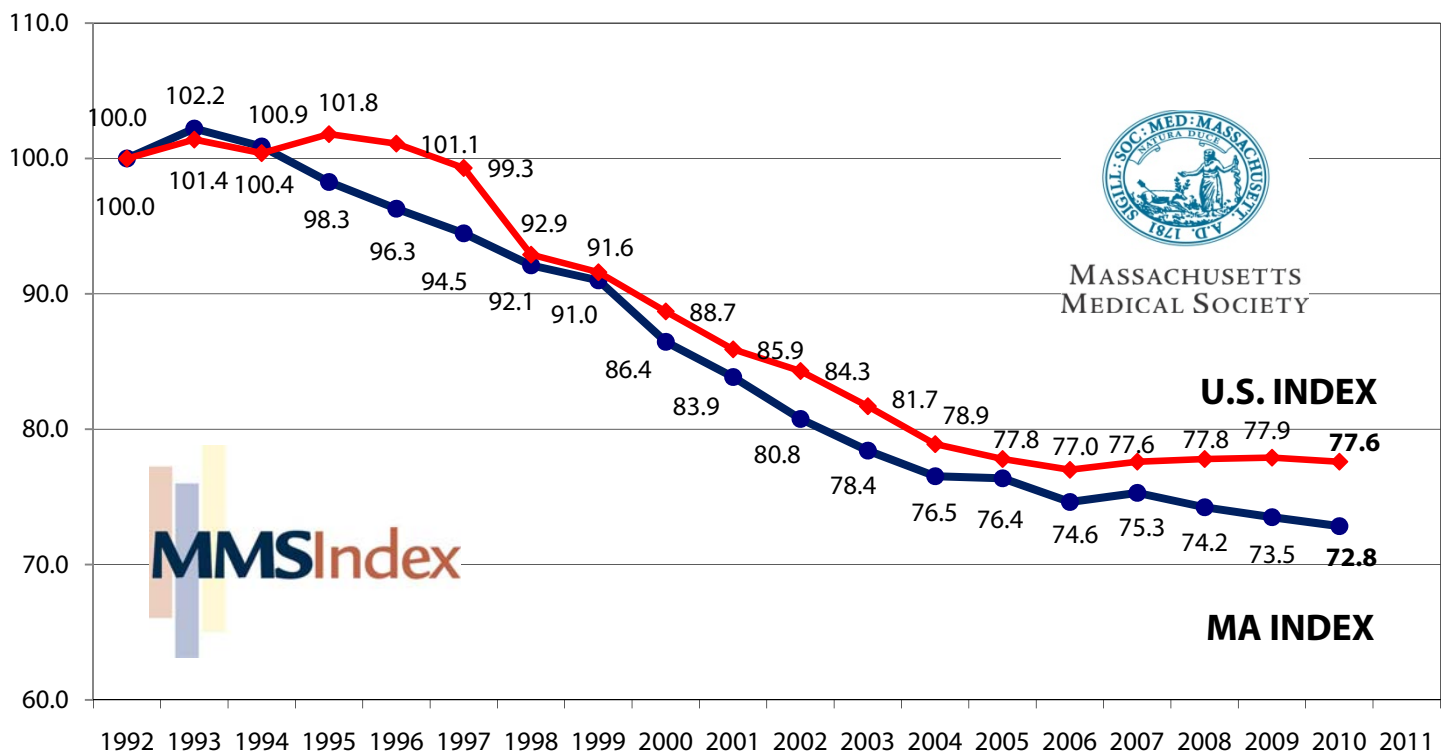


The Massachusetts Medical Society 2011 Physician Practice Environment Report

The Massachusetts Physician Practice Environment Index (Massachusetts Index), a statistical measure of the factors that affect the delivery of patient care from physician practices, declined 0.9 percent in 2010. It was the Massachusetts Index's 16th decline in the last 17 years. During the same period, the statistically comparable U.S. Physician Practice Environment Index (U.S. Index) declined by 0.5 percent.

