

Physician Workforce Study

June 2007



MASSACHUSETTS
MEDICAL SOCIETY

Every physician matters, each patient counts.



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THE MASSACHUSETTS MEDICAL SOCIETY 2007 PHYSICIAN WORKFORCE STUDY

EXECUTIVE SUMMARY

I. Introduction

With the implementation of Chapter 58, Massachusetts' landmark health care reform law, the Massachusetts Medical Society's study of the physician workforce takes on an even more integral role in policymaking in the state. Effective July 1, 2007, residents of Massachusetts are mandated to carry health insurance.

The inevitable increase in patient demand is occurring in the midst of an increasing physician shortage. Among the new specialties showing strain are family practice and internal medicine, two of the most important to providing adequate preventive care and minimizing the use of emergency departments. Newly insured residents may find it difficult to get timely appointments with physicians due to these shortages. Due to continuing and emerging concerns about the availability of physicians in certain specialties and in certain geographic areas, with the help of prominent labor economists, the Massachusetts Medical Society (MMS) completed a study that builds upon the results of the previous five years of MMS Physician Workforce Studies. As the previous studies concluded, "The physician labor market in Massachusetts continues to be under extreme stress and the forces that pushed the market into this unenviable state are numerous and are not likely to be easily reversed."¹

"The task before those concerned about workforce issues is to educate policymakers about how changes in the physician workforce will affect cost, access, and quality, and to impress upon them that serious efforts to improve quality of care and reduce costs will not be effective unless qualified physicians are there to provide that care."² Taking heed of this statement is more important than ever as Massachusetts implements universal health care and attempts to provide affordable insurance to hundreds of thousands of residents.

This year's MMS Physician Workforce Study and the five previous studies give cause for concern as to whether there are enough practicing physicians in Massachusetts to handle the inevitable increased demand

¹ *Massachusetts Medical Society. Physician Workforce Study, 2002–2006. Available at www.massmed.org (accessed on April 16, 2007).*

² *Grover A. Critical care workforce: a policy perspective. Crit Care Med. 2006 Mar;34(3 Suppl):S7-11.*

for health services that will come with health care reform, an aging population, and advances in technology. Significant change is necessary to improve conditions for physicians in Massachusetts, increase the workforce, and ensure patients have adequate access to high-quality, cost-effective care.

Reinforcing the need for change, the 2006 MMS Physician Practice Environment Index Report³ for Massachusetts and the United States declined for 13 and 11 straight years respectively, reflecting a continually deteriorating practice environment for physicians. This lengthy deterioration is a principle cause of accelerating physician shortages in specialty and primary care, difficulty recruiting and retaining physicians, and reduced patient access to care. Further, the rate of deterioration in Massachusetts was 26% faster than in the United States as a whole over the 14-year period (1992 to 2006).

Historically, the rising costs of maintaining a practice, the ratio of housing prices to physician income, and increases in professional liability fees have been the dominant factors explaining the deterioration in the Massachusetts Index.

As analysts continue to study the physician workforce in the United States, the paradigm of how to determine if there is a physician workforce shortage is shifting from a pure numerical analysis to a more comprehensive evaluation of the changing demographics and philosophy of new physicians, the practice environment, and the training provided in medical school. Findings show that the United States is not training enough of its own physicians, as approximately 22% of physicians in this country are foreign born and educated.⁴ In 2004, Richard A. Cooper, MD, predicted a shortage of 200,000 physicians in the United States by the year 2020.⁵

Studies reveal that medical students and residents are less likely than past generations to choose internal medicine or family practice as a specialty. Moreover, some specialties face problems attracting new physicians. Finally, there are an increasing number of women in the workforce now who often work fewer hours in clinical care than their male counterparts, and many male physicians wish to work fewer hours than those of previous generations.⁶ Therefore, the amount of time physicians spend in patient care could decrease as more young physicians enter the workforce. New physicians and currently practicing physicians are reducing the hassles and costs of the current practice environment by choosing employment with

³ Massachusetts Medical Society. *MMS Physician Practice Environment Index*, April 2007. Available at www.massmed.org/pages/mmsindex.asp (accessed on April 16, 2007).

⁴ Cooper RA, Aiken L. *Health services delivery: reframing policies for global migration of nurses and physicians — a U.S. perspective*. *Policy Polit Nurs Pract* 2006 Aug;7(3 Suppl):66S-70S.

⁵ Cooper RA. *Weighing the evidence for expanding physician supply*. *Ann Intern Med* 2004 Nov 2;141(9):705-14.

⁶ Cooper RA, Aiken L. *Health services delivery: reframing policies for global migration of nurses and physicians — a U.S. perspective*. *Policy Polit Nurs Pract* 2006 Aug;7(3 Suppl):66S-70S.

hospitals instead of opening their own practices. In addition, physicians are migrating toward larger medical groups.

Because of the changing dynamics of the physician workforce, as demonstrated in last year's study and again in this year's, new specialties are showing signs of strain on the labor market. New specialties such as family practice and internal medicine have now emerged as severe and critical respectively for the second year in a row, underscoring the warning from primary care physicians in Massachusetts and the nation that a workforce shortage is imminent.⁷

In addition to specific specialties facing shortages, Massachusetts faces the problem of a disproportionate supply of physicians in urban versus rural areas. Most hospitals and clinics are concentrated in the Boston metropolitan area. Specifically, teaching hospitals typically have less of a problem recruiting physicians. Although, in recent years, the physician recruiting firm at Merritt, Hawkins & Associates has reported an escalation in requests for help from larger hospitals — hospitals that, in the past, needed less assistance filling vacancies. On the other hand, Western Massachusetts suffers from an even greater recruitment and retention problem than Boston.

The state is in the process of implementing health care reform to insure hundreds of thousands of residents. Adequate physician supply is essential to the success of health care reform. Furthermore, physician workforce shortages should not be minimized as we move toward initiatives such as pay for performance, quality measurements, and other cost control initiatives. Some of these programs may add administrative burden to the physician practice environment while intending to improve the overall health care system. Therefore, implementation of new programs, including Massachusetts' new health care reform act, must be done with sensitivity to the current challenges in the physician practice environment.

The MMS evaluates the status of the current physician workforce through both primary and secondary research. This year, the Society also consulted economists James Howell, PhD, and Andrew Sum, PhD, in the development of the survey tools and in the analysis of the results. The MMS conducted the following primary research:

- A survey of a random sample of practicing physicians in community hospital and hospital settings throughout Massachusetts
- A survey of medical staff presidents in community hospitals

⁷ American College of Physicians. *The Impending Collapse of Primary Care Medicine and Its Implications for the State of the Nation's Health Care*, January 30, 2006. Available at www.acponline.org/hpp/statehc06_1.pdf (accessed on February 28, 2007).

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- A survey of department chiefs in teaching hospitals
 - A survey of medical directors of medical groups
 - A survey of residency and fellowship program directors
 - A telephone survey of physician offices in Massachusetts regarding wait times
 - A telephone survey of Massachusetts residents regarding health care issues, including patient access to care

II. Snapshot of 2007 Findings — Across MMS Physician Workforce Study Surveys and Opinion Polls

Practicing Physicians' Survey Responses

- The 2007 data again confirmed the increasing degree of stress in three labor markets that appeared on the critical and/or severe list for the first time in 2006 — internal medicine, family practice, and psychiatry.
- Roughly eight out of ten (83%) physicians surveyed reported that they find their medical careers either very rewarding or rewarding.
- Forty-three percent (43%) of physicians responded that they are very dissatisfied or dissatisfied with the current practice environment. If given the choice, only 51% of physicians would choose to practice medicine again as their profession.
- Forty-eight percent (48%) of the physicians reported being very dissatisfied or dissatisfied with the number of hours they are able to spend on patient care versus administrative tasks.
- Compared to their colleagues in other states, 61% of the physician respondents rate their current income level as very uncompetitive or uncompetitive. Eighty-six percent (86%) believe that over the next five years, their salary levels will either decline or remain the same.

-
- Roughly one-half (48%) of the physicians surveyed responded that they are altering or limiting their practice because of the fear of being sued. Four specialties report that their practices have been significantly impacted by the threat of being sued: emergency medicine, neurosurgery, OB/GYN, and orthopedics.
 - Eighty-three percent (83%) of physicians are maintaining or increasing their work hours, and almost half (47%) are very dissatisfied or dissatisfied with the number of hours they work versus their ability to pursue home life.
 - Thirty-seven percent (37%) of physicians are considering changing their profession due to the current practice environment.
 - Approximately one-quarter (24%) of physician respondents are planning or considering moving out of Massachusetts if the practice environment does not change.
 - Seventy percent (70%) of physician respondents are having difficulty filling physician vacancies, and 70% said the pool of physician applicants is inadequate to fill their vacant positions.
 - Thirty-two percent (32%) of practicing physicians responded that physician supply problems have made it necessary to alter the services they provide.
 - Additionally, almost three-quarters (72%) of physician respondents indicated that their patients are having difficulty obtaining a timely specialty care consultation.

Community and Teaching Hospital Survey Responses

- Sixty-eight percent (68%) of teaching hospitals and 83% of community hospitals are currently experiencing difficulty filling physician vacancies.
- Seventy-two percent (72%) of community hospitals reported that physician supply problems necessitated altering the provision of services, and 68% reported adjusting professional staffing due to physician supply problems.
- Thirty-eight percent (38%) of teaching hospitals reported that physician supply problems necessitated altering the provision of services, and 45% reported adjusting professional staffing patterns.
- In teaching hospitals, the highest job vacancy rates were in the vascular surgery, urology, neurosurgery, and OB/GYN specialties.

Medical Directors' Survey Responses

- Seventy percent (70%) of medical directors responded that the average amount of time needed to recruit a physician has increased over the past 3 years.
- Medical directors cited a median recruitment time of 11 to 12 months, with nearly one-third claiming 18 months or longer.
- One-third of medical directors reported the need to alter services due to physician supply problems.
- Almost one-half (47%) of the medical directors surveyed reported that physician supply problems have made it necessary to adjust staffing patterns.
- Over 40% of the medical directors (43%) responded that retention of physicians has changed, with all noting that retention has become more difficult.

Residency/Fellowship Program Directors' Responses

- Each year, slightly more than one-half of residents pursue the next step in their medical career outside Massachusetts.
- Residency/fellowship program directors rate salary level and the practice environment as the least likely reasons a resident plans to begin his or her career in Massachusetts (7% and 17% respectively). Intellectual and research opportunities top the list of professional reasons residents plan to stay in the Commonwealth (85% and 71% respectively).

Physician Office Telephone Survey

- The physician office poll showed that it is significantly more difficult to obtain an internal medicine appointment than it was a year ago. Just half (51%) of internists are accepting new patients, down from 64% in 2006 and 66% in 2005.
- The average wait time among internal medicine physicians accepting new patients is up to 52 days — compared to 33 days in 2006 and 47 days in 2005.
- Fewer internists report accepting Medicaid — 59% now, down from 73% in 2006 and 79% in 2005.
- The average wait time for a new patient appointment to see an OB/GYN increased from 34 days last year to 46 days this year.

Public Opinion Telephone Survey

- In 2006, 53% of patients who had an appointment with a primary care physician were able to see a doctor within a week of contacting the doctor. This year, just 42% were able to see a doctor within a week.
- Seventeen percent (17%) of respondents who had a serious (but not life threatening) medical problem say the wait for an appointment was a problem, up from 7% in the previous two surveys.
- Nearly three-quarters (74%) of residents oppose higher copays based on insurers' internal quality and cost ratings of physicians.
- In the past year, 41% of Massachusetts residents had a medical appointment in which they saw a nurse, a nurse practitioner, or a physician assistant, but not a doctor. Half (53%) of those who saw a non-physician health care provider did so by choice, 35% because they couldn't get an appointment with a medical doctor, and 6% said they didn't know they weren't seeing a physician until they arrived for their appointment.

III. Detailed Findings

Outlined below are the detailed findings of the seven areas of primary research conducted for the 2007 MMS Physician Workforce Study (see the full report for complete results).

Survey of Practicing Physicians

Over the six-year period studied (2002 to 2007), the results derived from the restated survey questions provide a comprehensive picture of the current and past conditions in physician labor markets in Massachusetts. These results provide a comprehensive basis for differentiating important shifts across the physician specialty labor markets.

TABLE 1: PHYSICIAN SPECIALTIES CLASSIFIED AS CRITICAL OR SEVERE SHORTAGE, 2002 TO 2007						
SPECIALTY	2007	2006	2005	2004	2003	2002
Neurosurgery	Critical	Severe	Severe	Critical	Critical	Severe
Anesthesiology	Severe	Severe	Critical	Severe	Critical	Critical
Cardiology	Critical	--	Severe	Severe	Critical	Severe
Gastroenterology	Severe	Severe	Severe	--	Critical	Severe
Radiology	--	Critical	--	Severe	Critical	Critical
Orthopedics	--	Severe	Severe	Severe	Severe	--
General Surgery	--	Severe	Severe	Severe	Severe	--
Internal Medicine	Critical	Critical	--	--	--	--
Vascular Surgery	Critical	Severe	--	--	Severe	--
Family Practice	Severe	Severe	--	--	--	--
Psychiatry	Severe	Severe	--	--	--	--
Urology	Severe	*	*	*	*	*
Emergency Medicine	--	Severe	--	--	--	Severe
OB/GYN	--	--	--	--	--	--
Pediatrics	--	--	--	--	--	--

*2007 data only

Within this context, three important conclusions can be made.

- Four specialties have consistently faced critical and/or severe labor market conditions over the past six survey years:
 - Neurosurgery
 - Anesthesiology
 - Cardiology
 - Gastroenterology

For two of these specialties — neurosurgery and anesthesiology — labor market conditions were classified as critical or severe for all six years. The labor market conditions for the other two specialties — cardiology and gastroenterology — were classified as critical or severe in five of the last six years. Clearly, labor markets for these four specialties were stressed when the first survey was undertaken six years ago, and they have remained so over subsequent survey years.

This historical perspective is important not only because it provides considerable insight into the dynamics operating in physician labor markets over time, but also because it provides a meaningful context for evaluating the 2006–2007 survey results.

- The second conclusion concerns physician labor market developments over the past two years. As the survey data in Table 1 show, labor markets have clearly deteriorated for a much larger cluster of specialties. Note that for the past two years, the following four specialties have satisfied the criteria for critical and/or severe conditions:
 - Internal medicine
 - Vascular surgery
 - Family practice
 - Psychiatry

A fifth specialty, urology, meets the criteria for severe labor market stress in 2007. This specialty was introduced in the 2007 survey.

TABLE 2: SPECIALTIES CATEGORIZED AS CRITICAL OR SEVERE, 2007	
SPECIALTY	2007
Anesthesiology*	Severe
Cardiology*	Critical
Family Practice	Severe
Gastroenterology*	Severe
Internal Medicine	Critical
Neurosurgery*	Critical
Psychiatry	Severe
Urology	Severe
Vascular Surgery	Critical

**Specialties originally identified as facing critical or severe labor market conditions based on the historical methodology outlined above*

- The final comment concerns the shift in physician labor market dynamics over the six survey years. Three specialties — internal medicine, family practice, and psychiatry — appeared on the critical and/or severe list for the first time in 2006. The 2007 data again confirm the higher degree of stress in these labor markets. This points to a change in labor market behavior among these three specialties — from nearly normal (2002 to 2005) to considerably stressed (2006 and 2007).

Further, it should be noted that internal medicine remained categorized as critical. In addition, vascular surgery shifted from severe in 2006 to critical in 2007, and cardiology re-emerged as critical in 2007. These comments provide considerable insight into the contemporary behavior of physician labor markets in Massachusetts. Specifically, a six-year time frame is sufficiently long that we would expect to see at least some increase

in physician supply in response to the strong labor market demand that consistently emerges from our surveys. Said slightly differently, the initial survey in 2002 credibly established a strong, unmet demand for physicians in six specialties, and five years later, four of those specialties continue to operate under critical and/or severe conditions.

Over time, labor markets have continued to deteriorate with virtually no supply-side response. The two exceptions are OB/GYN and pediatrics — two specialties that seem to operate in labor markets that function quite independently of the other thirteen.

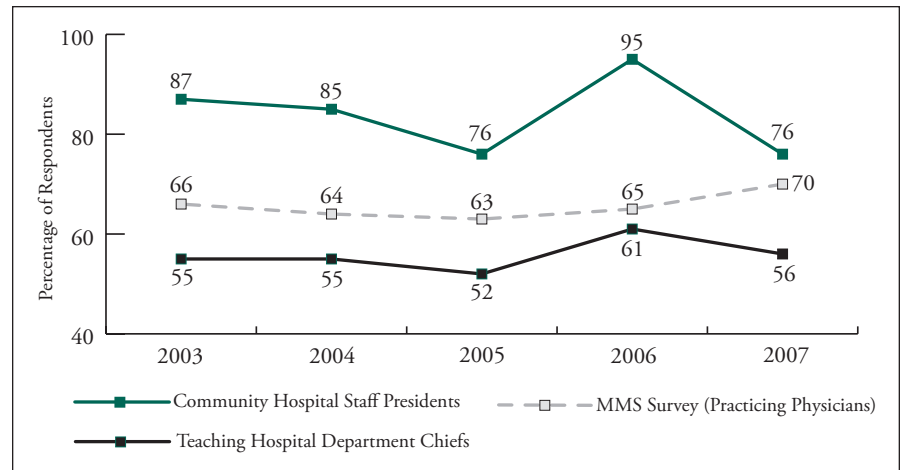
To conclude, physician specialty labor markets in Massachusetts — at least, for the nine specialties noted above — seem to operate in a state of disequilibrium where significant demand for physicians goes unmet. Based on our experience in analyzing studies of the behavior of other labor markets, this is most uncharacteristic. This leads us to conclude that unless Massachusetts labor markets become more flexible and respond, this supply-demand gap will persist for some time to come. Given the outlook for increased patient demand for medical care, this is a most troubling conclusion.

Evaluating Physician Recruitment and Retention

Physician recruitment and retention issues confronted by medical staff presidents at community hospitals and department chiefs in teaching hospitals are analyzed based on findings from the three primary survey sources: practicing physicians, community hospitals, and teaching hospitals. A summary of the key conclusions follows.

- First, all six workforce studies have demonstrated very clearly that community hospitals are in a class of their own when it comes to serious difficulties recruiting physicians from the existing labor pool. Specifically, approximately eight out of ten community hospitals reported that they had problems filling physician vacancies in order to maintain medical staff levels to provide adequate patient care (see Chart 1).

CHART 1: PERCENT REPORTING THAT CURRENT POOL OF APPLICANTS IS INADEQUATE TO FILL VACANT POSITIONS OR EXPAND PRACTICE



- Second, although physician recruitment among practicing physicians has remained essentially unchanged over all six studies, the mean survey response rate is 13 months to recruit and fill each vacancy. Statistical variances suggest that it could take up to 23 months — a length of time that is potentially disruptive to meeting patient needs. The five specialties that experience the longest recruitment times are neurosurgery, urology, vascular surgery, gastroenterology, and orthopedics (see Table 3).

