A MADHCFP report entitled "Source of Insurance Coverage for Massachusetts Residents (2002)" shows that 61% of the entire population of Massachusetts is covered by employer-sponsored plans.

5.) We relied on a MADHCFP study that determined that 27% of the insured population covered by employer-sponsored plans was covered by self-funded plans that were exempt from the requirements of these mandates.

The population and insurance status estimates from these various sources were not always consistent and judgment was required to resolve these discrepancies.