MMS Practice Environment Index



The continued deterioration in the Massachusetts Index in 2010 resulted primarily from increases in two weighted variables:

- Professional liability insurance premium rates
- Percent of physicians 55 years of age and over

The deterioration in the United States Index in 2010 resulted primarily from increases in two weighted variables:

- Percent of physicians 55 years of age and over
- Cost of maintaining a physician's practice

The Massachusetts Index and its companion U.S. Index measure nine factors that impact the delivery of patient care in Massachusetts and in the United States. The indicators are: 1) applications to medical schools, 2) percent of physicians 55 years of age and over, 3) median physician income levels, 4) ratio of median housing prices to median physician income, 5) cost of maintaining a physician's practice, 6) mean number of hours spent on patient care activities, 7) number of visits per emergency department, 8) change in average professional liability ("malpractice") insurance premium rates, and 9) annual number of advertisements for physician vacancies in the *New England Journal of Medicine*.

The finding that the physician practice environment in Massachusetts continued to decline at a faster rate than in the nation is important, but two additional longer-run developments should also be noted.

First, while the annual rates of change in these two indexes have varied over time, a noticeable new trend has developed since 2005: The annual rates of change in the Massachusetts Index have continued to decline, while the rates of change in the U.S. Index have begun to flatten out.

Second, the annual rates of change in the number of physicians younger than 55 slowed during the period 2000-2005 compared to the period 1995-2000. More importantly there was a decrease in the number of physicians younger than 55 between 2005 and 2009. This is true for both the state and the nation. These changes mean that there will likely be a shortage of physicians available to fill the gaps left by the expected exodus of older physicians over the next decade. The policy implication is that unless new initiatives are launched, it is conceivable that over the next decade there could be a more severe shortage in the absolute number of physicians delivering care in Massachusetts.

An Analysis of Changes in the Massachusetts and U.S. Index Data

The companion U.S. Index provides a meaningful statistical reference point against which to judge the relative changes in the Massachusetts Index. Shown in Table 1 below are the annual rates of change in these Indexes for the most recent four-year period.

Table 1
Weighted Percent Rates of Change in the Massachusetts and U.S. Indexes

<u>Year</u>	<u>MA Index</u>	<u>U.S. Index</u>
2007	+ 0.8%	+ 0.6%
2008	- 1.4%	+ 0.3%
2009	- 1.0%	+ 0.2%
2010	- 0.9%	- 0.5%

The persistent deterioration in the Massachusetts Index is readily apparent. When the specific statistical details in the two indexes are disaggregated, the interaction across the individual variables may be seen even more clearly. These are displayed in Table 2.

Table 2
Comparative Details for the Factors Affecting the
Changes in the Massachusetts and U.S. Indexes in 2010

	<u>MA Index</u>	<u>U.S. Index</u>
Unweighted Changes Among Key Index Variables:		
<u>Factors with a Negative Effect on the Index:¹</u>		
• Professional liability insurance premium rates	+ 3.5%	0.0%
• Percent physicians 55 years of age and over	+ 2.9%	+ 3.0%
• Cost of maintaining a physician's practice	+ 0.7%	+ 3.0%
• Number of visits to emergency departments	+ 0.2%	+ 3.0%
<u>Factors with a Positive Effect on the Index:</u>		
• Applicants	+ 2.9%	+ 3.0%
• Income	+ 1.5%	+1.6%

¹ In the actual calculation of the indexes themselves, positive changes in these four variables are considered to have a negative effect on the indexes; hence in the index calculations, they are inverted.

An Analysis of the Rates of Change in the Massachusetts and U.S. Indexes over the Last Decade

The most obvious and meaningful conclusion derived from the behavior of these two important indexes over the past 10 years is that, while the two indexes declined rather sharply at somewhat comparable rates during the period 2000-2005, a significant disparity in their rates of change has developed since then. This disparity – perhaps better described as a gap – resulted from a persistent decline in the Massachusetts Index juxtaposed to a flattening out in the rate of change in the U.S. Index. This may be visually seen from the historical data that are plotted in the chart at the beginning of this report while the actual data are reproduced in Table 3.

Table 3
Cumulative Weighted Rates of Change for the Massachusetts and U.S. Indexes

	<u>2000-2005</u>	<u>2005-2010</u>
MA Index	- 17.3%	- 5.0%
U.S. Index	- 16.1%	- 1.8%

It is important to identify the factors that explain the emergence of this gap. The rates of change in any aggregate index numbers are the result of the complex statistical interaction of all the variables, and this is clearly the case with the Massachusetts and U.S. Indexes. Recognizing this caveat, a careful review of the variables in the two indexes shows that the disparate changes in key variables played the dominant role in opening up the 2005-2010 gap. The relevant rates of change in key variables are shown in Table 4.