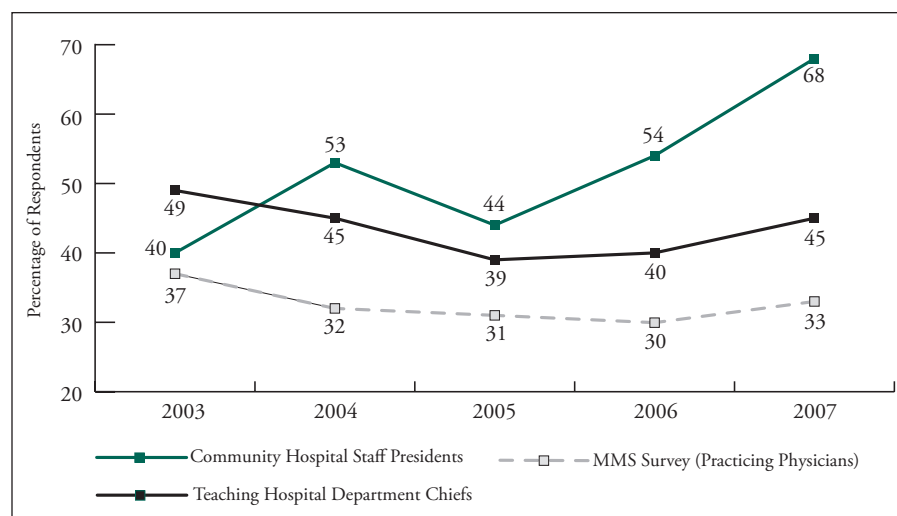
TABLE 3: TIME REQUIRED FOR RECRUITMENT AMONG PRACTICING PHYSICIANS, 2007

SPECIALTY	MEAN OVER 5 YEARS (2002–2006)	2007 MEAN IN MONTHS	STANDARD DEVIATION
Anesthesiology	10.4	10.8	6.8
Cardiology	13.7	16	7.3
Emergency Medicine	8.4	6.5	4.1
Family Practice	12.4	14.3	10
Gastroenterology	18.9	17.9	11.8
General Surgery	15.4	17.4	11
Internal Medicine	12.3	11.4	7.7
Neurosurgery	25.9	26.3	14.7
OB/GYN	13.2	14.1	7.9
Orthopedics	19.7	22	12.7
Pediatrics	9.3	8.7	6.2
Psychiatry	10.5	9.3	7.5
Radiology	13.6	11.2	4.6
Urology	*	21.7	9.7
Vascular Surgery	16.5	19.3	11.7
Sample Mean	12.9	13.1	9.6

*2007 data only

- Finally, community hospitals continue to experience a rapidly rising adverse impact from physician shortages, especially in 2007. During the period from 2003 to 2006, approximately one-half of the community hospitals responded that it was necessary to adjust their service delivery patterns to meet patient demand. The 2007 survey showed that this ratio jumped to more than two-thirds of community hospitals — unquestionably, a most disquieting development (see Chart 2).

CHART 2: PERCENT REPORTING THAT PHYSICIAN SUPPLY PROBLEMS HAVE NECESSITATED ADJUSTING STAFFING PATTERNS



Survey of Medical Directors of Medical Groups

For the 2007 MMS Physician Workforce Study, a new survey with a series of parallel questions was addressed to the medical directors who currently act in leadership roles in physician practices. While the sample responses were somewhat limited,⁸ it is nonetheless believed that medical directors are in a unique position to provide a more comprehensive view of the local labor market conditions in which they operate beyond that provided by the individual physician.

Five survey questions in particular are relevant to the discussion of the adverse effect current physician shortages have on efficiently maintaining patient services, professional staffing practices, and retaining existing staff. Interestingly, responses from the medical directors closely match the responses from the practicing physicians. Following are the relevant responses to these questions.

⁸ Virtually all of the survey responses were from single-specialty medical groups (64%) and the balance was from multi-specialty medical groups. The mean number of physicians employed in the single-specialty firms was 7, and the mean number of physicians employed in multi-specialty firms was 27.

- One-third (33%) of the medical directors and 32% of the practicing physicians indicate that problems with physician supply have necessitated altering services.
- Almost one-half (47%) of medical directors and one-third (33%) of the practicing physicians reported that physician supply problems have made it necessary to adjust staffing patterns.
- More than 40% of both the medical directors (43%) and practicing physicians (42%) responded that physician retention has changed. Unfortunately, retaining physicians has become more difficult for all of the medical directors (100%) and almost all of the practicing physicians (98%).

Additionally, the medical directors were asked to identify physician specialties where there are specific shortages in their own communities. The specialties most frequently cited are outlined in Table 4.

**TABLE 4: MEDICAL DIRECTORS OF MEDICAL GROUPS —
PHYSICIAN SHORTAGES IN THEIR COMMUNITIES**

SPECIALTY	PERCENT (N=15)
Internal Medicine	60
Neurosurgery	40
Family Practice	27
Dermatology	27
Gastroenterology	20
Urology	20
General Surgery	13
Psychiatry	13
Vascular Surgery	13
Endocrinology	13
Anesthesiology	7
Emergency Medicine	7
OB/GYN	7
Orthopedic Surgery	7
Pediatrics	7
Radiology	7
ENT	7
Rheumatology	7
Maternal/Family Medicine	7

Clearly these additional comments, albeit based on a limited sample, provide valuable insight into the dynamics of physician labor markets in Massachusetts.

Analysis of the Responses to Questions about Professional Liability Expenses

For the 12-year period ending in 2006, professional liability expenses in Massachusetts increased 127%, only slightly less than the 138% increase nationally.⁹ Without question, rate increases of this magnitude are to be taken very seriously, because they adversely impact the physician's direct cost of maintaining a practice. Over time, increases at these rates will financially weaken even the strongest physician's practice.

The results of the analysis in this section may be summarized as follows:

- First, over the six MMS Physician Workforce Studies, between one-quarter (24%) and nearly one-third (30%) of the physicians surveyed reported that increases in liability fees exceeded 15% of their total operating costs. This is not only troublesome, but it is also extremely financially severe.
- Second, in the 2007 study, roughly one-half of the physicians surveyed report that they are altering or limiting their practice because of the fear of being sued. Physicians in four specialties — emergency medicine, neurosurgery, OB/GYN, and orthopedics — report that their practices have been significantly impacted by the threat of being sued.
- Finally, in 2007, among five specialties — OB/GYN, neurology, urology, general surgery, and orthopedics — significantly high ratios of those surveyed indicated that high professional liability rates are pushing them to make a career change. Note also that these are the very same specialties with high ratios of respondents that are dissatisfied with the Massachusetts practice environment and are currently contemplating a career move out of Massachusetts.

In regard to the twin issues of just how pervasive and sharp the rates of increase are in professional liability fees among the various specialties, the relevant survey data are displayed in Table 5.

⁹ Massachusetts Medical Society. *Physician Practice Environment Index, 2006*. Available at www.massmed.org/index (accessed on June 21, 2007).

TABLE 5: HOW HAVE YOUR PROFESSIONAL LIABILITY RATES CHANGED OVER THE PAST YEAR (2007)?

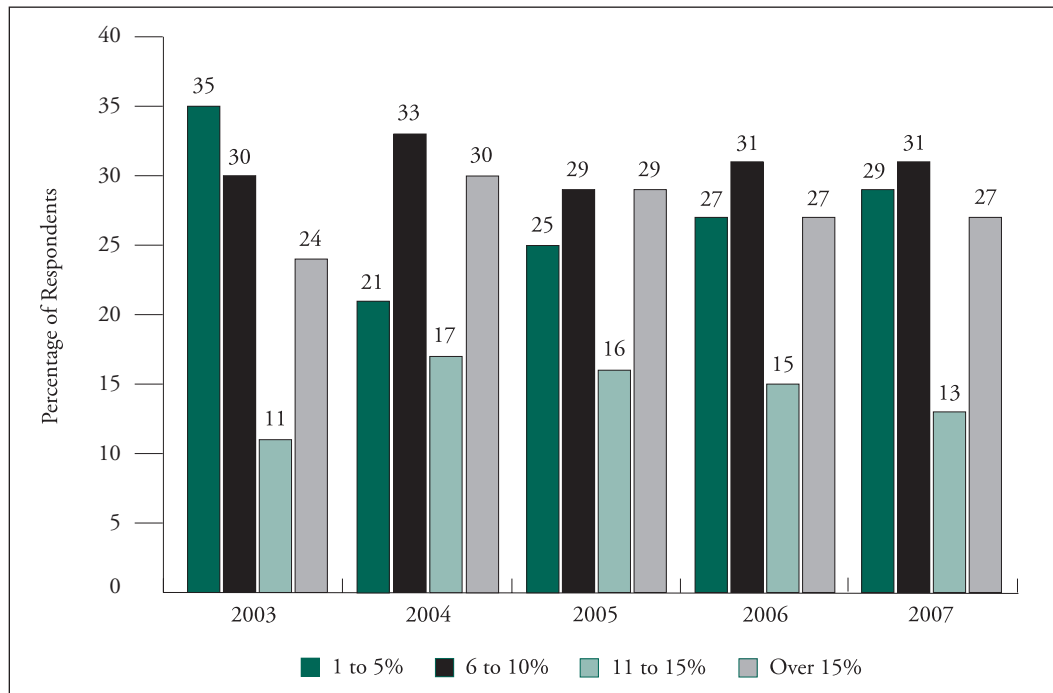
SPECIALTY	PERCENT OF RESPONDENTS WITH RATE INCREASES	AVERAGE RATE INCREASE
Urology	82	18%
Emergency Medicine	78	29
Neurosurgery	74	37
OB/GYN	69	38
Orthopedics	61	26
General Surgery	59	34
Cardiology	58	15
Family Practice	58	15
Internal Medicine	54	36
Psychiatry	52	25
Pediatrics	49	16
Gastroenterology	48	16
Anesthesiology	38	20
Vascular Surgery	33	14
Radiology	20	N/A
Sample Mean	56	27%

Aside from the fact that large percentages of the 15 specialties reported professional liability rate increases, one important conclusion may be derived from these data.

- For the sample as a whole, the average 2006 rate increase amounted to 27%, but note here also that there are significant variations in the magnitude of the increases across the 15 specialties. It should be noted that the average rate increase referenced above provides us with some insight into potentially wide ranges of premiums charged by the various professional liability insurance carriers. The average rates of increase among five specialties — OB/GYN, neurosurgery, internal medicine, general surgery, and emergency medicine — were greater than the sample mean.

Another way to look at the impact of professional liability expenses on physicians is to reorganize the survey data into a frequency distribution to illustrate the percent liability expenses account for in physicians' total operating costs (see Chart 3).

CHART 3: PERCENT OF TOTAL OPERATING COSTS ALLOCATED TO PROFESSIONAL LIABILITY RATES



These responses provide support for an important conclusion concerning the characteristics of the aggregate sample:

- Across the five study years, between one-quarter (24%) and 30% of the physicians surveyed reported that increases in liability fees exceeded 15% of their total operating expenses. This is not only troublesome, but it is also financially severe. The 15% figure was established as a threshold point at which operating profitability could be called into question.

Survey Results Concerning the Opinions of Program Directors of Residency/Fellowship Programs

Slightly more than half of residents and fellows pursue the next step in their medical careers outside Massachusetts. While the aggregate ratios show modest variations over time, it should be noted that during the 2004–2005 academic year, there were 4,780 residents in Massachusetts-based programs.¹⁰ This translates into an annual out-migration of over 2,438 residents. Given the continued tightness in the Commonwealth’s physician labor market, this is a trend that must be monitored as demand for patient

¹⁰ American Medical Association. *State-Level Data for Accredited Graduate Medical Education Programs in the U.S., Aggregate Statistics on All Resident Physicians Actively Enrolled in Graduate Medical Education During 2004–2005, Massachusetts — Table 1. Total Number of Resident Physicians and Program Year 1 Resident Physicians in ACGME-Accredited and Combined Specialty GME Programs During 2004–2005.*

services increases. One of the root causes of the physician shortage in Massachusetts derives from the unusually large ratio of residents and fellows who leave upon completion of their training. The data shown in Table 6 provide support for this generalization.¹¹

TABLE 6: PROGRAM DIRECTORS' RESPONSES REGARDING THE PERCENTAGE OF RESIDENTS/FELLOWS WHO LEFT MASSACHUSETTS	
ACADEMIC YEAR	PERCENT OF RESIDENTS/FELLOWS WHO LEFT MA
1998–1999	54
1999–2000	58
2000–2001	59
2001–2002	55
2002–2003	52
2003–2004	52
2004–2005	51

Five of the preceding MMS studies on practicing physicians have also included a detailed set of questions to determine the professional and personal factors program directors believe play a critical role in their residents/fellows deciding to stay or leave Massachusetts (see Tables 7 and 8).

TABLE 7: PERCENT OF PROGRAM DIRECTORS WHO RATED THE PRACTICE ENVIRONMENT AND SALARY LEVELS FAVORABLE FOR RESIDENTS/FELLOWS WHO PLAN TO WORK IN MASSACHUSETTS, 2002–2005 (2007 SURVEY DATA*)		
SURVEY YEAR	PRACTICE ENVIRONMENT	SALARY LEVEL
2002	20%	5%
2003	14	3
2004	15	7
2005	27	5
2007	17	7

**Data not available for 2006*

TABLE 8: PERCENT OF PROGRAM DIRECTORS WHO RATED THE RESEARCH AND CLINICAL OPPORTUNITIES FAVORABLE FOR RESIDENTS/FELLOWS WHO PLAN TO WORK IN MASSACHUSETTS, 2002–2005 (2007 SURVEY DATA*)		
SURVEY YEAR	RESEARCH OPPORTUNITIES	CLINICAL OPPORTUNITIES
2002	79%	37%
2003	85	35
2004	73	41
2005	70	48
2007	71	46

**Data not available for 2006*

¹¹ Data were not collected over the past two years; these responses are reported to provide historical background.

The data displayed in Table 7 show very clearly that two of the dominant factors pushing young residents/fellows out of Massachusetts are the unfavorable practice environment and the uncompetitive salary levels. On a positive note, clearly the research opportunities in Massachusetts are perceived as a major factor in keeping physicians here.

Physician Satisfaction, Attitudes Toward the Profession, and Future Career Plans

Attitudes among Massachusetts physicians about their professional careers and their opinions about the professional nature of their respective work situations are important factors that affect the workforce and the provision of quality patient care. It is in this context that the MMS Physician Workforce Study has always included in its surveys a series of questions about what is considered “physician satisfaction.”

In one sense, the work environment for physicians is not much different from that of any other highly trained professional. There will always be the stress and strains of work. They are an integral element in any highly demanding work situation. In another sense, the work environment for physicians is quite different. After all, physicians are the frontline providers for the population’s health and wellness. It is in this context that all of us have grown to expect physicians to work at the highest level of professionalism despite the occupational adversities in their paths.

The following provide a meaningful context in which to judge the responses to 12 specific questions concerning physicians’ attitudes toward their practice.

Inasmuch as the questions in the 2007 MMS Physician Workforce Study are generally consistent with the preceding five MMS studies, their results provide the opportunity to judge clearly the extent to which Massachusetts physicians’ attitudes may have changed over time as the physician practice environment continues to worsen.

As one reviews the detailed analysis of the survey responses, one conclusion is unmistakably clear: physician opinions and attitudes toward their practice environment have remained relatively uniform over time.

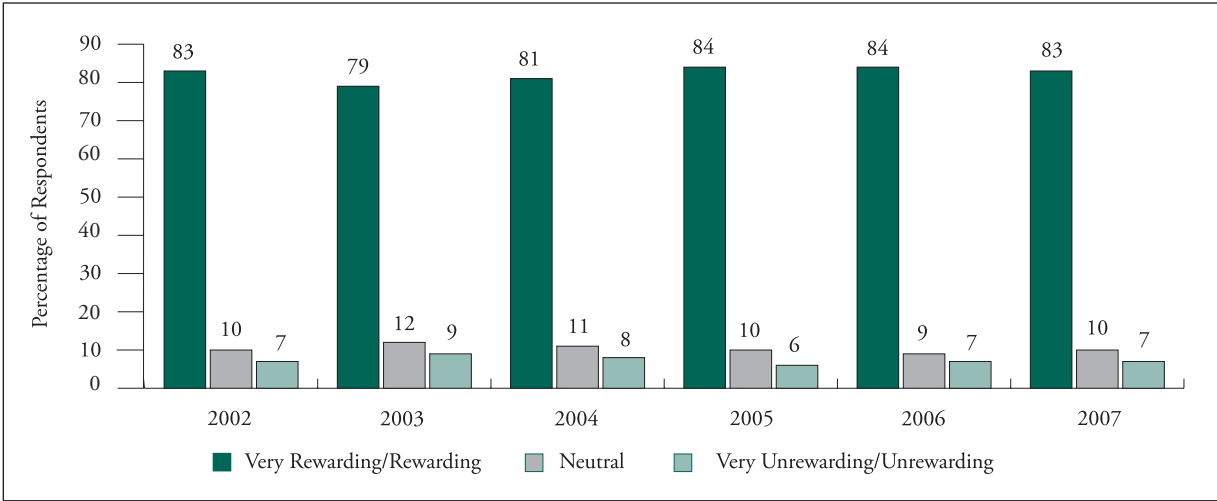
- First, the aggregate sample data from the preceding MMS Physician Workforce Studies provide support for the conclusion that Massachusetts physicians remain committed to medicine, even in the face of a harsh practice environment. Roughly 8 out of 10 physicians surveyed report that they find their medical careers either very rewarding or rewarding (see Chart 4).

-
- Twenty-five (25) to 40% of physicians responded that they are very satisfied or satisfied with the practice environment, but when disaggregated by specialty, sharp variances emerge (see Chart 5).
 - Specifically, in the 2007 survey data, 9 out of the 15 specialties expressed much higher levels of dissatisfaction with the practice environment than the overall sample did, while only three specialties had dissatisfaction ratios well below the mean.
- Second, while approximately three-fourths (76%) of the physicians surveyed indicated that they plan to continue their practice in Massachusetts, we must attach considerable importance to the fact that 1 out of 4 physicians now practicing in Massachusetts indicated that they are contemplating making a career change or leaving the state if the practice environment does not improve. These survey results imply that 5,873 physicians are on the brink of leaving the state or the practice of medicine altogether.
 - Third, a careful review of the disaggregated data over the past four years shows that three specialties — general surgery, OB/GYN, and orthopedics — have high ratios of physicians who are either contemplating out-of-state moves or career changes. An additional 4 specialties also have relatively high ratios of responses in 2007 indicating that many of them seem to be on the edge in terms of ending their current careers in Massachusetts: emergency medicine, family practice, urology, and vascular surgery.
 - Finally, the survey data again confirm that uncompetitive salary levels and low salary expectations five years into the future are a fundamental issue with the physician labor market problems now confronting Massachusetts. Specifically, the 2003–2007 survey data show that two-thirds to three-fourths of physicians believe that their current salary levels are very uncompetitive or uncompetitive for their specialty vis-à-vis other states, and 86% believe that over the next five years, their salary levels will either decline or remain the same.

Physician Attitudes Toward the Practice of Medicine

In the context of a deteriorating practice environment, it is critical to determine statistically the extent to which it has adversely impacted physician attitudes. Chart 4 provides specific time series data on the opinions and attitudes of Massachusetts physicians toward their profession.