Table 4
Dominant Factors Affecting the Performance of the
Two Physician Practice Environment Indexes
2000-2005, 2005-2010

	2000-2005		2005-2010	
	<u>MA Index</u>	<u>US Index</u>	<u>MA Index</u>	<u>US Index</u>
<u>Dominant Weighted Changes Among Key Index Variables:</u>				
• Cost of maintaining a physician's practice	+2.6%	+2.7%	+2.4%	+2.3%
• Percent of physicians 55 years of age and over	+2.2%	+1.5%	+2.4%	+2.4%
• Physician Income	+3.8%	+4.0%	+1.9%	+2.0%
• Professional liability insurance premium rates	+10.1%	+12.0%	+2.4%	+0.5%
• Applicants	-0.8%	-0.2%	+1.1%	+2.5%

The significant swing between the professional liability insurance premium rates is obvious, but this observation requires brief elaboration. Inasmuch as there is no national profession liability insurance premium rate because rates are set by state rating agencies, the annual national estimates used in the index represent the median values reported for the various states. Over the years it has been shown repeatedly that there are only relatively small amounts of dispersion around the median; hence it seems as a good proxy for a national rate. Therefore it is reasonable to conclude that professional liability insurance premium rate increases in Massachusetts in the period 2005-2010 are out of line with those of the nation.

It is also important to note that the small increases in physician income in Massachusetts have not kept pace with the increases in the professional liability insurance premium increases or the cost of maintaining a physician's practice. In both Massachusetts and the U.S., increases in the median income of physicians have been cut in half while increases in the cost of maintaining a physicians' practice have held steady over the past ten years.

The changes in the cost of maintaining a physician's practice over the two periods appear to be relatively slight, but given the thin operating margins in a physician's practice, this is not the case. The slowing in the rate of increase in operating costs over the two periods was only 8 percent in Massachusetts, but amounted to 15 percent in the U.S. This differential may largely be explained by the wage structure in Massachusetts vis-à-vis the U.S. During the period 2005-2010, the composite hourly wage figure used in the Massachusetts Index increased 27 percent to \$29.56 while the comparable U.S. figure rose 19 percent to \$23.62. The result is a composite hourly wage figure that is 25% higher for Massachusetts physicians compared to their U.S. counterparts.

Special Comments on the Unique Problems Resulting from an Aging Physician Workforce in Massachusetts

Historical data included in the Massachusetts and U.S. Indexes provide additional insight into the dynamics of adjustment in the two practice environments. Over the past 14 years, gradual adjustments have taken place; specifically, there has been a steady upward progression in the ratios of Massachusetts and U.S. physicians 55 years of age and older. In the mid 1990s, the ratios amounted to

roughly one third. Over the last several years, they have been approaching nearly one half. It has always been assumed that these adjustments reflect nothing more than the gradual aging of the baby boomers in the physician workforce. But as the data in the following tables show this has clearly become a major issue.

Table 5
Total Number of Physicians in Massachusetts and the U.S. by
Selected Age Categories

In Massachusetts

<u>Period</u>	<u>All Physicians</u>	<u>Physicians 55 and Over</u>	<u>Physicians Younger than 55</u>
1995	21,180	6,588	14,592
2000	23,927	8,082	15,845
2005	27,277	10,326	16,951
2009	29,361	12,468	16,893

In U.S.

<u>Period</u>	<u>All Physicians</u>	<u>Physicians 55 and Over</u>	<u>Physicians Younger than 55</u>
1995	602,879	212,155	390,724
2000	697,486	257,258	440,228
2005	806,662	327,441	479,221
2009	863,311	391,765	471,546

Annual Average Changes in Massachusetts and U.S. by Selected Age Categories

In Massachusetts

<u>Period</u>	<u>All Physicians</u>	<u>Physicians 55 and Over</u>	<u>Physicians Younger than 55</u>
1995-2000	2.6%	4.5%	1.7%
2000-2005	2.8%	5.6%	1.4%
2005-2009	1.5%	4.1%	-0.1%

In U.S.

<u>Period</u>	<u>All Physicians</u>	<u>Physicians 55 and Over</u>	<u>Physicians Younger than 55</u>
1995-2000	3.1%	4.3%	2.5%
2000-2005	3.1%	5.5%	1.8%
2005-2009	1.4%	3.9%	-0.3%

In conclusion, these data are most concerning, specifically that the annual rates of change in the number of physicians younger than 55 will not be sufficient to fill the gaps left by the expected exodus

of older physicians over the next decade. To be even more specific, it must be noted that the actual number of young physicians entering the profession declined absolutely during the period 2005-2009. Despite the physician shortages that currently exist in Massachusetts, the future will most likely make the current situation pale by comparison as the physician pipeline simply is not filled in adequate numbers to compensate for the aging of the baby boomer physician classes.

If there is any consolation in this conclusion, it is that given the relative consistency in the Massachusetts and U.S. data, the public policy issues, complex as they are, will be national in their scope.

In a broader context, one must conclude that this differential aging of the physicians in Massachusetts relative to the baby bust that followed these boomers means that over the next two decades, fewer physicians will be available to support the ever-growing healthcare needs of the aging population. Unless bold new policy initiatives are launched, it is not inconceivable that over the next decade there could be a contraction in the absolute number of physicians delivering care in Massachusetts.

Data Sources

Massachusetts Index, March 2010

1. Number of Applications to Massachusetts Medical Schools

Total number of initial applications to Massachusetts' four medical schools: Boston University, Harvard University, Tufts University, and the University of Massachusetts

Source: Association of American Medical Colleges.

2. Percentage of Non-Federal Physicians 55 Years of Age and Over

Source: *Physician Characteristics and Distribution in the US, 1993 to 2010*, American Medical Association. Residents and fellows are not included in the total number of physicians.

3. New England Median Physician Income

Source: *Physician Marketplace Statistics* and *Physician Socioeconomic Statistics, 1993 to 2003*, American Medical Association. Estimates made by The Howell Group for the years 2003 and 2004 were based on data from Medical Group Management Association's *Physician Compensation and Production Survey, 2003 and 2004*. Estimates made by the Howell Group for the year 2010 were based on data from the Medical Group Management Association's *Physician Compensation and Production Survey, 2010*, and data from Medical Economics' annual Physician Salary and Compensation Survey (note, for comparison the data from the Medical Economics survey was trended from 1992 through 2005 and resulted with similar rate changes on an annual basis.).

4. Ratio of Median Housing Prices to Median Physician Income

Source: Office of Federal Housing Enterprise Oversight, Department of Housing and Urban Development; Standard and Poor's/ Case-Shiller Home Price Indices for 2009 to 2010 rates of change. *Physician Marketplace Statistics* and *Physician Socioeconomic Statistics, 1993 to 2003*, American Medical Association.

5. Cost of Maintaining a Physician's Practice

Composed of three components:

- A composite of physician office hourly wages for accounting clerks, registered nurses, and secretaries from 1994 to 2010.
Source: U.S. Bureau of Labor Statistics' annual *National Compensation Survey, 1992 to 2010*.
- New England mean medical supply expenses per self-employed physician
Source: *Physician Marketplace Statistics* and *Physician Socioeconomic Statistics, 1995 to 2003*, American Medical Association. This data is updated annually utilizing the Bureau of Labor Statistics Producer Price Index rates of change for Medical Supplies Manufacturers.
- Annual rates of change in average cost per square foot for class B office space in urban area.
Source: Grubb & Ellis Research Department national rent rates (Class B) 1994 to 2010.

6. New England Physician Mean Hours per Week Spent in Patient Care Activities

Source: *Physician Marketplace Statistics* and *Physician Socioeconomic Statistics, 1993 to 2003*, American Medical Association.

7. Annual Number of Visits per Emergency Department

Source: *AHA Hospital Statistics,™ 2010*, American Hospital Association, for the number of outpatient visits. Number of emergency departments in Massachusetts was reported by the Massachusetts Hospital Association.

8. Change in Average Professional Liability ("Malpractice") Insurance Premiums for Physicians

Source: ProMutual Insurance Company.

9. Annual Number of Advertisements for physician vacancies in Massachusetts Listed in the *New England Journal of Medicine*

Data for this variable includes both print and web based advertising for physician vacancies in Massachusetts. A print and web ad for one position is only counted once.

Source: *New England Journal of Medicine*.

US Index, March 2010

1. Number of Applications to U.S. Medical Schools

Total number of initial applications submitted annually to medical schools in the United States

Source: Association of American Medical Colleges.