CHART 4: RATING THE PROFESSION OF MEDICINE



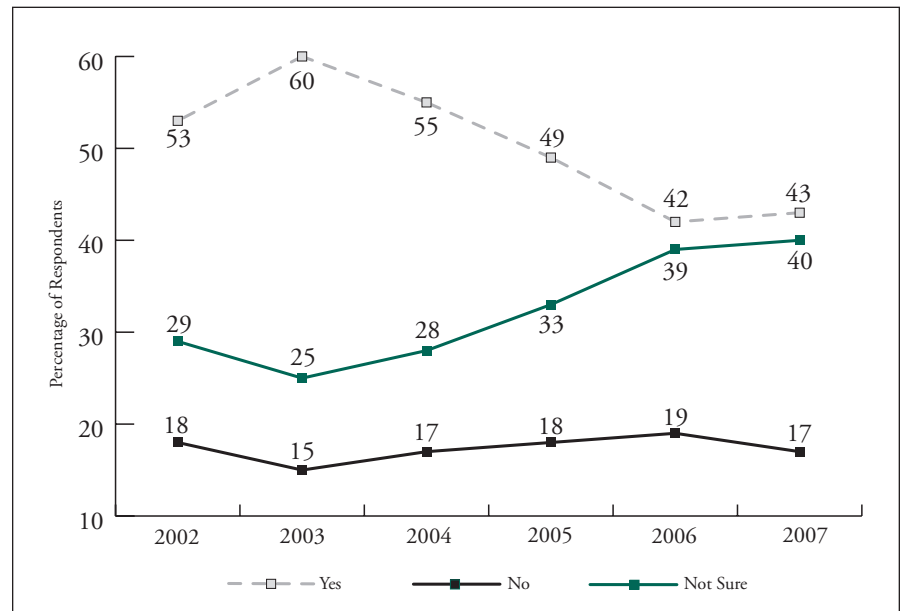
These survey results leave no doubt that the vast majority of physicians continue to consider their careers very rewarding or rewarding. Furthermore, the consistency of this finding shows little variation across the four age groups shown in Table 9.

TABLE 9: RATING THE PROFESSION OF MEDICINE — RESPONSES DISAGGREGATED BY AGE GROUP		
	VERY REWARDING/REWARDING	
AGE GROUP	2007 SURVEY DATA	2002–2006 SURVEY MEAN
>60 Years of Age	87%	84%
50–59 Years of Age	81	82
40–49 Years of Age	81	80
<40 Years of Age	87	82
Sample	83%	82%

Physician Attitudes Toward the Practice Environment and Career Plans

In a most interesting way, the complex impact of the practice environment on physician attitudes is encapsulated in the responses displayed in Chart 5 and Table 9.

CHART 5: SATISFACTION WITH THE CURRENT PRACTICE ENVIRONMENT



These aggregated sample data show that over the past six years, attitudes among Massachusetts physicians have shifted toward less dissatisfaction with the existing practice environment.

On the surface, this conclusion is important if for no other reason than that it seems to counter many of the survey responses cited elsewhere in this and earlier studies, but the disaggregated analysis that follows will show that this conclusion does not convey the complete picture. But first, the survey results regarding physician satisfaction with the current practice environment are presented for the four age groups.

In Table 10, it is readily apparent that the mean dissatisfaction levels for the four age groups for both 2006 and 2007 are closely clustered around their respective sample means.

TABLE 10: SATISFACTION WITH THE CURRENT PRACTICE ENVIRONMENT — RESPONSES DISAGGREGATED BY AGE GROUP

AGE GROUP	VERY DISSATISFIED/DISSATISFIED	
	2007	2006
>60 Years of Age	42%	45%
50–59 Years of Age	50	47
40–49 Years of Age	44	44
<40 Years of Age	34	28
Sample	43%	42%

Additional insight into these conclusions can be learned when the response data are further disaggregated by physician specialty. The relevant data are displayed in Table 11.

**TABLE 11: SATISFACTION WITH THE CURRENT PRACTICE ENVIRONMENT —
RESPONSES DISAGGREGATED BY SPECIALTY**

SPECIALTY	PERCENT WITHIN SPECIALTIES WHO WERE DISSATISFIED OR VERY DISSATISFIED	
	2007	2006
Vascular Surgery	67	44
Urology	55	--
Neurosurgery	53	46
OB/GYN	49	59
Orthopedics	48	45
Psychiatry	48	47
Family Practice	47	40
General Surgery	45	48
Internal Medicine	45	45
Anesthesiology	43	28
Cardiology	41	33
Emergency Medicine	41	49
Gastroenterology	32	63
Pediatrics	30	27
Radiology	30	30
Sample Mean	43%	42%

The data disaggregated by physician specialty broaden our understanding about the conclusions derived on the basis of the declines in the dissatisfaction ratios discussed above. More specifically, the generalizations made on the basis of the data contained in Chart 5 are, to be sure, statistically accurate, but one must keep in mind that they are means derived from highly aggregated sample data. A much more complete perspective can be developed from a careful review of the responses aggregated by specialty (shown in Table 11). Note specifically that there are significant differences between the highest and lowest dissatisfaction ratios. The lowest response rate in 2007 is for radiology and pediatrics (30%), while the highest is for vascular surgery (67%). The range of statistical disparity in the 2006 survey results is equally as great. These extremes strongly affect the statistical means displayed in Chart 5.

We may now begin to consider other important aspects derived from the study in order to build a complete picture of labor markets. Remember that the central cut and thrust of this analysis is to determine physician satisfaction in the overall practice environment. There are many different ways to interpret these survey data, but one way to look at them is that roughly one-half of the physicians now practicing in Massachusetts feel either that (a) if given the chance, they would not choose a medical career again, or (b) they are unsure they made the right career choice.

CHART 6: CONSIDERING THE CURRENT PRACTICE ENVIRONMENT, WOULD YOU CHOOSE MEDICINE AS A PROFESSION AGAIN?

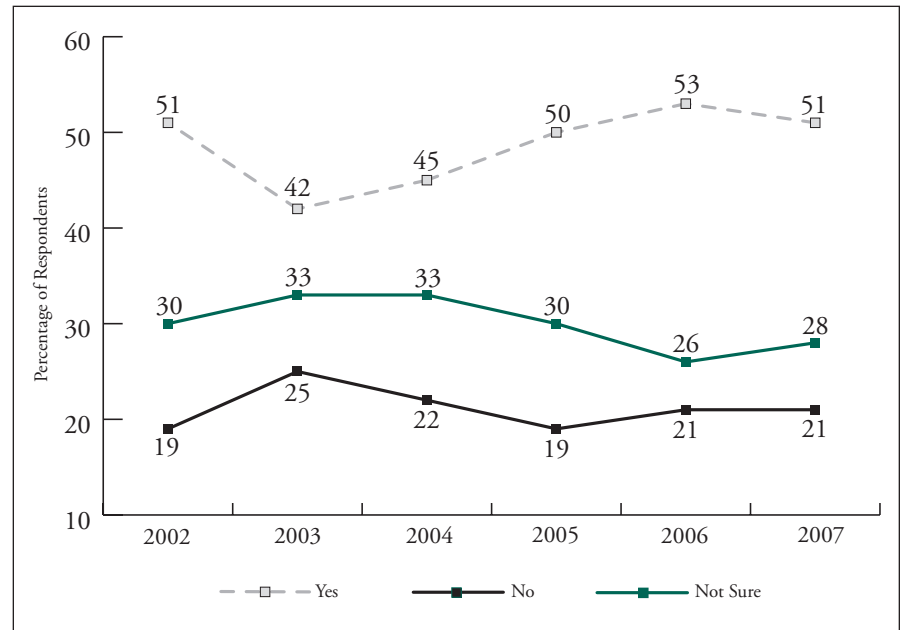
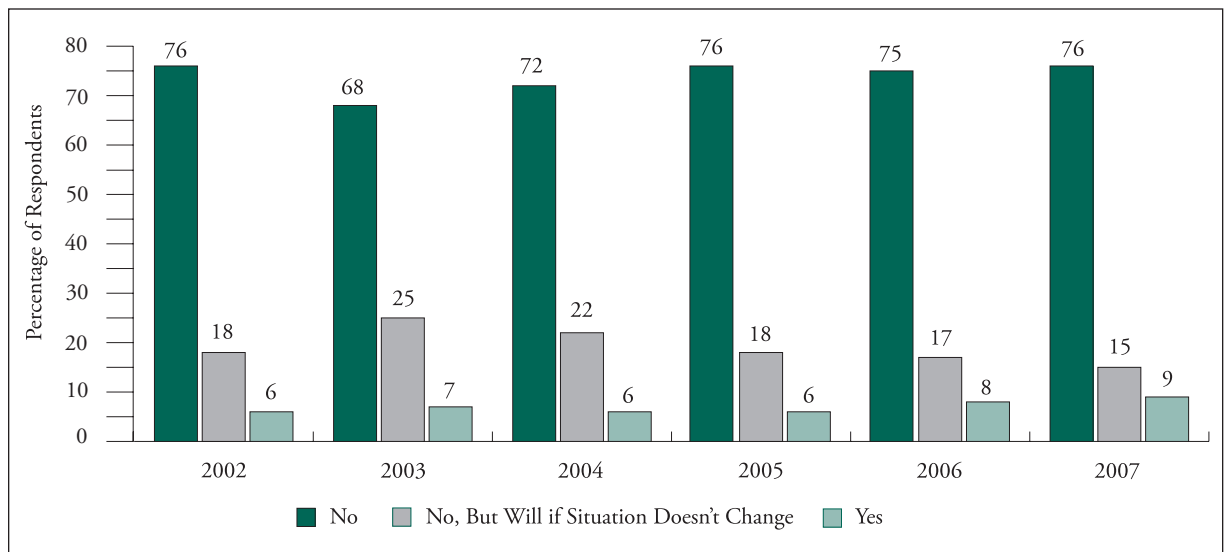


CHART 7: ARE YOU PLANNING TO MOVE OUT OF MASSACHUSETTS TO PRACTICE MEDICINE BECAUSE OF THE CURRENT PRACTICE ENVIRONMENT?



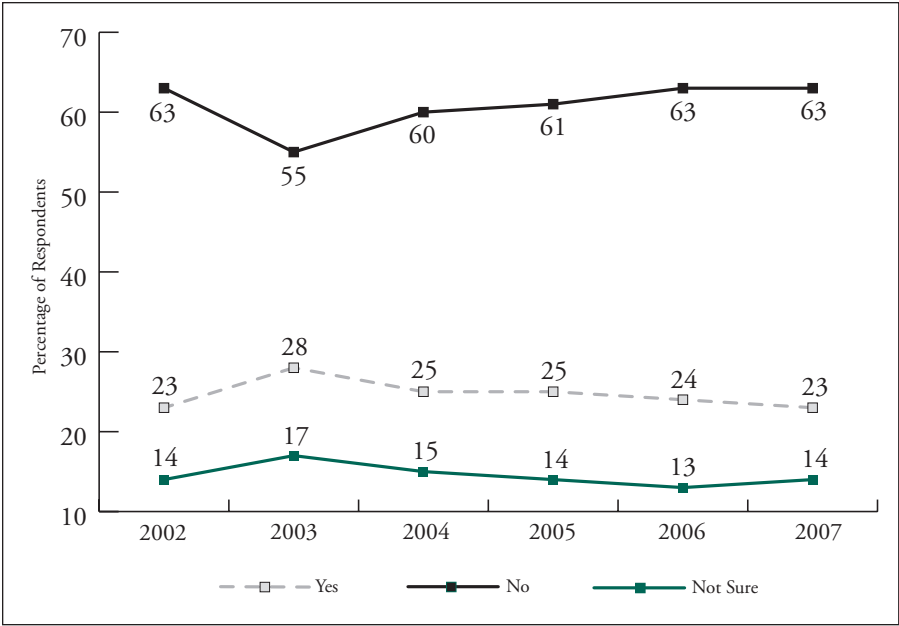
Quite encouragingly, these responses provide support for the conclusion that roughly three-quarters of those surveyed plan to continue their practice in the Commonwealth. This positive conclusion seems to hold relatively firm over time and even in the face of what we believe is strong empirical evidence that the practice environment has continued to deteriorate over the past 13 years.¹² Without elaboration, we must not overlook

¹² Massachusetts Medical Society, *Physician Practice Environment Index Report, 2007*. Available at www.massmed.org (accessed June 21, 2007).

the remaining quarter who responded that they are contemplating leaving or will do so if the environment does not change.

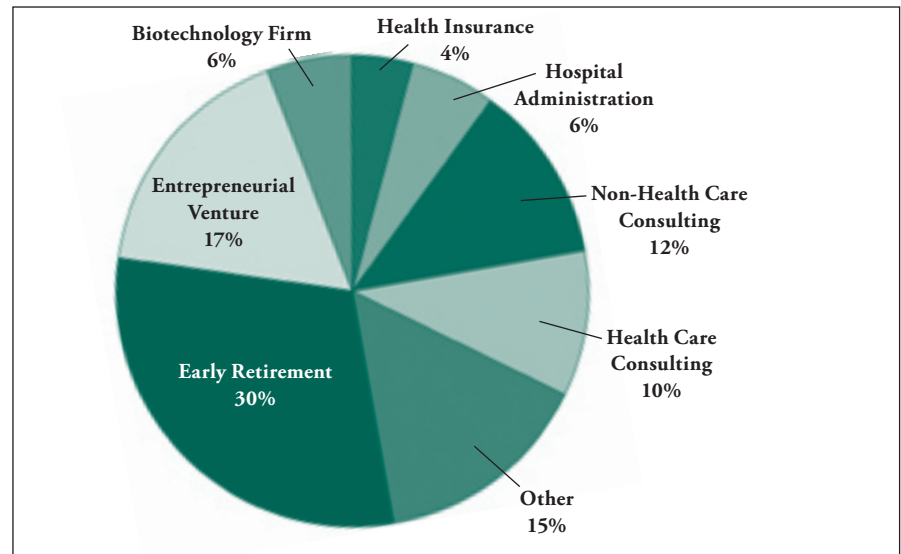
There is another option for overcoming the adverse practice environment: simply changing careers. The responses concerning this option are displayed in Charts 8 and 9.

CHART 8: ARE YOU CONTEMPLATING A CAREER CHANGE BECAUSE OF THE CURRENT PRACTICE ENVIRONMENT?



Inasmuch as only a relatively small ratio — 14% — responded that they were not certain, interpretation of these data shows that physicians’ attitudes about contemplating a career change are straightforward. First, quite encouragingly, while roughly two-thirds indicated that they expect to continue their medical careers in Massachusetts, almost one-quarter are considering new careers. Chart 9 shows the range of occupational alternatives for physicians now practicing in Massachusetts who are currently contemplating a career change.

CHART 9: IF YOU ARE CONTEMPLATING A CAREER CHANGE, WHAT CAREER WILL YOU LIKELY CHOOSE? (2007)



The average age of the sample respondents is 53, and 25% are above 60 years of age, so it is not surprising that 30% indicated that they expect to pursue early retirement. If such an exodus were to take place — even gradually, over several years — it would likely result in significant issues with the delivery of quality medical care. The selection of other new career options is not surprising since most are closely related to the more broadly defined health care industry.

Regional Disparities Across the Principal Urban Labor Markets in Massachusetts

The geographic distribution of medical care facilities and health care personnel clearly impact the provision of medical care. In analyzing the findings of the physician surveys, we classified responses into one of the following five geographical areas based on the locations of the facilities and physicians:

- Boston metropolitan
- New Bedford/Fall River/Barnstable County (Cape Cod)
- Pittsfield (Berkshire County)
- Springfield
- Worcester

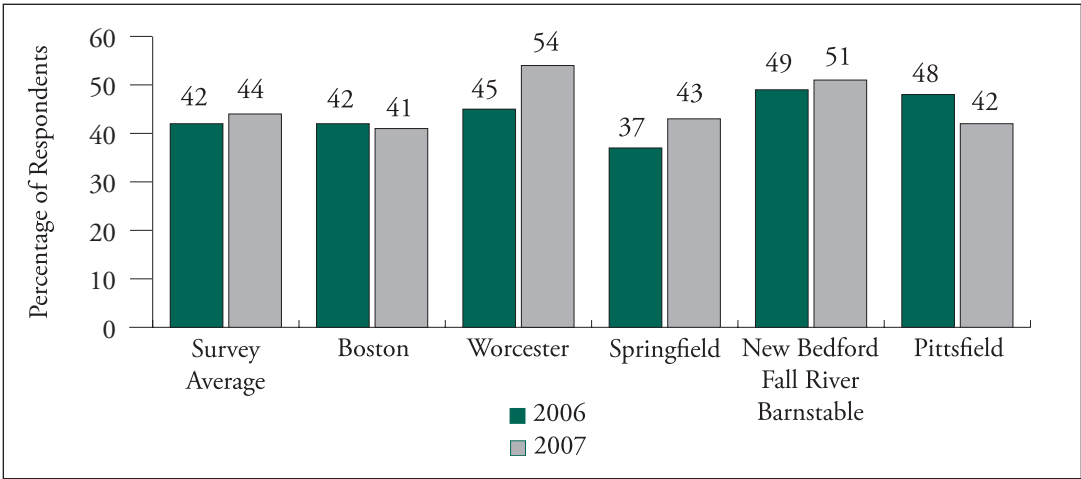
In this section of the study, we will analyze the responses from practicing physicians across the five urban areas cited above. Overall, the respondents' data by urban area is organized into three clusters: physician dissatisfaction with the current practice environment, difficulty filling existing vacancies, and finally, the dual issues of recruitment and retention and their impact on the provision of medical services.

Before these issues are analyzed in detail, the two main findings can be summarized as follows:

- First, in the past two years, 37 to 54% of the physicians currently practicing in the five principal urban labor markets in Massachusetts are dissatisfied with the practice environment. This statistic underscores the very real, pervasive nature of physician dissatisfaction throughout the state over the past two years.
- The current physician shortages may have impacted access to care for patients, who reported longer waits for medical appointments. Also, approximately one out of three currently practicing physicians report that they have already had to alter services and/or adjust professional staff to address current patient demand. In particular, it is especially difficult in New Bedford and Pittsfield, where a high percentage report that they have had to alter services, and in New Bedford and Springfield, where the highest percentages have had to adjust staffing.

In Chart 10, we display the survey results disaggregated across the five urban areas for those physicians who reported dissatisfaction with the current practice environment.

CHART 10: PERCENT OF PHYSICIANS DISSATISFIED WITH THE CURRENT PRACTICE ENVIRONMENT



The survey data relating to difficulty filling existing vacancies across the five urban areas are summarized in Charts 11 and 12. Note that in both charts, the percent responses are reported only for those physicians who reported that they were experiencing some difficulty and/or significant difficulty filling vacancies.