2. Percentage of Non-Federal Physicians 55 Years of Age and Over

Source: *Physician Characteristics and Distribution in the US, 1993 to 2010*, American Medical Association. Residents and fellows are not included in the total number of physicians.

3. U.S. Median Physician Income

Source: *Physician Marketplace Statistics* and *Physician Socioeconomic Statistics, 1993 to 2003*, American Medical Association and the Medical Group Management Association's *Physician Compensation and Production Survey, 2003 and 2004*. Estimates made by the Howell Group for the year 2009 were based on data from the Medical Group Management Association's *Physician Compensation and Production Survey, 2010*, and data from Medical Economics' annual Physician Salary and Compensation Survey (note, for comparison the data from the Medical Economics survey was trended from 1992 through 2005 and resulted with similar rate changes on an annual basis).

4. Ratio of U.S. Median Housing Prices to U.S. Median Physician Income

Source: Office of Federal Housing Enterprise Oversight, Department of Housing and Urban Development; Standard and Poor's/ Case-Shiller Home Price Indices for 2009 to 2010 rates of change. *Physician Marketplace Statistics* and *Physician Socioeconomic Statistics, 1993 to 2003*, American Medical Association.

5. U.S. Cost of Maintaining a Physician's Practice

A composite index composed of three components:

- A composite of physician office hourly wages for accounting clerks, registered nurses, and secretaries from 1994 to 2010.
Source: U.S. Bureau of Labor Statistics' annual *National Compensation Survey, 1992 to 2010*.
- Mean medical supply expenses per self-employed physician.
Source: *Physician Marketplace Statistics* and *Physician Socioeconomic Statistics, 1995 to 2003*, American Medical Association. This data is updated annually utilizing the Bureau of Labor Statistics Producer Price Index rates of change for Medical Supplies Manufacturers.
- Annual rates of change in average cost per square foot for class B office space in large metropolitan areas.
Source: Grubb & Ellis Research Department national rent rates (Class B) 1994 to 2010.

6. U.S. Physician Mean Hours per Week Spent in Patient Care Activities

Source: *Physician Marketplace Statistics* and *Physician Socioeconomic Statistics, 1993 to 2003*, American Medical Association.

7. Annual Number of Visits per Emergency Department

Source: *AHA Hospital Statistics™, 2010*, American Hospital Association.

8. Rate of Change in Mean Professional Liability Premiums Paid by Self-Employed Physicians in the United States

Source: *Physician Marketplace Statistics* and *Physician Socioeconomic Statistics, 1993 to 2002*, American Medical Association; *National Physician Survey on Professional Liability, March 2003*, American Medical Association; *2010 Rate Survey*, Medical Liability Monitor.

9. Annual Number of Advertisements for physician vacancies in the United States Listed in the *New England Journal of Medicine*

Data for this variable includes both print and web based advertising for physician vacancies in the United States of America. A print and web ad for one position is only counted once.

Source: *New England Journal of Medicine*.