CHART 11: PERCENT OF RESPONDENTS EXPERIENCING DIFFICULTY FILLING PHYSICIAN VACANCIES

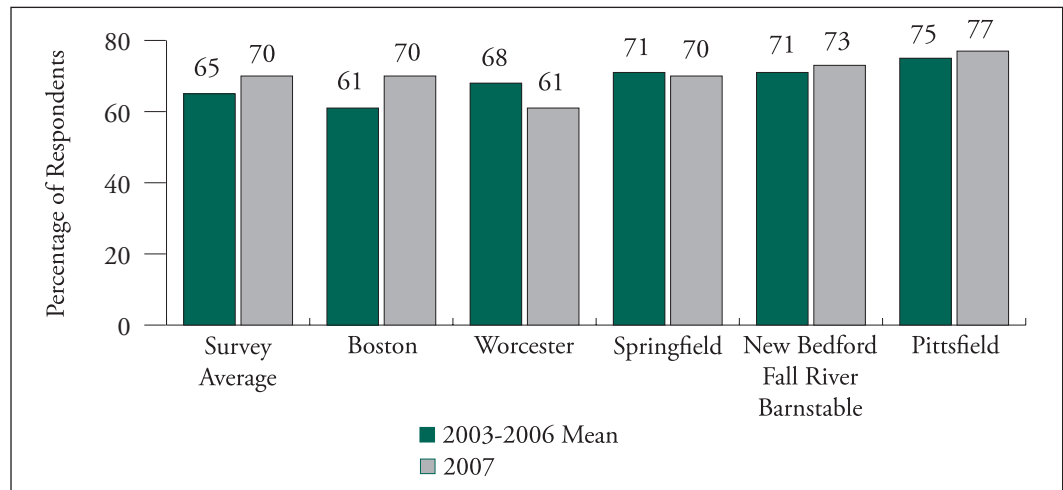
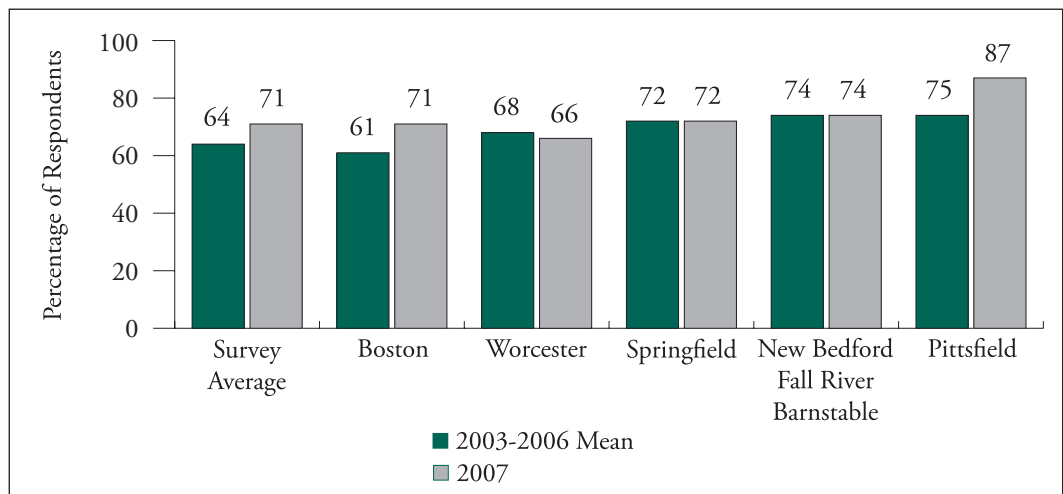


CHART 12: PERCENT OF PHYSICIANS REPORTING THAT THE CURRENT POOL OF PHYSICIAN APPLICANTS IS INADEQUATE TO FILL VACANCIES



Taken together, the data displayed in these two charts provide considerable insight into the disparities across the five urban labor markets. Two interpretive comments are appropriate.

- First, the data points to an obvious difficulty filling physician vacancies in Pittsfield because an inadequate number of applicants are willing to practice in rural Berkshire County. This conclusion was noted in all of the earlier MMS studies, and these results were confirmed in the 2007 responses.
- Second, somewhat surprising is that 2007 saw a sharp increase in the number of respondents in the Boston metropolitan area who find it increasingly difficult to recruit physicians because of a limited pool of applicants.

The Role of Gender in the Practice of Medicine in Massachusetts

Increasingly, gender plays a significant role in medicine. According to the American Medical Association, almost one in four (27%) of the currently practicing physicians in the United States are female. This is in sharp contrast to the mid-1970s, when the ratio amounted to only one in eleven (9%).¹³ Notably, in 2006 approximately half (49%) of the medical students in U.S. medical schools were female.¹⁴

Recent changes among the total population of practicing Massachusetts physicians trace out the evolution of similar patterns.

While these dynamics have been appreciated for quite some time, they have not been addressed in earlier MMS Physician Workforce Studies. In this year's report, we provide disaggregated portions of the responses to the 2007 survey in order to gain a much better understanding of the opinions and attitudes of male versus female physicians.

Outlining the statistical gender parameters of the past five MMS surveys will prove helpful to this discussion. The relevant data are displayed in Table 12.

TABLE 12: GENDER CHARACTERISTICS OF MMS SURVEY RESPONDENTS, 2003–2007

	2003	2004	2005	2006	2007
Percent Male	74	70	70	70	65
Percent Female	26	30	30	30	35

The increasing participation of females in the medical profession in Massachusetts is clearly evident in the MMS sample data. While this shift is significant in itself, women physicians' opinions and attitudes about their profession are of crucial significance in meeting future health care needs.

In our discussion we will not be able to answer these questions as fully as we would like, but we will provide considerable new insight and several answers to them. Before we examine the analysis in detail, though, it will be helpful to state the four principal conclusions that can be derived from this analysis.

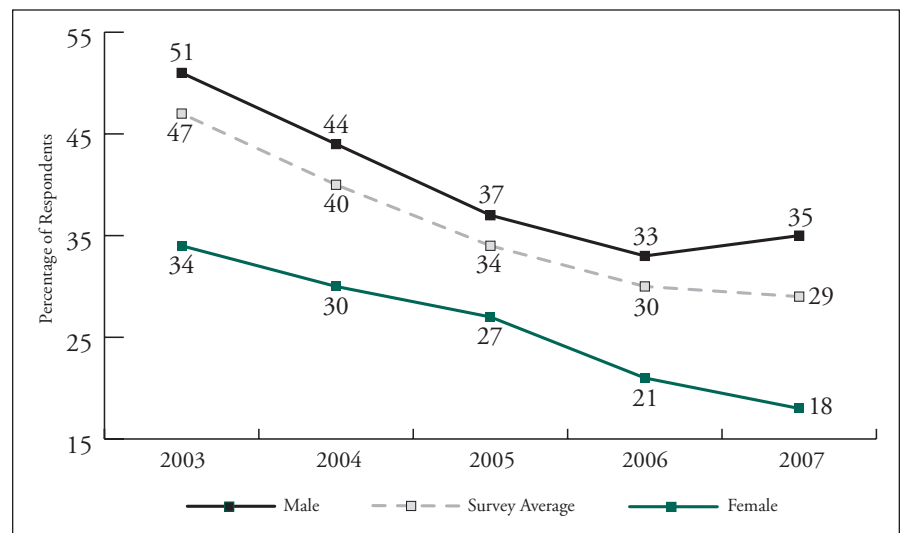
- First is that the MMS survey data provide considerable support that there are only modest disparities between female and male attitudes concerning the practice environment in Massachusetts.

¹³ American Medical Association. *Physician Characteristics and Distribution in the U.S., 2007 Edition*.

¹⁴ American Association of Medical Colleges. *FACTS Table 18: Total Enrollment by Sex and School, 2002–2006*. Available at www.aamc.org/data/facts/2006/factsenrl.htm (accessed June 22, 2007).

- Second is that there are some differences between the amount of time given to patient care. The survey data support the conclusion that during an average clinical practice work-week, male physicians provide 39 hours of patient care, while female physicians provide 32 hours.
- Third, in terms of expectations about future income growth, it is virtually impossible to imagine any professional occupation's members believing their income levels five years hence would be below current levels, but this is the case for between one-third and one-fifth of the female physicians currently practicing in Massachusetts (Chart 13). Overall, though, male physicians are more concerned regarding potential salary expectations, with between one-half and one-third responding that they expect their salary levels to be lower in five years.

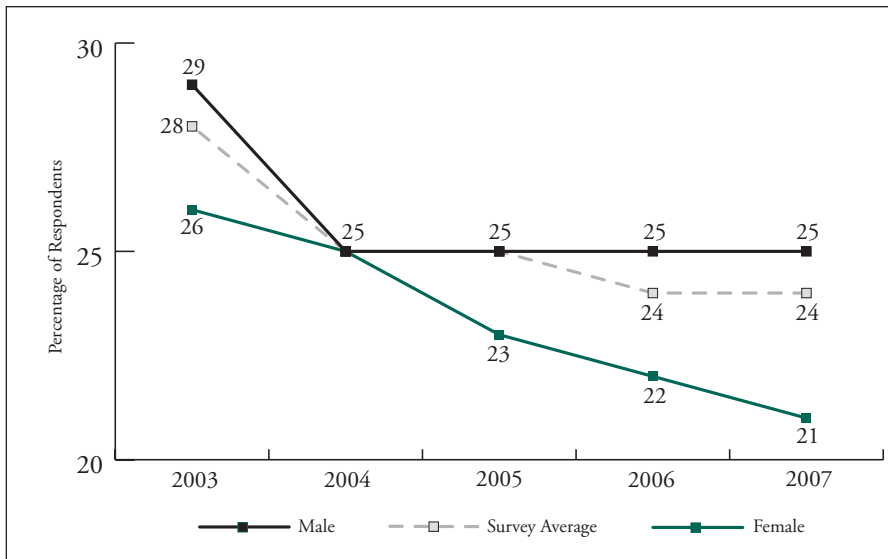
CHART 13: PERCENT OF SURVEY RESPONDENTS WITH FIVE-YEAR SALARY EXPECTATIONS BELOW CURRENT LEVEL BY GENDER



- Finally, given that approximately one-third to one-half of female physicians practicing in Massachusetts are dissatisfied with the practice environment and approximately one-quarter are contemplating a career change (see Chart 14), it is very difficult to envision retaining significant numbers of the existing female labor force to even partially fill 100,000 new physician vacancies, which the Council on Graduate Medical Education forecasts will exist by the year 2020.¹⁵

¹⁵ Council on Graduate Medical Education. *Sixteenth Report: Physician Workforce Policy Guidelines for the United States, 2000–2020*, January 2005. Available at www.cogme.gov/report16.htm (accessed July 6, 2007).

CHART 14: PERCENT OF PHYSICIANS INDICATING THAT A CAREER CHANGE IS LIKELY



IV. Patient Access to Health Care

As Massachusetts attempts to accomplish insuring nearly all of its residents, an adequate physician supply is vitally important. Preventing illnesses and minimizing chronic conditions can lower health care costs and improve quality of life. Therefore, data that lends insight into whether patients are gaining timely access to health care is an essential indicator of the adequacy of the physician workforce supply.

The annual MMS Survey of Practicing Physicians includes a series of five questions on issues surrounding patient access to care from the physician perspective. Second, to complement those questions, the MMS commissioned two telephone surveys of Massachusetts residents and physician offices.

The depth of knowledge on physician shortages is greatly enhanced by using three surveys, which frequently underscore the same problem areas. Among the three surveys some of the major conclusions are as follows:

- Access to primary care physicians continues to worsen.
- In general, people with lower incomes and without insurance experience more difficulty accessing care.
- The ability of a physician to refer patients to specialists is becoming more of a problem.
- Fewer respondents today are able to schedule an appointment with a doctor within a week of calling.
- New patients have longer wait times to see a physician compared to existing patients.

Waiting for an Appointment

Primary Care Physician Visits

As we have consistently found in previous years, the time patients wait for an appointment can be an indicator of a strained specialty or, from the patient viewpoint, overcrowded physician offices. Shown in Table 13 is the average number of days a new or existing patient was or is currently expected to wait to secure an appointment with either of the two principal primary care specialists.

TABLE 13: FROM TODAY, HOW LONG (IN DAYS) WOULD A PATIENT WAIT FOR A ROUTINE OR REGULAR OFFICE VISIT?						
	NEW PATIENT			EXISTING PATIENT		
SPECIALTY	2007	2006	2005	2007	2006	2005
Family Practice	19.5	25.5	20.7	10.2	12.1	12.0
Internal Medicine	34.4	29.6	33.7	17.1	16.0	15.2
Total Sample	26.2	25.6	26.2	15.4	14.7	15.3

Physician Satisfaction Survey

The reason for singling out these primary care specialties is that they are usually considered the entry point for medical care as well as the referral source for the more complex system of specialists. These data provide support for three important generalizations:

- First is the consistency across the total sample in the physicians' responses concerning the number of days a patient must wait before securing an appointment. And not surprising is that for new patients, on the average, it takes 10 days longer to access a physician's care than it does for an existing patient.
- Second is the somewhat surprising conclusion that the lag time to receive an appointment with a family practitioner is somewhat shorter than for the replies in the total sample.
- Finally, wait times are noticeably longer to secure an appointment with an internal medicine specialist compared to a family physician.

The findings above are reinforced by the results of the survey of physician offices and the public opinion survey.

Physician Office Telephone Survey

- Just over half (51%) of internists are accepting new patients, down from 64% in 2006 and 66% in 2005. The average wait time among those accepting new patients is up, as well — to 52 days, compared to 33 days in 2006 and 47 days in 2005. In addition, fewer internists are accepting Medicaid — 59% now, down from 73% in 2006 and 79% in 2005.
- A greater percentage of the five specialty practices surveyed were accepting new patients, including 79% of cardiology practices, 87% of gastroenterology practices, 88% of orthopedic surgery practices, and 92% of OB/GYN practices. The percentages of such practices accepting Medicaid patients were generally similar.

Public Opinion Telephone Survey

- According to the public opinion survey, less than half (42%) of all respondents who made an appointment to see a primary care physician could be seen within a week, down from 53% both in 2005 and 2006. The same trend is reported regarding appointments with specialists, or when scheduling procedures. Over one-fifth (21%) had to wait more than a month to receive an appointment with a primary care provider.
 - In the public opinion survey, the most commonly cited reason for delays was overcrowded doctors' offices (23%), up 13% from last year, followed by scheduling problems (16%), a lack of insurance (12%), and the need to wait for a referral (10%).

Specialist Visits

As demonstrated throughout this study, many specialties continue to show labor market stress. Therefore, the practicing physician, public opinion, and physician office surveys asked a variety of questions to gather data to show how long patients wait for appointments and how difficult it is to refer patients to specialists. The amount of time a patient must wait for an appointment is an indicator of difficulty accessing care, especially when the medical problem is serious. Shown in Table 14 are the average wait times required to obtain an appointment with a specialist. Note that these times are expressed in terms of days and are from the perspective of the physicians currently practicing in the 12 specialties.

TABLE 14: FROM TODAY, HOW LONG (IN DAYS) WOULD A PATIENT WAIT FOR A ROUTINE OR REGULAR OFFICE VISIT?

SPECIALTY	NEW PATIENT			EXISTING PATIENT		
	2007	2006	2005	2007	2006	2005
Anesthesiology*	33.7	22.6	30.1	24.6	14.7	19.4
Cardiology*	24.8	28.9	21.8	19.7	20.6	12.9
Gastroenterology*	33.6	37.0	39.1	23.9	19.0	24.3
General Surgery*	8.9	12.0	9.8	8.1	7.8	6.6
Neurosurgery*	21.7	43.3	38.1	18.3	23.2	27.7
OB/GYN	40.4	25.6	35.2	29.3	20.1	25.4
Orthopedics*	18.4	20.5	23.2	10.7	12.6	11.1
Pediatrics	25.1	21.6	24.7	17.2	15.7	20.9
Psychiatry	24.2	23.2	18.8	9.6	9.1	8.3
Radiology*	7.0	10.1	5.4	6.4	9.1	8.3
Urology†	23.7	--	--	23.0	--	--
Vascular Surgery	23.2	18.0	16.7	12.0	8.8	9.5
Total Sample	26.2	25.6	26.2	15.4	14.7	15.3

**Specialties classified as operating in critical/severe labor market conditions in at least four of the last six years*

†2007 data only

Practicing Physician Satisfaction Survey

Again, a number of different conclusions can be drawn, each depending on one's detailed interest in a particular specialty, but two interesting generalizations can be made about these responses.

- First, in 2007, for new patients there is a somewhat longer wait time in three specialties — anesthesiology, gastroenterology and OB/GYN. Two of these specialties currently operate in very stressed labor markets (anesthesiology and gastroenterology).
- Second is that in only one specialty — gastroenterology — was the number of wait days for new patients longer than the sample means for all three years.

In order to gain a patient perspective of access to specialists, Opinion Dynamics Corporation included questions related to specialist visits in the public opinion and physician office telephone surveys.

In the public opinion survey, respondents who visited a cardiologist, orthopedist, gastroenterologist, OB/GYN, or who had a colonoscopy or mammogram in the past three years were asked about the wait time between making the appointment and seeing the doctor, and whether the wait caused a problem.

TABLE 15: ACCESS TO SPECIALISTS — PATIENT PERSPECTIVE

SPECIALIST/ PROCEDURE	VISITED OR HAD PROCEDURE	LESS THAN ONE-WEEK WAIT	MORE THAN TWO-WEEK WAIT	WAIT CAUSED PROBLEM
Cardiologist	20%	31%	36%	1%
Orthopedist	28	28	32	17
GI	20	19	45	7
OB/GYN*	39	19	52	7
Colonoscopy	33	8	57	1
Mammogram*	77	14	52	3

**Asked only of women*

Some important conclusions can be derived from this data:

- For the first time since 2003, less than half (43%) of all of the respondents report being able to see a doctor in a few days or less. Close to one-fifth (18%) say they had to wait one to two weeks (up from 11% a year ago), and one-quarter (25%) had to wait more than two weeks for the appointment.
- In the past year, the number of respondents who say wait times are a problem in these circumstances has increased: 17% of respondents who have had to take care of a serious but non-life threatening medical problem say the wait for an appointment was a problem, up from 7% in the prior two surveys.
- In the majority of cases (64%), respondents say the wait was a result of the doctor not being able to see a patient sooner. In most other cases (23%), patients say their own schedule made it hard to see the doctor sooner.

Public Policy: Public Opinion Survey

For five years, the public opinion survey has gauged reactions to public policy actions that could be or are being undertaken to address the medical access issue.

-
- Nearly three-quarters (74%) of residents oppose higher copays based on insurers' internal quality and cost ratings of physicians. While we only asked one question on this topic, the overwhelming opposition we found indicates that this is an idea the public is unlikely to embrace.
 - As we have seen in the past, a majority of the public opposes requiring patients to pay a larger portion of their medical costs through higher copays and deductibles. Over half (54%) of the respondents are strongly opposed the idea, while 17% are somewhat opposed to it. At the same time, the percentage of respondents who strongly oppose the idea has dropped in the past year, from 65% in 2006 to 54% in 2007.
 - College graduates are less likely to be opposed to this idea than are people who do not have a college degree. While nearly two-thirds (66%) of people without a college degree strongly oppose the idea of requiring patients to pay a larger share of their medical costs, the same is true of only 44% of those with a college degree.
 - Finally, respondents were asked if they are aware that a variety of sources began posting information regarding the quality and cost of care provided by medical groups and some individual physicians. About one-third (32%) of respondents responded that they are aware this information is available.
 - Over half (54%) of the respondents say they are very or somewhat likely to use this information now that they know it is available, 24% are very likely, and 30% are somewhat likely.

V. Conclusions and Policy Considerations

The Massachusetts Medical Society's six consecutive years of data from its comprehensive Physician Workforce Studies again concludes that many specialties, including primary care, continue to demonstrate extreme stress.

The stakes are high. The success of the renowned health care reform effort, Chapter 58, depends in part on the existence of an adequate number of physicians to care for the thousands of new people who will now have better access to the Commonwealth's extraordinary health care resources. Without enough physicians, the promise of universal coverage becomes illusory.

Some of the causes of these shortages are endemic to the region's economic fabric, such as high housing and energy costs. These complex issues are being addressed in many sectors of the community, and are beyond the scope of this report. But resolving some of the other causes of the shortages is well within the purview of the Commonwealth's political, business, and health care leaders.

Focus on Physician Workforce Development

Work with stakeholders to ensure a robust physician workforce. Acute shortages exist in such specialties as anesthesia, cardiology, gastroenterology, and neurosurgery, and there is a significantly growing problem in primary care. While there is a need for resolution across specialties, good coordination of care through primary care is essential in order to delivery quality, cost-effective health care. Many groups, particularly the American College of Physicians and its Medical Home, propose promising new models for delivering health care today. These and other approaches must be examined and pilots implemented to determine if the ideas have merit. Without careful workforce planning — now — across the physician workforce marketplace, Massachusetts will suffer exactly when we have moved to increase access to care through new insurance models.

Medical Education Debt Reduction

Work with all stakeholders to ensure a robust physician workforce by introducing new legislation that allows for medical education debt reduction for those who commit to a yet-to-be-determined number of years of clinical practice in Massachusetts.

Administrative Simplification

Reduce overwhelming administrative burdens, which have placed undue economic stress on physician practices and adversely affected timely access to care for patients. Policymakers must also ensure that the ongoing efforts to measure and report on the quality and cost of health care do not add to these administrative burdens.

FULL REPORT

Introduction

With the implementation of Chapter 58, Massachusetts' landmark health care reform law, the Massachusetts Medical Society's study of the physician workforce takes on an even more integral role in policymaking in the state. Effective July 1, 2007, residents of Massachusetts must have health insurance. The inevitable increase in patient demand is occurring in the midst of an increasing physician shortage. Among the new specialties showing strain are family practice and internal medicine, two of the most important to providing adequate preventive care and minimizing the use of emergency departments. Newly insured residents may find it difficult to get timely appointments with physicians due to these shortages. Due to continuing and emerging concerns about the availability of physicians within certain specialties and in certain geographic areas, the Massachusetts Medical Society (MMS), with the help of prominent labor economists, completed a study that builds upon the results of the previous five years of MMS Physician Workforce Studies.¹

Background

"The task before those concerned about workforce issues is to educate policymakers about how changes in the physician workforce will affect cost, access, and quality, and to impress upon them that serious efforts to improve quality of care and reduce costs will not be effective unless qualified physicians are there to provide that care."² Taking heed of this statement is more important than ever as Massachusetts implements universal health care and attempts to provide affordable insurance to hundreds of thousands of residents. This year's MMS Physician Workforce Study and the five previous studies give cause for concern as to whether there are enough practicing physicians in Massachusetts to handle the inevitable increased demand for health services that will come with health care reform, an aging population, and advances in technology. Significant change is necessary to improve the conditions for physicians in Massachusetts, increase the workforce, and ensure patients have adequate access to high-quality, cost-effective care.

¹ Massachusetts Medical Society. *Physician Workforce Study, 2002-2005*. Available at www.massmed.org (accessed on April 16, 2007).

² Grover, A. *Critical care workforce: a policy perspective*. *Crit Care Med*. 2006 Mar;34(3 Suppl):S7-11

Reinforcing the need for change, the 2006 MMS Physician Practice Environment Index³ for Massachusetts and the United States has declined for 13 and 11 straight years respectively, reflecting a practice environment for physicians that continues to deteriorate. This lengthy deterioration is a principle cause of accelerating physician shortages in specialty and primary care, difficulty recruiting and retaining physicians, and reduced patient access to care. Further, historically, the rate of deterioration in Massachusetts has been 26% faster than in the United States as a whole. Over the 14-year period (1992 to 2006), the dominant factors explaining the deterioration in the Massachusetts Index have been the rising costs of maintaining a practice, the ratio of housing prices to physician income, and increases in professional liability fees.

As analysts continue to study the physician workforce in the United States, the paradigm of how to determine if there is a physician workforce shortage is shifting from a pure numerical analysis to a more comprehensive evaluation of the changing demographics and philosophy of new physicians, the practice environment, and the training provided in medical school.⁴ Findings show that the United States is not training enough of its own physicians, as approximately 22% are foreign born and educated.⁵ In 2004, Richard A. Cooper, MD, a renowned health care workforce analyst, predicted a shortage of 200,000 physicians in the United States by the year 2020.⁶

Studies reveal that medical students and residents are less likely to choose internal medicine or family practice as a specialty than past generations. Moreover, some specialties face problems attracting new physicians. Finally, there are an increasing number of women in the workforce who often work fewer hours in clinical care than their male counterparts, and many male physicians wish to work fewer hours than those of previous generations.⁷ So, to compound matters, the amount of time physicians spend in patient care could decrease as more young physicians enter the workforce.

While it is important to understand the career plans and work styles of new physicians in the workforce, the same problems that cause great frustration for currently practicing physicians still exist and will impact

³ Massachusetts Medical Society. *MMS Physician Practice Environment Index Report*. Available at www.massmed.org/mmsindex (accessed on April 16, 2007).

⁴ Cooper, RA, Aiken, L. *Health services delivery: reframing policies for global migration of nurses and physicians — a U.S. perspective*. *Policy Polit Nurs Pract*. 2006 Aug;7(3 Suppl):66S-70S.

⁵ Cooper, RA, Aiken, L. *Health services delivery: reframing policies for global migration of nurses and physicians — a U.S. perspective*. *Policy Polit Nurs Pract*. 2006 Aug;7(3 Suppl):66S-70S.

⁶ Cooper RA. *Weighing the evidence for expanding physician supply*. *Ann Intern Med*. 2004 Nov 2;141(9):705-14.

⁷ Cooper, RA, Aiken, L. *Health services delivery: reframing policies for global migration of nurses and physicians — a U.S. perspective*. *Policy Polit Nurs Pract*. 2006 Aug;7(3 Suppl):66S-70S.

the physicians of tomorrow. This year's practicing physician survey for the 2007 MMS Physician Workforce Study reinforced the MMS Physician Practice Environment Index findings that professional liability rates are a major factor in the deterioration of the physician practice environment. Interestingly, the comparable U.S. Index did not reflect this factor as a major problem for 2006. One explanation may be that many states passed tort reform legislation within the past couple of years.⁸ Although the political climate in Massachusetts has made liability reform particularly difficult here, the MMS was able to secure a reduction in prejudgment interest rates in 2005, resulting in some cost reductions. Further initiatives are now pending at the State House.

Tort reform is only one solution to the problem. However, professional liability rates are increasing the cost of doing business. Cost-conscious purchasers and health plans continuously implement new ideas to cut health care costs and improve the quality of health care. The most recent trends are implementing cumbersome prior authorization processes for certain treatments and services, and tiering or ranking individual physicians based on potentially inaccurate data and flawed methodologies. Furthermore, purchasers are incorporating pay-for-performance programs as a way to potentially reduce costs while improving quality of care. All of these new programs require large amounts of administrative time, and some of them are costly. Physicians are equally concerned about quality and cost issues, but as the frontline providers of health care, they must first struggle to stay in business in an increasingly unfriendly environment, recruit and retain physicians to adequately serve the patient population, and deliver the best care possible in a highly technological and litigious environment.

In addition to new programs and reporting requirements, physicians are faced with the technological evolution to electronic health records (EHRs), a substantial investment for any physician group, but even more so for a small group or solo practitioner. Because these programs and technologies are so new, one cannot be sure what consequences they will bring. They could initially be a burden, requiring new investments and additional time from an already overworked profession. Conversely, if steps are taken by all parties to correct critical problems such as the accuracy of data used in public reporting, provide resources for technological upgrades, and perfect quality measurements, then these changes may well improve the profession. Regardless, it is apparent that physicians will need to stay aware of this evolution and will require assistance to transition smoothly to a new transparent, hi-tech environment.

⁸ American Medical Association, *Medical Liability Reform — NOW! A compendium of facts supporting medical liability reform and debunking arguments against reform*. July 19, 2006. www.ama-assn.org/go/mlrnow

Not surprisingly, new physicians and currently practicing physicians are choosing to reduce the hassles and costs of the current practice environment by choosing employment with hospitals instead of opening their own practices. Physicians are also migrating toward larger medical groups. According to a recent study, “a growing number of physicians, both in-practice doctors and residents, are interested in becoming hospital employees, mostly to reduce the stress and ‘hassle factors’ inherent to private practice.” The same study of final-year residents found that free time has become extremely important to young physicians. “In 1999, only 13% of final-year residents surveyed said that the ‘availability of free time’ was a cause for a significant level of concern as they considered their first practice. By contrast, in 2006, 63% of final-year residents said the ‘availability of free time’ was a cause for significant concern.”⁹

Because of the changing dynamics of the physician workforce, as demonstrated in last year’s and this year’s workforce study again, new specialties are showing signs of strain on the labor market. Specialties such as family practice and internal medicine have now emerged as severe and critical respectively for the second year in a row, underscoring the warning from primary care physicians in Massachusetts and the nation that a workforce shortage is imminent.¹⁰

In addition to specific specialties facing shortages, Massachusetts faces the problem of a disproportionate supply of physicians in urban versus rural areas. Most hospitals and clinics are concentrated in the Boston metropolitan area, and more specifically, teaching hospitals typically have less of a problem recruiting physicians. Although, in recent years, the physician recruiting firm at Merritt, Hawkins, and Associates has reported an escalation in requests for help filling vacancies from larger hospitals — hospitals that needed less assistance in the past. Still, Western Massachusetts suffers from an even greater recruitment and retention problem than Boston.

In an attempt to help alleviate the physician shortages described above, the American Association of Medical Colleges (AAMC) announced that the class size of medical school enrollees increased for the second consecutive year, a 2.2% increase from last year. As part of the study, the AAMC highlighted Boston University School of Medicine, because it expanded enrollment by 15% in 2006, which is the third largest enrollment increase in the nation.¹¹ While this is a good sign of movement in the

⁹ “2006 Survey of Final Year Medical Residents,” *A Summary Report*. Merritt, Hawkins and Associates. Available at www.merrithawkins.com/pdf/mba2006residentsurvey.pdf (accessed February 2007).

¹⁰ “The Impending Collapse of Primary Care Medicine and Its Implications for the State of the Nation’s Health Care,” *American College of Physicians*; January 30, 2006. Available at www.acponline.org/hpp/statehc06_1.pdf (accessed February 28, 2007).

¹¹ *U.S. Medical School Enrollment Continues to Climb*. American Association of Medical Colleges. October 18, 2006.

right direction toward increasing the supply of physicians, it is only a start. According to Dr. Cooper, “the number of physicians per capita has plateaued because the United States has added very few medical schools since 1980 and the number of residency programs has been stable since 1995.”¹²

In 2006, a group family practice and internal medicine physicians increased awareness of this imminent shortage of physicians in their specialty, and simultaneously advocated for the creation of a new model of family medicine — the “medical home.” Developed by the American Association of Family Physicians, the model includes “a personal medical home, patient-centered care, a team approach to care, elimination of barriers to access, advanced information systems including electronic health records (EHRs), redesigned, more functional offices, whole-person orientation, care provided in a community context, a focus on quality and safety, enhanced practice finance, and a defined basket of services.”¹³ Their objective is to improve the quality of patient care, while at the same time improving the practice environment and salaries of family physicians. Similarly, geriatricians offered a solution to their specialty’s workforce shortage by recommending that medical schools teach the primary principles of the geriatrics specialty to all students, and then those who choose to become geriatricians become consultants overseeing the care of the most complicated cases of elderly patients.¹⁴

While each year steps are taken to improve the physician workforce supply, it is important that we continue to examine in detail the physician workforce in Massachusetts and its effect on patient access to care as the health care environment continues to evolve. The state is in the process of implementing health care reform to insure hundreds of thousands of residents. Adequate physician supply is essential to the success of health care reform. Furthermore, physician workforce shortages should not be minimized as we move toward initiatives such as pay for performance, quality measurements, and other cost-control initiatives. Some of these programs, while intended to improve the overall health care system, may add administrative burden to the physician practice environment. Therefore, implementation of new programs, specifically Massachusetts’ new health care reform act, must be done with sensitivity to the current challenges in the physician health care environment.

¹² Cooper RA, Aiken L. *Health services delivery: reframing policies for global migration of nurses and physicians — a U.S. perspective.* Policy Polit Nurs Pract. 2006 Aug;7(3 Suppl):66S-70S.

¹³ Spann S., Task Force Report 6. *Report on Financing the New Model of Family Medicine.* Annals of Family Medicine, www.annfammed.org, Vol. 2, Supplement 3, November/December 2004.

¹⁴ “Despite Aging U.S. Population, Few Physicians Specialize in Treatment for the Elderly.” Kaiser Daily Health Policy Report. October 18, 2006.

Methodology

With the help of prominent labor economists, the MMS completed this year’s study, which builds upon the results of the previous five years of Physician Workforce Studies. To evaluate the status of the current physician workforce, both primary and secondary research was conducted. The society also consulted economists James Howell, PhD, and Andrew Sum, PhD, in the development of the survey tools and in the analysis of the results. Given the large scope of the project, primary data (e.g., surveys and telephone polls) and secondary data (e.g., a review of existing databases and literature) were used to properly examine issues affecting the Massachusetts physician workforce. Results from each of the surveys were aggregated to maintain the confidentiality of the respondents. The MMS conducted the following primary research:

- A survey of a random sample of practicing physicians in community and hospital settings throughout Massachusetts
- A survey of medical staff presidents in community hospitals
- A survey of department chiefs in teaching hospitals
- A survey of medical directors of medical groups
- A survey of residency/fellowship program directors
- A telephone survey of physician offices in Massachusetts regarding appointment wait times
- A telephone survey of Massachusetts residents regarding health care issues including patient access to care

The response rates for each of the MMS mailed surveys are described in Table 1.

TABLE 1: RESPONSE RATE SUMMARY			
SURVEY TYPE	NUMBER OF SURVEYS MAILED (EXCLUDING RETURNED MAIL)	COMPLETED	RESPONSE RATE
Practicing Physicians	7,145	1,295	18.1%
Department Chiefs at Teaching Hospitals	116	65	56.0
Medical Staff Presidents at Community Hospitals	68	35	51.5
Medical Directors of Medical Groups	75	15	20.0
Residency/Fellowship Program Directors	110	60	54.5

Survey of Practicing Physicians

The largest component of this study was a survey mailed to 7,145 practicing physicians in October 2006. The survey was mailed to physicians licensed through the Commonwealth of Massachusetts Board of Registration in Medicine who have full and active licenses and a primary address in Massachusetts. The survey mailing included both MMS members and non-members who were randomly selected from 15 specialties (anesthesiology, cardiology, emergency medicine, family practice, gastroenterology, general surgery, internal medicine, neurosurgery, OB/GYN, orthopedics, pediatrics, psychiatry, radiology, urology, and vascular surgery). Each survey was sent with a cover letter and a postage-paid return envelope.

The surveys were serially numbered for a second follow-up mailing to non-responders, which occurred in November 2006. Returned surveys totaled 1,295 for a response rate of 18%. The survey asked physician respondents to provide information regarding the availability of physician supply, recruitment efforts, alteration of services, and adjustment of staffing due to physician vacancies, shortages in specific specialties, and/or retention. In addition, questions were asked to measure physician satisfaction with the practice of medicine in Massachusetts and the impact of professional liability concerns. Tracking the geographic location of responders made it possible to aggregate results by metropolitan statistical areas (MSA), allowing for statistical analysis by region. The MSA grouping methodology was based on the Dartmouth Atlas on Health Care methodology. In addition, the data was analyzed by physician age group and gender.

Survey of Medical Staff Presidents at Community Hospitals

Inasmuch as community hospitals are a critical element in the provision of health care services, in December 2006, a survey was also mailed to the medical staff presidents of 68 acute-care community hospitals throughout Massachusetts. Each survey was sent with a cover letter and a postage-paid return envelope. The surveys were serially numbered for a second follow-up mailing to non-responders, which occurred in January 2007. Thirty-five surveys were returned for a response rate of 52%. Results from the surveys were aggregated to maintain the confidentiality of the respondents. The survey asked respondents to provide information regarding the availability of physician supply, recruitment efforts, alteration of services, and adjustments to staffing due to physician vacancies, shortages in specific specialties, and/or retention at their facility. The questions asked were identical to the questions asked for the 2004, 2005, and 2006 MMS Physician Workforce Studies and were written to be comparable to the questions asked in the surveys of practicing physicians and teaching hospital department chiefs.

Survey of Department Chiefs at Teaching Hospitals

This survey was very similar to those used for the 2002 through 2006 MMS Physician Workforce Studies. The survey asked department chiefs of anesthesiology, cardiology, emergency medicine, primary care, general surgery, gastroenterology, neurosurgery, OB/GYN, orthopedics, pediatrics, psychiatry, radiology, urology, and vascular surgery at 10 teaching hospitals questions regarding physician full-time equivalents (FTEs) currently employed, FTE vacancies, new hires, and separations during the previous six months. It also asked for the department chiefs' experience with the adequacy of the physician applicant pool, recruitment time to fill a physician vacancy, alteration of services and adjustments to staffing due to unfilled vacancies, and retention of existing staff physicians. A total of 116 surveys were sent with cover letters and postage-paid return envelopes. Additional follow-up mailings were also sent to non-responders. Sixty-five surveys were returned for a response rate of 56%. Results from the surveys were aggregated to maintain the confidentiality of the respondents.

Survey of Residency/Fellowship Program Directors

In order to focus on the factors affecting residents' and fellows' location decisions, we surveyed residency and fellowship program directors. The survey mailings targeted individuals in 15 specialties at 10 teaching hospitals, as follows:

- **Specialties:** Anesthesiology, cardiology, emergency medicine, family practice, gastroenterology, general surgery, internal medicine, neurosurgery, OB/GYN, orthopedics, pediatrics, psychiatry, radiology, urology, and vascular surgery
- **Teaching Hospitals:** Boston Medical Center, Massachusetts General Hospital, Brigham and Women's Hospital, Beth Israel Deaconess Medical Center, Children's Hospital, Baystate Medical Center, University of Massachusetts Memorial Medical Center, Caritas St. Elizabeth's Medical Center, Lahey Clinic, and New England Medical Center

The survey asked a number of historical questions about program openings and applications over the previous year, as well as the number of trainees who stayed in or left Massachusetts between 2000 and 2005. Residency and fellowship program directors were also asked how Massachusetts rated (favorably/unfavorably) with respect to professional

and personal factors. This survey was identical to the program director survey used in the 2002 through 2005 MMS Physician Workforce Studies. A total of 110 surveys were sent with cover letters and postage-paid return envelopes. Additional follow-up mailings were also sent to non-responders. Sixty surveys were returned for a response rate of 54.5%.

To conduct the mailings, using the American Medical Association's Graduate Medical Education Directory, staff contacted each of the residency and fellowship programs to explain the goal of the study. The survey was sent in November 2006, included a cover letter, a survey for the program director, and a postage-paid return envelope.

Survey of Medical Directors of Medical Groups

This survey was based on questions asked of both the medical staff presidents at community hospitals and the department chiefs at teaching hospitals. The survey asked questions relevant to the recruitment, retention, separations, and vacancies of physicians within each respondent's medical group. It also asked questions regarding currently employed FTEs, and the percentage of time spent in clinical patient care, research, teaching, and administration. It also asked questions regarding the need to alter services and adjust staffing patterns. A total of 75 surveys were sent with cover letters and postage-paid return envelopes (excludes returned mail). A follow-up mailing was conducted to all non-responders. Fifteen surveys were returned for a response rate of 20%.