MMS Practice Environment Index
MA. Underlying Data: 2010

	MA Med School Applications	MA. Physicians % 55 and Over	New Eng. Median Physician Income (Thous. \$)	Ratio Housing Price to Median Physician Income	Mass. Cost of Maintaining Physician's Practice Index	New Eng. Mean Hrs. Patient Care Activities	MA Visits per Emergency Department	MA Chg. in Avg. Malprac. Rates	MA NEJM Ad Counts
1992	18,387	30.5%	\$140.0	1.1370	---	49.5	34,597	100.0	---
1993	21,403	30.7%	\$140.0	1.1509	---	47.7	32,691	100.0	---
1994	25,854	30.8%	\$135.0	1.2337	100.0	48.5	32,882	107.5	---
1995	28,737	31.1%	\$140.0	1.2141	118.5	47.2	33,142	117.6	---
1996	28,508	32.1%	\$145.0	1.2264	125.1	51.3	31,865	117.6	1,537
1997	26,111	32.5%	\$150.0	1.2633	130.8	52.1	33,235	117.6	1,238
1998	24,159	32.3%	\$150.0	1.3888	138.6	50.4	32,126	124.7	1,403
1999	26,736	32.8%	<i>\$152.0</i>	<i>1.5473</i>	145.4	48.9	35,404	124.7	1,465
2000	25,347	33.8%	\$159.0	1.7222	161.2	<i>49.1</i>	36,700	135.9	2,040
2001	23,479	34.4%	\$167.0	1.8626	157.1	49.4	36,727	154.9	2,626
2002	21,313	35.5%	\$175.0	2.0103	158.8	49.6	38,954	174.3	2,647
2003	22,737	36.9%	\$185.2	2.0022	162.0	49.8	40,133	209.3	2,720
2004	23,327	37.4%	\$186.8	2.2669	165.0	<i>50.0</i>	39,383	232.3	2,184
2005	24,290	37.9%	<i>\$196.7</i>	<i>2.3072</i>	171.5	<i>50.2</i>	39,263	232.3	2,520
2006	25,318	39.0%	<i>\$200.0</i>	<i>2.2916</i>	177.2	<i>50.4</i>	43,003	243.9	3,293
2007	27,492	40.2%	<i>\$207.8</i>	<i>2.1350</i>	182.9	<i>50.6</i>	43,660	238.3	3,319
2008	27,117	41.8%	<i>\$211.8</i>	<i>1.9753</i>	189.1	<i>50.8</i>	43,328	250.9	3,941
2009	26,483	42.5%	<i>\$208.6</i>	<i>1.9394</i>	191.9	<i>51.0</i>	43,285	261.0	2,812
2010	27,326	43.7%	<i>\$211.7</i>	<i>1.9190</i>	<i>193.3</i>	<i>51.2</i>	43,382	270.1	3,384

Estimates in italics

MMS Practice Environment Index

U.S. Underlying Data: 2010

	U.S. Med School Applications	U.S. Physicians % 55 and Over	U.S. Median Physician Income (Thous. \$)	U.S. Ratio Housing Price to Median Physician Income	U.S. Cost of Maintaining Physician's Practice Index	U.S. Mean Hrs. Patient Care Activities	U.S. Visits per Emergency Department	U.S. Chg. in Avg. Malprac. Rates	U.S. NEJM Ad Counts
1992	405,720	34.3%	\$150.0	0.9760	---	52.9	19,785	100.0	---
1993	482,788	34.8%	\$156.0	0.9173	---	52.9	20,325	104.3	---
1994	561,593	34.7%	\$150.0	0.9467	100	52.1	20,752	109.2	---
1995	595,975	35.0%	\$160.0	0.8925	98.4	51.3	22,688	108.5	---
1996	566,122	36.0%	\$166.0	0.9343	98.7	53.4	23,168	102.5	11,597
1997	512,877	36.2%	\$164.0	1.0030	102.8	53.2	21,738	103.2	17,870
1998	481,330	35.8%	\$160.0	1.0838	115.3	51.7	23,452	121.5	22,595
1999	454,364	36.7%	<i>\$167.0</i>	<i>1.1030</i>	119.4	51.6	24,247	124.2	22,697
2000	433,979	36.9%	\$175.0	1.1366	128.7	52.2	25,318	135.4	25,560
2001	403,609	37.5%	\$183.0	1.1776	130.2	52.8	26,195	154.4	24,661
2002	373,686	38.6%	\$192.0	1.2042	128.5	53.2	27,236	168.3	21,023
2003	392,118	39.5%	\$204.3	1.1914	131.7	53.7	27,230	208.7	20,525
2004	411,151	39.9%	\$206.3	1.2700	135.4	54.2	28,032	242.1	21,217
2005	448,820	40.6%	\$218.3	1.3444	141.8	54.7	28,588	260.0	21,396
2006	483,148	41.6%	\$222.4	1.4217	145.5	55.2	30,197	260.0	22,783
2007	546,817	42.9%	\$232.0	1.3751	150.3	55.7	30,699	261.0	19,595
2008	558,053	44.3%	\$236.8	1.2529	155.1	56.2	31,012	249.8	23,384
2009	562,694	45.4%	\$233.0	1.1532	152.3	56.7	32,969	249.8	15,720
2010	580,304	46.7%	\$236.8	1.1397	<i>156.9</i>	57.2	33,957	249.8	13,878

Estimates in italics

For detailed information on the Index sources and analytical techniques used in calculating the Massachusetts Index and United States Index, please contact the Massachusetts Medical Society Health Policy/Health Systems Department at (800)322-2303, ext. 7661.