Telephone Survey of Massachusetts Patients — Access to Care

Opinion Dynamics Corporation completed surveys of 400 Massachusetts residents by telephone in April 2007. This is the fifth annual survey of its kind. The survey gathered information about the accessibility of health care services and respondents' satisfaction with the care provided. The type of information obtained from respondents allowed for analysis of the results by region, age, and other demographic information.

Telephone Survey of Physician Offices — Access to Care

This study was conducted between February and March 2007 by Opinion Dynamics Corporation among physician offices in 14 Massachusetts counties: Barnstable, Berkshire, Bristol, Dukes, Essex, Franklin, Hampden, Hampshire, Middlesex, Nantucket, Norfolk, Plymouth, Suffolk, and Worcester. Offices were called for the purpose of scheduling a new-patient appointment. Non-emergency reasons were given for the appointments to get an idea of wait times for routine care. The non-emergency reasons

were unique for each specialty and were given as follows: a heart check-up for cardiology, chronic heartburn for gastroenterology, a new primary care physician for internal medicine and family practice, pain in the knee for orthopedic surgery, a routine or “well-woman” exam for OB/GYN, and a new primary care physician for family practice/general practitioner. Medical offices were selected randomly from the American Medical Association Physician Masterfile. In order to provide an adequate sampling of physicians, 100 offices within each of the six specialties were contacted, for a total of 600. A total of 1,167 contacts were made to achieve the 600 completed calls.

Quotas were set within each county based on the county’s percentage of such specialists relative to the total number within the state. That is, if 3% of the cardiologists in Massachusetts were located in Barnstable, then results were taken from 3 cardiologists in Barnstable (assuming the n for cardiologists equaled 100). The same sample design was used for all specialties to ensure that contacts were evenly distributed throughout the physician population.

Data Entry and Analysis

All returned surveys were logged, and responses were entered into a database for cleaning and categorization. The databases were imported into a statistical software package for analysis.

Sample Characteristics

Please see Appendix A for a detailed discussion of sample characteristics.

Snapshot of 2007 Findings — Across MMS Physician Workforce Study Surveys and Opinion Polls

Practicing Physicians’ Survey Responses

- The 2007 data again confirmed the increasing degree of stress in three labor markets that appeared on the critical and/or severe list for the first time in 2006: internal medicine, family practice, and psychiatry.
- Roughly eight out of ten (83%) physicians surveyed report that they find their medical careers either very rewarding or rewarding.

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- Forty-three percent (43%) of physicians responded that they are dissatisfied or very dissatisfied with the current practice environment. Only 51% of physicians, if given the choice, would choose to practice medicine again as a profession.
 - Forty-eight percent (48%) of the physicians reported being dissatisfied or very dissatisfied with the number of hours they are able to spend on patient care versus administrative tasks.
 - Compared to their colleagues in other states, 61% of the physician respondents rate their current income level as uncompetitive or very uncompetitive. Eighty-six percent (86%) believe that over the next five years, their salary levels will either decline or remain the same.
 - Roughly one-half (48%) of the physicians surveyed reported that they are altering or limiting their practice because of the fear of being sued. According to survey data, four specialties — emergency medicine, neurosurgery, OB/GYN, and orthopedics — report that practice has been significantly impacted by the threat of being sued.
 - Eighty-three percent (83%) of physicians are maintaining or increasing their work hours, and almost half (47%) are dissatisfied or very dissatisfied with the number of hours they work versus their ability to pursue home life.
 - Thirty-seven (37%) of physicians are considering changing their profession due to the current practice environment.
 - Approximately one-quarter (24%) of physician respondents are planning or considering a move out of Massachusetts if the practice environment does not change.
 - Seventy percent (70%) of physician respondents are having difficulty filling physician vacancies and 70% said the pool of physician applicants is inadequate to fill their vacant positions.
 - Thirty-two percent (32%) of practicing physicians responded that physician supply problems have made it necessary to alter the services they provide.
 - Additionally, almost three-quarters (72%) of physician respondents indicated that their patients are having difficulty obtaining a timely specialty care consultation.

Community and Teaching Hospital Survey Responses

- Sixty-eight percent (68%) of teaching hospitals and 83% of community hospitals are currently experiencing difficulty filling physician vacancies.
- Seventy-two percent (72%) of community hospitals reported that physician supply problems necessitated altering the provision of services, and 68% reported adjusting professional staffing due to physician supply problems.
- Thirty-eight percent (38%) of teaching hospitals reported that physician supply problems necessitated altering the provision of services, and 45% reported adjusting professional staffing patterns.
- In teaching hospitals, the highest job vacancy rates were in the vascular surgery, urology, neurosurgery, and OB/GYN specialties.

Medical Directors' Survey Responses

- Seventy percent (70%) of medical directors responded that the average amount of time required to recruit a physician has increased over the past three years.
- Medical directors cited a median recruitment time of 11 to 12 months, with nearly one-third claiming 18 months or longer.
- One-third reported the need to alter services due to physician supply problems.
- Almost one-half (47%) of medical directors reported that physician supply problems have made it necessary to adjust staffing patterns.
- Forty-three percent (43%) of the medical directors responded that retention of physicians has changed.

Residency/Fellowship Program Directors' Responses

- Each year, slightly more than one-half of the residents in the Commonwealth pursue the next step in their medical careers outside Massachusetts.
- Residency/fellowship program directors rate salary level (7%) and the practice environment (17%) the least likely reasons residents plan to begin their careers in Massachusetts. Intellectual (85%) and research (71%) opportunities top the list of professional reasons residents plan to stay in the Commonwealth.

Physician Office Telephone Survey

- The physician office poll showed that internal medicine appointments are significantly more difficult to obtain than they were a year ago. Just half (51%) of internists are accepting new patients, down from 64% in 2006 and 66% in 2005.
- The average wait time among internal medicine physicians accepting new patients is up — to 52 days compared to 33 days in 2006 and 47 days in 2005.
- Fewer internists report accepting Medicaid — 59% now, down from 73% in 2006 and 79% in 2005.
- The average wait time for a new-patient appointment with an OB/GYN increased from 34 days in 2006 to 46 days in 2007.

Public Opinion Telephone Survey

- In 2006, 53% of those who had an appointment with a primary care physician were able to see a doctor within a week of contacting them — this year, just 42% were able to see a doctor within a week.
- Seventeen percent (17%) of respondents who needed care for a serious but non-life threatening medical problem said the wait for an appointment was a problem, up from 7% in the previous two surveys.
- Nearly three-quarters (74%) of residents oppose higher copays based on insurers' internal quality and cost ratings.
- Forty-one percent (41%) of Massachusetts residents reported that they had a medical appointment in the previous year in which they saw a nurse, a nurse practitioner, or a physician's assistant, but not a doctor. Half (53%) of those who saw a non-physician health care provider did so by choice, 35% because they couldn't get an appointment with a medical doctor, and 6% said they didn't know they weren't seeing a physician until they arrived for the appointment.

The Structure of the Report

The following sections will be discussed in detail in the report:

- **Section 1:** Determination of Shortages by Specialty from the Survey of Practicing Physicians
- **Section 2:** Evaluating the Issue of Physician Recruitment and Retention as Seen by Medical Staff Presidents in Community Hospitals, Department Chiefs in Teaching Hospitals, Medical Directors of Medical Groups, and Practicing Physicians
- **Section 3:** Analysis of the Responses to Questions about Professional Liability Expenses
- **Section 4:** Survey Results Regarding the Opinions of Program Directors of Residency/Fellowship Programs
- **Section 5:** Physician Satisfaction, Attitudes toward the Profession, and Future Career Plans
- **Section 6:** Regional Disparities across the Principal Urban Labor Markets in Massachusetts
- **Section 7:** The Role of Gender in the Practice of Medicine in Massachusetts
- **Section 8:** Patient Access to Health Care
- **Section 9:** Conclusions and Policy Considerations

SECTION 1: DETERMINATION OF SHORTAGES BY SPECIALTY FROM THE SURVEY OF PRACTICING PHYSICIANS

1.1 — Section Methodology: Introductory Comments

The implicit assumption underpinning all workforce studies is that labor markets are flexible enough to respond to dynamically changing circumstances and that over time, they will achieve new, stable equilibrium. For reasons that are becoming increasingly clear, this has not proved to be the case for physician labor markets in Massachusetts.

Over the past six MMS Physician Workforce Studies, two specialties — anesthesiology and neurosurgery — have been classified consistently as operating with critical or severe labor shortages. Further, two additional specialties — cardiology and gastroenterology — have operated with the same labor market shortages in five of the past six survey years.

The point here is that a six-year time period should have been sufficient to produce supply adjustments, but that is not the case.

Further, the 2007 survey results show that labor market conditions among five additional specialties deteriorated to the point that they are now a major concern: family practice, internal medicine, psychiatry, urology, and vascular surgery.

We have now reached the point where one-third of all practicing physicians have reported being forced to alter services (32%) and adjust their staffing patterns (33%), and over two-thirds of all community hospitals have been forced to alter existing services (72%) and adjust professional staffing patterns (68%) to satisfy patient demand. Teaching hospitals have not fared much better; 38% report altering services and 45% adjusting staffing.

In the context of this most disquieting development, one must recognize that rapidly rising physician practice operating costs coupled with constantly constrained or reduced reimbursement rates have meant that physician salary levels have risen less rapidly than would otherwise be expected in the face of widespread shortages. In short, Massachusetts physician labor markets have been too rigid to respond to continuing and growing labor shortages.

Over time, these adverse conditions have begun to weigh heavily on the career outlook among many practicing physicians in the state.

Specifically, in terms of future income growth, slightly more than one out of three physicians currently practicing in Massachusetts expects that five years from now, his or her salary level will be lower than it is presently. This is most disquieting as economic growth almost always results in rising incomes. Assuming this dynamic continues and the challenging practice environment persists, physician shortages can be expected to worsen.

1.2 — The Six Survey Questions

The six questions that follow were designed to measure subjectively and empirically the degree of stress in physician labor markets. The questions were used in all six MMS surveys, including the 2007 survey. The responses to these key questions are the basis for important conclusions drawn about labor market conditions. Responses to these questions, asked of practicing physicians in Massachusetts, helped determine if shortages existed, and if so, for which specialties.

- Adequacy of Physician Applicant Pool to Fill Vacant Positions
 - **Question 19:** Is the current pool of physician applicants adequate to fill your vacant positions or expand your practice?
- Specialties Where Filling Existing Vacancies Is Difficult
 - **Question 20:** Are you currently experiencing difficulty in filling physician vacancies?
- Specialties Where Supply Problems Make It Necessary to Alter Services or Adjust Professional Staffing Patterns
 - **Question 21:** Have physician supply problems made it necessary for you to alter the services you provide?
 - **Question 22:** Have physician supply problems made it necessary for you to adjust your professional staffing patterns?
- Specialties Where Recruitment Time and the Average Time It Takes to Recruit a Physician Have Increased
 - **Question 25:** Over the past three years, has the amount of time needed to recruit physicians changed? If yes, by how much time (increased/decreased by number of months)?
- Specialties Where Staff Retention Is More Difficult
 - **Question 26:** Over the past three years, has your ability to retain your existing staff of physicians changed? If yes, has retaining physicians in your practice become more difficult or easier?

Each of these questions is analyzed sequentially in Section 1.3. In order to categorize the degree of intensity of labor market shortages as critical or severe, we established the following criteria:

- For a physician specialty to be considered “critical” in terms of its labor market tightness, responses to the six key questions must meet the following criteria:
 - Responses to at least two out of six questions must equal or exceed 50%.
 - Responses to the remaining questions must equal or exceed 20%.
 - Responses to all six questions must be greater than the mean for each of the respective six questions for all physician specialties combined.
- For a physician specialty to be considered “severe” in terms of its labor market tightness, responses to the six key questions must meet the following criteria:
 - Responses to one out of six questions must equal or exceed 50%.
 - Responses to at least five out of six questions must equal or exceed 20%.
 - Responses to any three out of six questions must be greater than the mean for each of the respective six questions for all physician specialties combined.

Section 1.3 — Results Summarized as a Six-Year Trend

The results derived from the restated survey questions provide a comprehensive picture of the current and past conditions of physician labor markets in Massachusetts (see Table 2). These statistical results provide a comprehensive basis for differentiating important shifts across physician specialty labor markets. Within this context, three important conclusions can be made.

SPECIALTY	2007	2006	2005	2004	2003	2002
Neurosurgery	Critical	Severe	Severe	Critical	Critical	Severe
Anesthesiology	Severe	Severe	Critical	Severe	Critical	Critical
Cardiology	Critical	----	Severe	Severe	Critical	Severe
Gastroenterology	Severe	Severe	Severe	----	Critical	Severe
Radiology	----	Critical	----	Severe	Critical	Critical
Orthopedics	----	Severe	Severe	Severe	Severe	----
General Surgery	----	Severe	Severe	Severe	Severe	----
Internal Medicine	Critical	Critical	----	----	----	----
Vascular Surgery	Critical	Severe	----	----	Severe	----
Family Practice	Severe	Severe	----	----	----	----
Psychiatry	Severe	Severe	----	----	----	----
Urology	Severe	*	*	*	*	*
Emergency Medicine	----	Severe	----	----	----	Severe
OB/GYN	----	----	----	----	----	----
Pediatrics	----	----	----	----	----	----

**2007 data only*

[†]For detailed data on how specialties answered the six key questions that categorize them as critical or severe, see Table 4.

Four specialties have consistently faced critical and/or severe labor market conditions over the past six survey years. A review of the data shown in Table 2 shows that four specialties satisfy these criteria:

- Neurosurgery
- Anesthesiology
- Cardiology
- Gastroenterology

For two of these specialties — neurosurgery and anesthesiology — labor market conditions have been classified as critical or severe for all six years. The labor market conditions for the other two specialties — cardiology and gastroenterology — have been classified as such in five of the past six years. Clearly, labor markets for these four specialties were stressed when the first survey was undertaken six years ago, and they have remained so over subsequent survey years.

This historical perspective is important, not only because it provides considerable insight into the dynamics operating in physician labor markets over time, but also because it provides a meaningful context for judging the 2006–2007 survey results.

The second conclusion concerns physician labor market developments over the past two years. As the survey data show in Table 2, labor markets for a much larger cluster of specialties have clearly deteriorated. Note that for the past two years, the following four specialties have satisfied the criteria for critical and/or severe conditions:

- Internal medicine
- Vascular surgery
- Family practice
- Psychiatry

A fifth specialty — urology — meets the criteria for severe labor market stress for 2007. This specialty was first introduced in the 2007 survey.

At this point, it may be helpful to single out those specialties categorized as critical or severe in 2007.

TABLE 3: SPECIALTIES CATEGORIZED AS CRITICAL OR SEVERE, 2007	
SPECIALTY	2007
Anesthesiology*	Severe
Cardiology*	Critical
Family Practice	Severe
Gastroenterology*	Severe
Internal Medicine	Critical
Neurosurgery*	Critical
Psychiatry	Severe
Urology	Severe
Vascular Surgery	Critical

**The specialties originally identified as facing critical or severe labor market conditions based on the historical methodology outlined above and displayed in Table 4*

The final comment concerns the shifts in physician labor market dynamics over the six survey years. Three specialties — internal medicine, family practice, and psychiatry — appeared on the critical and/or severe list for the first time in 2006. The 2007 data again confirmed the higher degree of stress in these labor markets. This points to a shift among these three specialties from nearly normal labor market behavior over the period from 2002 to 2005 to considerably stressed in 2006 and 2007.

Further indicating a swing to much tighter labor market conditions in 2007, internal medicine remained categorized as critical. In addition, vascular surgery shifted from severe in 2006 to critical in 2007, and cardiology re-emerged as critical in 2007. This provides considerable insight into the contemporary behavior of physician labor markets in Massachusetts.

Specifically, a six-year timeframe is sufficiently long that we would expect to see at least some physician supply improvement in response to the strong labor market demand that consistently emerges from our surveys. Said slightly differently, since the initial survey in 2002 credibly established strong, unmet demand for physicians in six specialties, four of those continue to operate in critical and/or severe conditions five years later.

Labor markets have continued to deteriorate over time with virtually no supply-side response. The two exceptions are OB/GYN and pediatrics — two specialties that seem to be operating in labor markets that function quite independently of the other thirteen.

To conclude at this point, physician specialty labor markets in Massachusetts — at the least for the nine specialties noted in Table 3 — seem to operate in a state of disequilibrium where significant demand for physicians goes unmet. Based on our experience in analyzing studies of the behavior of other labor markets, this is most uncharacteristic. This leads us to conclude that unless Massachusetts labor markets become more flexible and respond, this supply-demand gap will continue for some time to come. Given the outlook for increasing patient demand for medical care, this is a most troubling conclusion.

For a more detailed clarification of the 2007 labor market severity, see Table 4.

TABLE 4: SPECIALTIES FACING CRITICAL OR SEVERE OCCUPATIONAL SHORTAGES IN THE LAST SIX YEARS

	2007 INADEQUATE POOL OF PHYSICIANS	2002-2006 AVERAGE	2007 CHANGE IN RECRUITMENT TIME	2002-2006 AVERAGE	2007 CHANGE IN RETENTION	2002-2006 AVERAGE	2007 SIGNIFICANT DIFFICULTY FILLING VACANCIES	2002-2006 AVERAGE	2007 ALTERED SERVICES	2002-2006 AVERAGE	2007 ADJUSTED STAFFING	2002-2006 AVERAGE
SPECIALTIES DESIGNATED AS CRITICAL OR SEVERE IN ALL SIX YEARS												
Anesthesiology	58.5%	71.3%	60.5%	47.6%	48.0%	39.5%	26.9%	36.3%	33.3%	38.9%	64.2%	61.0%
Neurosurgery	77.8%	63.3%	80.0%	47.8%	57.1%	28.6%	66.7%	51.8%	41.2%	47.3%	38.9%	47.7%
SPECIALTIES DESIGNATED AS CRITICAL OR SEVERE IN FIVE OF SIX OR FOUR OF SIX YEARS												
Cardiology	61.4%	53.9%	78.6%	51.7%	61.8%	25.3%	37.8%	36.2%	39.0%	28.9%	45.2%	37.4%
Gastroenterology	52.6%	64.0%	55.6%	54.1%	33.3%	17.3%	31.0%	49.2%	28.6%	40.7%	25.0%	36.0%
General Surgery	54.0%	43.4%	46.7%	41.9%	45.8%	29.9%	24.0%	28.4%	23.3%	24.3%	24.1%	29.2%
Orthopedics	51.5%	56.0%	43.1%	48.8%	22.2%	23.9%	28.1%	37.8%	28.3%	34.6%	25.0%	36.1%
Radiology	66.7%	76.1%	25.0%	58.7%	11.1%	28.6%	12.5%	46.6%	37.5%	29.6%	75.0%	62.5%
SPECIALTIES DESIGNATED AS CRITICAL OR SEVERE IN AT LEAST ONE YEAR												
Emergency Medicine	29.1%	38.2%	42.1%	26.8%	34.7%	24.1%	12.0%	15.8%	16.7%	21.5%	35.2%	34.4%
Family Practice	58.6%	38.5%	62.5%	24.8%	54.7%	21.2%	35.4%	20.6%	34.7%	26.1%	26.8%	23.5%
Internal Medicine	63.7%	45.6%	61.8%	40.1%	48.2%	25.4%	34.1%	26.7%	36.5%	29.2%	36.6%	30.1%
Psychiatry	33.9%	31.0%	52.6%	38.9%	51.7%	27.1%	34.7%	23.5%	38.6%	32.5%	29.9%	30.8%
Urology*	81.8%	--	90.0%	--	50.0%	--	40.0%	--	20.0%	--	20.0%	--
Vascular Surgery	86.7%	55.5%	91.7%	40.9%	85.7%	18.2%	71.4%	24.7%	50.0%	17.3%	71.4%	26.7%
SPECIALTIES NOT DESIGNATED AS CRITICAL OR SEVERE IN ONE YEAR												
OB/GYN	48.4%	31.3%	47.7%	31.6%	28.0%	23.2%	24.4%	20.6%	34.9%	21.1%	36.1%	26.0%
Pediatrics	22.9%	19.1%	35.6%	16.6%	20.7%	12.3%	8.0%	7.1%	17.8%	14.6%	15.4%	14.3%
Sample Mean	49.7%	43.6%	55.1%	39.0%	42.2%	24.9%	28.9%	27.0%	31.7%	27.8%	32.6%	32.4%

*2007 data only

SECTION 2: EVALUATING THE ISSUE OF PHYSICIAN RECRUITMENT AND RETENTION AS SEEN BY MEDICAL STAFF PRESIDENTS IN COMMUNITY HOSPITALS, DEPARTMENT CHIEFS IN TEACHING HOSPITALS, MEDICAL DIRECTORS OF MEDICAL GROUPS, AND PRACTICING PHYSICIANS

In this section of the study, the issues surrounding physician recruitment and retention are analyzed on the basis of findings from the four primary survey sources: practicing physicians, community hospitals, medical groups, and teaching hospitals. The detailed analyses contained in this section constitute an important element of the overall MMS Physician Workforce Study. They address the adequacy of physician labor markets in terms of their ability to fill existing vacancies and difficulties experienced with regard to physician retention. The potential adverse consequences of physician shortages on the provision of patient services are also assessed. A summary of the key conclusions follows.

- First, all six workforce studies have demonstrated very clearly that community hospitals are in a class of their own when it comes to serious difficulty recruiting physicians from the existing labor pool. Approximately eight out of ten community hospitals reported that they had problems filling physician vacancies in order to maintain medical staff levels to provide adequate patient care (see Chart 1).
- Second, although physician recruitment among practicing physicians has remained essentially unchanged over all six studies, the mean survey response rate is 13 months to recruit and fill each vacancy. Statistical variances suggest that it could take up to 23 months — a length of time that is potentially disruptive to meeting patient needs. Five specialties can be singled out

as experiencing the longest recruitment times: neurosurgery, urology, vascular surgery, gastroenterology, and orthopedics (see Table 7).

- Finally, community hospitals continue to experience a rapidly rising adverse impact from physician shortages, especially in 2007. During the period from 2003 to 2006, approximately one-half of the community hospitals responded that it was necessary to adjust their service delivery patterns to meet patient demand. The 2007 survey shows that this ratio jumped to more than two-thirds of community hospitals — unquestionably, a most disquieting development (see Chart 4).

2.1 — The Adequacy of the Physician Applicant Pool and the Degree of Difficulty to Recruit

In the more detailed comments that follow, the analytical basis for the three important conclusions described above will be elaborated. First are the issues of the adequacy of the existing physician labor supply to fill vacancies and the degree of difficulty recruiting physicians. The results of the questions asked regarding these first two issues are analyzed below and displayed in Charts 1 and 2.

Before commenting specifically on the details contained in these charts, it should be noted that we have plotted only the percent of respondents who indicated that the current pool of physicians is inadequate and the percentage of respondents who indicated that they are experiencing difficulty recruiting replacement physicians. Two important conclusions are abundantly clear; specifically:

- First are the perceptions about the adequacy of the applicant pool to fill vacancies. Over the five years of MMS Physician Workforce Studies, community hospitals seem to be in a class of their own when it comes to being able to compete for physicians from the existing labor market supply. While there has been some improvement in the perception of the applicant pool in 2007, the difficulties experienced by community hospital presidents trying to fill existing physician vacancies border on crisis level when compared to the experiences among practicing physicians and teaching hospital department chiefs.
- Second is the degree of difficulty filling existing vacancies. Again, the survey data plotted in Charts 1 and 2 provide additional empirical support for the important conclusion that though community hospitals have improved, they are in a class

of their own and must deal with greater difficulty filling physician vacancies than practicing physicians and teaching hospitals, which have very slightly but consistently improved.

CHART 1: PERCENT REPORTING THAT CURRENT POOL OF APPLICANTS IS INADEQUATE TO FILL VACANT POSITIONS OR EXPAND PRACTICE

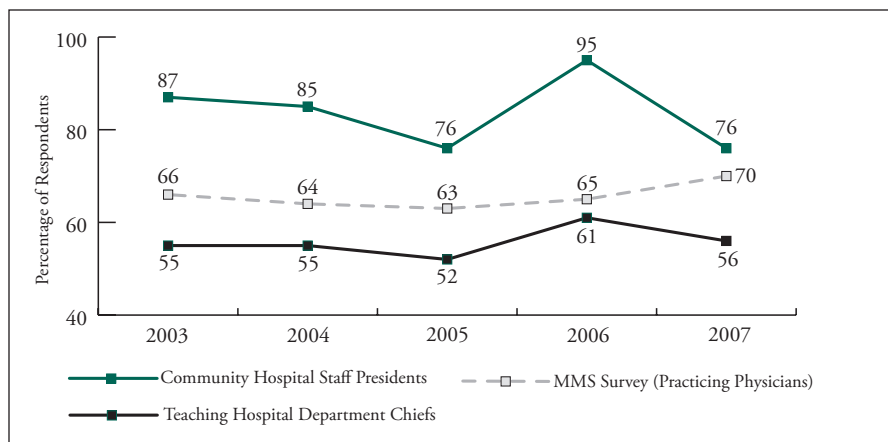
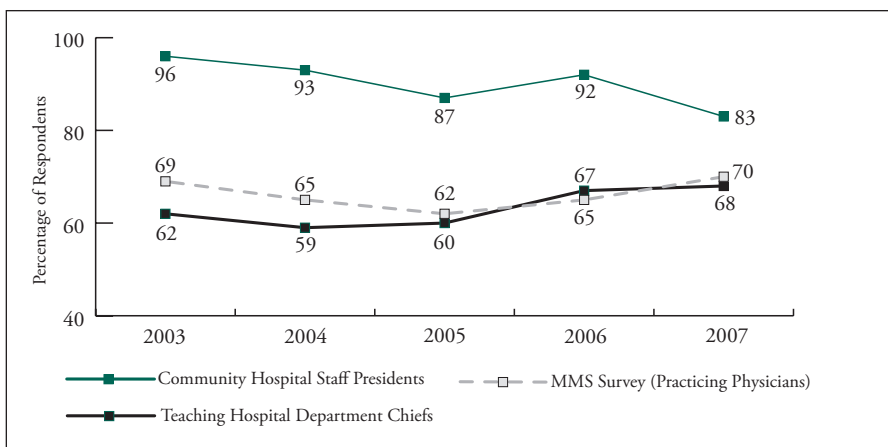


CHART 2: PERCENT RESPONDING THAT THEY ARE CURRENTLY EXPERIENCING DIFFICULTIES FILLING PHYSICIAN VACANCIES



There is some concern that medical staff presidents at community hospitals and practicing physicians follow a similar trend in responding to difficulty filling physician vacancies. It will be helpful to comment on the specialties singled out by community hospital medical staff presidents as being in shortage. The list of 15 specialties is displayed in Table 5.

TABLE 5: SPECIALTIES IN SHORTAGE IN COMMUNITY HOSPITALS		
	PERCENT OF COMMUNITY HOSPITALS IDENTIFYING SPECIALTY SHORTAGES AT THEIR HOSPITALS	
SPECIALTY	2007	2003–2006
Internal Medicine	54	40
General Surgery	49	28
Family Practice	43	29
Orthopedics	40	33
Neurosurgery	37	40
Psychiatry	34	27
Radiology	34	26
Anesthesiology	31	35
OB/GYN	31	25
Cardiology	29	27
Gastroenterology	26	32
Urology*	20	--
Emergency Medicine	14	9
Pediatrics	14	5
Vascular Surgery	9	20
Sample Mean	30	27

**2007 data only*

A number of conclusions can be derived from these ratios depending on one's specific interest in a single specialty, but two general conclusions seem most relevant to interpreting the survey results. First is that over the first four MMS surveys, among community hospitals, only five specialties were reportedly experiencing recruitment shortages in excess of 30%. Second is that the 2007 data show that the number of specialties singled out as experiencing shortages in excess of 30% rose to nine.

2.2 — The Amount of Time Required to Recruit a Physician

In this discussion, the responses to a cluster of three specific questions concerning the time required to recruit a physician across the 15 specialties are analyzed, but before we begin, it will be helpful to establish the broad parameters concerning recruitment among practicing physicians, teaching hospitals, and community hospitals. The key data are shown in Table 6.

TABLE 6: OVER THE PAST THREE YEARS, HAS THE AMOUNT OF TIME NEEDED TO RECRUIT PHYSICIANS CHANGED? IF YES, HAS RECRUITING PHYSICIANS TO YOUR PRACTICE INCREASED?

	2007	2003–2006 MEAN	2007	2003–2006
	YES, AMOUNT OF TIME HAS CHANGED	YES, AMOUNT OF TIME HAS CHANGED	PERCENT REPORTING AN INCREASE	PERCENT REPORTING AN INCREASE
Teaching Hospital Department Chiefs	48	57	78	96
Community Hospital Staff Presidents	88	89	83	97
Practicing Physicians	55	56	97	98

These responses provide additional insight into the physician recruitment issues among community hospitals vis-à-vis practicing physicians and teaching hospitals. These data seem to describe a slightly different situation, possibly one that is somewhat less grim than our commentary above. Note specifically that a higher ratio of community hospital staff presidents report that recruitment challenges have changed over the past three years, but all three agree that recruitment has become more difficult. More details on the complex dimensions of physician labor markets will be presented in the subsequent analysis.

In terms of community hospitals, the sample data, while more than adequate for aggregated comparisons, was insufficient for disaggregated analysis on a specialty-by-specialty basis. Further, when reviewing the time series data displayed in some of the following tables, it will be noted that there is a certain amount of discontinuity in the amount of historical data available. This reflects the dynamically evolving nature of the survey questionnaire.

We can now turn our attention to the first question in this cluster. Shown in Table 7 are the responses to a question concerning the amount of time to recruit among practicing physicians.

TABLE 7: TIME REQUIRED FOR RECRUITMENT AMONG PRACTICING PHYSICIANS

SPECIALTY	MEAN OVER 5 YEARS	2007		2006		2005		2004		2003		2002	
		MEAN IN MONTHS	STANDARD DEVIATION	MEAN IN MONTHS	STANDARD DEVIATION	MEAN IN MONTHS	STANDARD DEVIATION	MEAN IN MONTHS	STANDARD DEVIATION	MEAN IN MONTHS	STANDARD DEVIATION	MEAN IN MONTHS	STANDARD DEVIATION
Anesthesiology	10.4	10.8	6.8	9.9	5.4	11	6.4	10.7	5.4	9.6	5.8	10.6	6
Cardiology	13.7	16	7.3	10.3	6	12.1	5.6	15.9	12	14.4	8.6	12.7	9.2
Emergency Medicine	8.4	6.5	4.1	9.9	9.9	8.6	7.6	8.6	6.9	8.4	5.4	8.6	5.6
Family Practice	12.4	14.3	10	13.6	9.5	11.5	7.3	12.7	8	10.1	6.8	11.7	10
Gastroenterology	18.9	17.9	11.8	17.4	10	20	13.4	19.9	10.3	19.1	12	22.3	13.2
General Surgery	15.4	17.4	11	14.1	7.4	15.8	10.2	16.1	10.6	13.7	8.5	12.8	6.5
Internal Medicine	12.3	11.4	7.7	12.7	8	12	9.6	12.8	8.9	12.5	12.1	10.3	6.9
Neurosurgery	25.9	26.3	14.7	18.7	11.6	27.9	15.2	29.9	22.4	26.5	17.8	22.9	16.7
OB/GYN	13.2	14.1	7.9	14	10.5	14.1	10.7	12.3	7.3	11.7	7.9	12.8	9.4
Orthopedics	19.7	22	12.7	19	12.7	21.1	13.1	18.9	10.5	17.4	10.7	14.6	9
Pediatrics	9.3	8.7	6.2	10.3	10.9	8.9	6.7	9.9	8.8	8.8	6.1	7.8	4.8
Psychiatry	10.5	9.3	7.5	10.2	6.2	10.7	8.9	10.6	8.8	11.9	12.7	11.1	7.7
Radiology	13.6	11.2	4.6	13.8	8.2	14.2	7.3	15.2	9.5	13.5	8.1	14.9	9.3
Urology*	21.7	21.7	9.7	--	--	--	--	--	--	--	--	--	--
Vascular Surgery	16.5	19.3	11.7	13.3	8.5	18.2	8	20	12.4	11.8	7.7	17	15.4
Sample Mean	12.9	13.1	9.6	12.8	9.2	12.8	9.9	13.3	9.7	12.4	9.6	11.9	8.7

*2007 data only

These data from the MMS Survey of Practicing Physicians provide support for three important conclusions:

- First is that there is a rather amazing consistency in terms of the aggregate sample means and their respective standard deviations across the five annual MMS surveys. To translate this into specifics, this means that physician recruitment, on average, takes approximately 13 months, but variations for individual physician recruitment could take as few as 4 months or as long as 22 months.
- Second is that it is extremely easy to identify those specialties where recruitment times are the greatest. Consistently over the five previous practicing physician surveys, the following four specialties can be singled out as experiencing the longest recruitment times among practicing physicians: gastroenterology, neurosurgery,

orthopedics, and vascular surgery. A fifth specialty — urology — is also a clear candidate for inclusion in this list, even though this specialty was introduced into the 2007 survey for the first time. For three of these specialties — gastroenterology, neurosurgery, and orthopedics — this conclusion is not surprising, because they have consistently been categorized as operating in critical or severe labor market conditions over most of the past six survey years (see Table 2, page 54).

- Third, it is interesting to note that only a single specialty — emergency medicine — reported the number of months in the single digit range every year.

Taken together, the second and third conclusions provide considerable insight into the extremes in which physician labor markets in Massachusetts operate. But make no mistake about these conclusions; whenever recruitment time is a year or longer, a certain amount of additional burden is placed on the physician's practice.

We may broaden the analysis by comparing the recruitment times for practicing physicians and those for department chiefs in teaching hospitals. The relevant data are shown in Table 8. These data cover only three survey years, and the responses from practicing physicians are the same as those shown in Table 7.

TABLE 8: TIME REQUIRED FOR PHYSICIAN RECRUITMENT AMONG PRACTICING PHYSICIANS AND TEACHING HOSPITAL DEPARTMENT CHIEFS

	2007		2006		2005	
SPECIALTY	PRACTICING PHYSICIANS, MEAN IN MONTHS	TEACHING HOSPITAL DEPARTMENT CHIEFS, MEAN IN MONTHS	PRACTICING PHYSICIANS, MEAN IN MONTHS	TEACHING HOSPITAL DEPARTMENT CHIEFS, MEAN IN MONTHS	PRACTICING PHYSICIANS, MEAN IN MONTHS	TEACHING HOSPITAL DEPARTMENT CHIEFS, MEAN IN MONTHS
Anesthesiology	10.8	7.5	9.9	8.8	11.0	8.0
Cardiology	16.0	11.0	10.3	12.5	12.1	7.8
Emergency Medicine	6.5	6.0	9.9	14.7	8.6	5.3
Family Practice	14.3	7.0	13.6	12.0	11.5	5.7
Gastroenterology	17.9	5.5	17.4	11.0	20.0	16.7
General Surgery	17.4	9.2	14.1	11.0	15.8	7.5
Internal Medicine	11.4	9.8	12.7	15.8	12.0	7.5
Neurosurgery	26.3	16.0	18.7	9.0	27.9	22.7
OB/GYN	14.1	7.2	14.0	14.8	14.1	10.5
Orthopedics	22.0	8.0	19.0	23.8	21.1	15.0
Pediatrics	8.7	27.0	10.3	15.6	8.9	14.4
Psychiatry	9.3	9.7	10.2	14.8	10.7	6.6
Radiology	11.2	9.0	13.8	17.8	14.2	7.2
Urology*	21.7	14.3	--	--	--	--
Vascular Surgery	19.3	11.0	13.3	5.5	18.2	11.5
Sample Mean	13.1	9.7	12.8	13.8	12.8	10.9

*2007 data only

Quite obviously, these comparative data provide additional insight into the complex variations in recruitment times by specialty and between practicing physicians and teaching hospitals. The most obvious conclusion is, of course, the much shorter mean monthly recruitment times among those specialties that can be most effectively practiced in a teaching hospital setting. These include gastroenterology, general surgery, neurosurgery, OB/GYN, orthopedics, urology, and vascular surgery.

We can conclude this discussion by broadening the analysis to include the responses to survey questions about whether the amount of time required to recruit has increased. Teaching hospitals' and practicing physicians' responses to this question are shown in Table 9.

TABLE 9: OVER THE PAST THREE YEARS, HAS THE AVERAGE AMOUNT OF TIME REQUIRED TO RECRUIT PHYSICIANS CHANGED?

	2007				2006			
SPECIALTY	PRACTICING PHYSICIANS RESPONDING YES	PERCENT REPORTING AN INCREASE	TEACHING HOSPITAL DEPARTMENT CHIEFS RESPONDING YES	PERCENT REPORTING AN INCREASE	PRACTICING PHYSICIANS RESPONDING YES	PERCENT REPORTING AN INCREASE	TEACHING HOSPITAL DEPARTMENT CHIEFS RESPONDING YES	PERCENT REPORTING AN INCREASE
Anesthesiology	61%	95%	17%	0%	58%	92%	33%	50%
Cardiology	79	100	67	100	56	100	67	100
Emergency Medicine	42	82	20	100	52	100	67	75
Family Practice	63	100	100	100	51	100	0	0
Gastroenterology	56	100	50	100	56	100	0	0
General Surgery	47	100	20	100	53	100	33	100
Internal Medicine	62	98	75	100	63	99	50	100
Neurosurgery	80	88	100	100	56	100	67	100
OB/GYN	48	100	40	100	50	100	60	100
Orthopedics	43	95	33	100	79	100	40	67
Pediatrics	36	93	50	100	26	95	60	100
Psychiatry	53	97	50	100	61	100	67	100
Radiology	25	100	100	100	68	100	50	75
Urology*	90	89	50	100	--	--	--	--
Vascular Surgery	92	100	50	100	67	100	100	100
Sample Mean	55%	97%	48%	97%	56%	99%	53%	89%

*2007 data only

While there are a number of different conclusions that may be derived from these data sets, we will limit our remarks to the 2007 survey results. The responses are by themselves most interesting, especially when judged in the context of the nine specialties singled out as facing the most critical or severe shortages confronting the health care system in 2007 (see Table 3, page 55). The comments cited below tell us a great deal about variations in recruitment issues between practicing physicians and teaching hospitals.

- First, note that with regard to the amount of time to recruit for 10 specialties, the ratios among practicing physicians are higher than among the department chiefs in teaching hospitals. The higher levels of responses are also found in 7 specialties that reported higher levels of recruitment time in the previous year. Without doubt, these time disparities represent the competitive structure of labor markets between new hires among practicing physicians and teaching hospitals (see Table 9).

- Second, note that among the remaining three specialties, in two — family practice and internal medicine — shortages most usually occur in the practicing physician setting and not in teaching hospitals due to the limited use of primary care specialties in teaching hospitals. In terms of the third specialty, psychiatry, physicians in this specialty seem to be exceedingly difficult to recruit in both labor markets.

2.3 — Issues Surrounding Physician Retention

In this section, we will address the issues of physician retention. Before we examine the details by specialty, the key statistical parameters need to be established. These are shown in Table 10.

TABLE 10: OVER THE PAST THREE YEARS, HAS YOUR ABILITY TO RETAIN YOUR EXISTING STAFF OF PHYSICIANS CHANGED? IF YES, HAS RETAINING PHYSICIANS IN YOUR PRACTICE BECOME MORE DIFFICULT?

	2007	2003–2006 MEAN	2007	2003–2006 MEAN
	RETENTION HAS CHANGED	RETENTION HAS CHANGED	BECOME MORE DIFFICULT	BECOME MORE DIFFICULT
Teaching Hospital Department Chiefs	48%	51%	93%	93%
Community Hospital Staff Presidents	66	72	92	98
Practicing Physicians	42	52	98	98

There is considerable parallelism between these responses on the issue of physician retention and those shown in Table 6 concerning physician recruitment. To be more specific, in both cases, the responses to the question about changes in labor market conditions in community hospitals are much higher than those for teaching hospital department chiefs and practicing physicians, but all three agree that physician retention and recruitment have become much more difficult. Together, this parallelism provides a most interesting dimension to the contemporary dynamics of existing physician labor markets in Massachusetts.

To expand the survey results on the issue of retention, the 2006 and 2007 survey data shown in Table 11 are also interesting because there is near unanimity of opinion that physician retention has become more difficult. With only few exceptions, these are the views of both community hospitals and teaching hospitals across all physician specialties.

TABLE 11: OVER THE PAST THREE YEARS, HAS YOUR ABILITY TO RETAIN YOUR STAFF OF PHYSICIANS CHANGED? IF YES, HAS IT BECOME EASIER OR MORE DIFFICULT? (PRACTICING PHYSICIANS AND TEACHING HOSPITALS)

	2007				2006			
SPECIALTY	PRACTICING PHYSICIANS CHANGED	PERCENT MORE DIFFICULT	TEACHING HOSPITAL DEPARTMENT CHIEFS CHANGED	PERCENT MORE DIFFICULT	PRACTICING PHYSICIANS CHANGED	PERCENT MORE DIFFICULT	TEACHING HOSPITAL DEPARTMENT CHIEFS CHANGED	PERCENT MORE DIFFICULT
Anesthesiology	48%	96%	33%	100%	67%	94%	50%	67%
Cardiology	62	100	67	100	38	100	67	100
Emergency Medicine	35	94	40	100	64	96	33	50
Family Practice	55	98	100	100	38	100	100	100
Gastroenterology	33	100	25	100	24	100	0	0
General Surgery	46	100	20	100	45	100	33	100
Internal Medicine	48	97	33	100	45	98	50	100
Neurosurgery	57	100	100	67	37	100	100	100
OB/GYN	28	100	75	100	33	100	60	100
Orthopedics	22	100	50	100	36	100	20	100
Pediatrics	21	96	50	100	25	94	40	100
Psychiatry	52	98	33	50	52	100	83	80
Radiology	11	0	60	100	49	100	50	75
Urology*	50	100	50	100	--	--	--	--
Vascular Surgery	86	100	50	100	57	100	25	100
Sample Mean	42%	98%	48%	93%	43%	98%	49%	88%

*2007 data only

We may now turn the discussion to the final element in this section; namely, the impact of tight physician labor markets on the provision of health care services.

2.4 — Sources of New Physician Hires in Massachusetts Teaching Hospitals

The questionnaire used in conducting the 2006 survey of department chiefs in Massachusetts teaching hospitals collected information on the number of new hires by physician specialty over the previous six months and the sources of those new hires. Respondents to the survey were asked to report the number of new hires that graduated from U.S. medical schools and the number of international medical graduates (IMGs). Estimates of the number of new hires and the institutional sources of the new hires are displayed in Tables 12 and 13.

TABLE 12: NUMBER AND SOURCE OF NEW PHYSICIAN HIRES BY DEPARTMENTS IN TEACHING HOSPITALS, 2006 — U.S. MEDICAL GRADUATES VERSUS IMGs

TYPE OF HIRES	MEAN NUMBER OF HIRES PER INSTITUTION	TOTAL NUMBER OF HIRES
All New Hires	4.02	237
U.S. Medical Graduates	3.18	188
IMGs	0.84	49
IMGs as % of New Hires	--	20.7

Data on new hires were provided by 59 respondents to the MMS Survey of Teaching Hospital Department Chiefs. A total of 237 new hires were made between March and August 2006. Of these new hires, 49 or nearly 21% were IMGs. Reliance on IMGs to meet the staffing needs of teaching hospitals has been rising somewhat over the past two years. In the 2005 survey of department chiefs, only 19% of the new hires were IMGs.¹⁵

TABLE 13: NUMBER OF IMG HIRES AS A PERCENT OF NEW HIRES BY PHYSICIAN SPECIALTY, 2006

TYPE OF HIRES	NEW IMG HIRES	ALL NEW HIRES	IMGs AS PERCENT OF NEW HIRES
Anesthesiology	7	26	26.9
Cardiology	0	7	0.0
Emergency Medicine	3	15	20.0
Family Practice	1	15	6.7
Gastroenterology	1	4	25.0
General Surgery	0	14	0.0
Internal Medicine	7	40	17.5
Neurosurgery	0	3	0.0
OB/GYN	4	23	17.4
Orthopedics	0	15	0.0
Pediatrics	11	16	68.8
Psychiatry	5	26	19.2
Radiology	10	25	40.0
Urology	0	3	0.0
Vascular Surgery	0	1	0.0

Reliance on IMGs to meet physician staffing needs varied quite considerably by physician specialty. Among the 15 specialties for which hire data were requested, there were no new hires over the past six months in six of the specialties, including cardiology, general surgery, and urology. Of the 9 specialties in which some new hiring had occurred, IMGs accounted

¹⁵ See Massachusetts Medical Society, *Physician Workforce Study*, June 2006, p. 65.

for 25% or more of the hires in anesthesiology, gastroenterology, pediatrics, and radiology. In the prior year, IMGs accounted for an above share of new hires in three of these same physician specialties (all but gastroenterology). Difficulties filling vacancies have led some hospitals and departments to expand the range of their recruitment activities to graduates of international medical schools. These findings raise serious questions about Massachusetts' ability to compete for new graduates of medical schools across the United States.

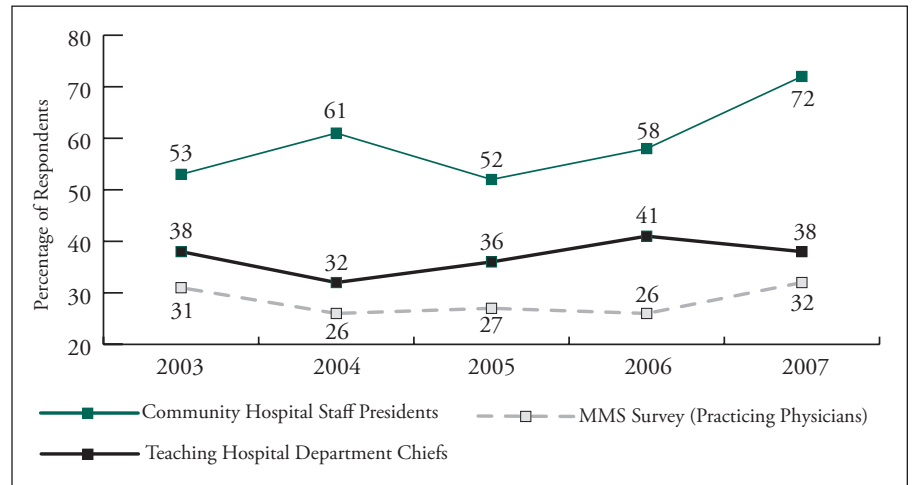
2.5 — Physician Shortages as an Underlying Cause for Altering Services and/or Adjusting Professional Staffing Patterns

This analysis is one of the most important sections in the MMS Physician Workforce Study. To be very specific, it is one thing to establish that physician labor markets in Massachusetts are under severe stress and that shortages in a number of critical specialties are very troublesome, but it is clearly another to link these shortages to the real world provision of medical care.

In this section, we will analyze the responses to two specific questions about whether physician shortages have necessitated the alteration of medical services and/or have caused adjustments in staffing patterns among practicing physicians, teaching hospitals, and community hospitals.

In regard to the first issue — that is, the impact of physician shortages on the provision of medical services — the survey responses are displayed in Chart 3. In regard to the second, the responses are shown in Chart 4.

CHART 3: PERCENT RESPONDING THAT PHYSICIAN SUPPLY PROBLEMS HAVE NECESSITATED ALTERING THE PROVISION OF SERVICES



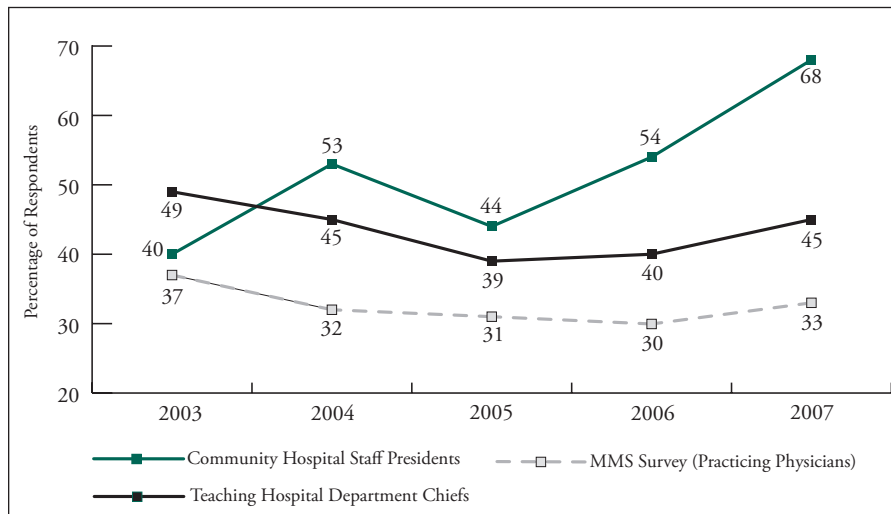
Interpretation of the responses to these important questions is fairly straightforward; specifically:

- Community hospitals have experienced a rapidly rising adverse impact from physician shortages over the past two years.
- The percent of practicing physicians and teaching hospitals forced to alter services — while somewhat lower than the percent of community hospitals — must still be judged as disturbingly high.

These two findings point out rather clearly the pervasive impact of physician shortages on the Massachusetts hospital system.

At this point, we can summarize the principal conclusions of this analysis. The survey responses shown in these two charts vividly dramatize the serious consequences that the current physician shortages have had on the ability of these organizations to effectively provide patient services. This point goes to the very core of the issue with which the Massachusetts health care system is currently confronted.

CHART 4: PERCENT RESPONDING THAT PHYSICIAN SUPPLY PROBLEMS HAVE NECESSITATED ADJUSTMENT IN STAFFING PATTERNS



Survey of Medical Directors at Medical Groups

For the 2007 MMS Physician Workforce Study, a new survey with a series of parallel questions was addressed to medical directors currently providing leadership in physician practices. While the sample responses were somewhat limited,¹⁶ it is nonetheless believed that medical directors are in a unique position to provide a more comprehensive view of the local labor market conditions in which they operate beyond the views provided by the individual physician.

A series of five survey questions are relevant to the discussion of the effect of current physician shortages on efficiently maintaining patient services, the adverse impact on professional staffing practices, and the retention of existing staff. Interestingly, responses from the medical directors closely match the responses from the practicing physicians. The relevant responses to these questions are displayed in the bullets that follow.

- One-third (33%) of the medical directors and 32% of the practicing physicians indicated that problems with physician supply have necessitated altering services.
- Almost one-half (47%) of medical directors and one-third (33%) of the practicing physicians reported that physician supply problems have made it necessary to adjust staffing patterns.
- Over forty percent of the medical directors (43%) and practicing physicians (42%) responded that retention of physicians has changed. Unfortunately, retaining physicians has become more

¹⁶ Virtually all of the survey responses were from single specialty medical groups (64%) and the balance were from multi-specialty medical groups. The mean number of physicians employed in the single specialty firms was 7, and the mean number of physicians employed in multi-specialty firms was 27.

difficult for all of the medical directors (100%) and almost all of the practicing physicians (98%) who responded.

Additionally, medical directors were asked to identify physician specialties where there are specific shortages in their own communities. The specialties most frequently cited are listed in Table 14.

TABLE 14: MEDICAL DIRECTOR RESPONSES — SPECIALTIES IDENTIFIED AS BEING IN SHORTAGE	
SPECIALTY	PERCENT (N=15)
Internal Medicine	60
Neurosurgery	40
Family Practice	27
Dermatology	27
Gastroenterology	20
Urology	20
General Surgery	13
Psychiatry	13
Vascular Surgery	13
Endocrinology	13
Anesthesiology	7
Emergency Medicine	7
OB/GYN	7
Orthopedic Surgery	7
Pediatrics	7
Radiology	7
Otolaryngology	7
Rheumatology	7
Maternal/Family Medicine	7

Clearly, these additional comments, albeit based on a limited sample, provide additional and valuable insight into the dynamics of physician labor markets in Massachusetts.

2.6 — Job Vacancy Rates by Physician Specialty for Physicians in Teaching Hospitals

One method used by labor market analysts to identify the existence of occupational shortages and surpluses involves using data on job vacancies and unemployment in specific occupations.¹⁷ The comparative degree of labor shortages/surpluses is measured by the ratio of the estimated number of job vacancies to the estimated number of unemployed workers in a given occupation. Vacancies well in excess of the number of unemployed imply the existence of an occupational shortage.

Beginning in 2005, the MMS Survey of Department Chiefs in Teaching Hospitals included a set of questions on the number of job vacancies in selected physician specialties.¹⁸ This year, respondents to the survey were asked to identify the number of vacancies in a given physician specialty at the end of August 2006. Only job vacancies for which the hospital was making active efforts to recruit were to be reported.

Of the 63 surveys completed by department chiefs, 56 provided data on both full-time equivalent employment and job vacancies.¹⁹ The distribution of these 56 responses by the number of job vacancies at the end of August 2006 is displayed in Table 15. Approximately one-fourth of the survey respondents reported no available job openings, another 46% reported only one to two job vacancies, and close to 10% reported seven or more job openings. The mean number of job vacancies in the 56 departments was 2.86.

¹⁷ For a review of the alternative uses of job vacancy data, see Andrew Sum, "Issues Related to the Purposes, Collection, Analysis, and Interpretation of Job Vacancy Data," Paper Prepared for A U.S. Bureau of Labor Statistics Conference on Job Vacancy Statistics, Washington, D.C., 1978.

¹⁸ For a review of job vacancy rates in 2005 by physician specialty in teaching hospitals, see Massachusetts Medical Society, *Physician Workforce Study*, Waltham, Massachusetts, June 2006.

¹⁹ These were 65 surveys returned by department chiefs in teaching hospitals for which employment data were provided. Only 58 of these 65 surveys also provided data on the number of job vacancies in their departments. Our vacancy rate estimates apply only to those 58 responses for which both employment and job vacancy data were available.

TABLE 15: DISTRIBUTION OF TEACHING HOSPITAL DEPARTMENTS BY REPORTED NUMBER OF JOB VACANCIES AT THE TIME OF THE 2006 SURVEY (N=56)

NUMBER OF JOB VACANCIES IN DEPARTMENT	NUMBER OF RESPONSES WITH SUCH A NUMBER OF VACANCIES	PERCENT OF TOTAL RESPONSES
0	13	23.2
1–2	26	46.4
3–4	6	10.7
5–6	6	10.7
7–9	1	1.8
10 or More	4	7.1
Mean Number of Job Vacancies	2.86	

By multiplying the mean number of job vacancies in these 56 departments by the number of responding departments, we can obtain an estimate of the total number of physician vacancies: 160. Given the total full-time equivalent employment of 1,823 physicians in these departments, the 160 job vacancies yield an overall job vacancy rate of 8.1%. This job vacancy rate is nearly two percentage points higher than that prevailing in August 2006 (a vacancy rate of 6.3%).

TABLE 16: ESTIMATED NUMBER OF PHYSICIAN VACANCIES AND FULL-TIME EQUIVALENT EMPLOYMENT LEVELS IN RESPONDING MASSACHUSETTS TEACHING HOSPITALS, 2006

Total Vacancies in Reporting Departments	160
Full-Time Equivalent Employment of Physicians in These Departments	1,823
Vacancy Rate ($V \div V + E$)	8.1%

The 8% job vacancy rate for selected physician specialties in teaching hospitals can be put in perspective by comparing it with both the overall job vacancy rate in Massachusetts during the second quarter of 2006 and the job vacancy rates in selected major industries and occupations. The findings of the 2006 job vacancy survey conducted by the Massachusetts Department of Workforce Development yielded an overall job vacancy rate of 3%.²⁰ During the second quarter of 2006, job vacancy rates in Massachusetts varied quite widely across both major industry and occupational groups. Across industries of the state, job vacancy rates ranged from lows of .7% in utilities and 1.3% in public administration to highs of 4.4% in health care industries and 4.7% in accommodation and food services.

²⁰ See Massachusetts Department of Workforce Development, *Massachusetts Job Vacancy Survey: Hiring Trends by Industry and Occupation, Second Quarter 2006*, Boston, 2007.

The state's health care industries were characterized by the highest and second highest job vacancy rates over the past two years (2005 and 2006). Across twenty-two major occupational groups, job vacancy rates in the second quarter of 2006 ranged from lows of 1.2 to 1.8% in legal, office, construction, and production occupations to highs of 4.4 to 4.5% in health care practitioner and technical occupations and health care support occupations and 5.9% in life and physical science occupations.²¹ For more specialized occupational groups (e.g., medical scientists, chemical engineers, nursing instructors, etc.) there were 15 occupations that had a vacancy rate of 8.0% or higher. Thus, the 8.3% job vacancy rate for the 15 physician specialties covered by the 2006 MMS Survey of Department Chiefs would rank among the very highest in the state.²²

The survey covered 15 different physician specialties including cardiology, internal medicine, neurosurgery, OB/GYN, and radiology. For each of the 15 specialties, we analyzed data on full-time equivalent employment and job vacancies to estimate job vacancy rates (see Table 16). Job vacancy rates for the 15 physician specialties varied quite considerably, ranging from lows of 3.5% in emergency medicine and 5.2 to 5.3% in family practice and gastroenterology to highs of 16 to 19% in neurosurgery, urology, and vascular surgery. It should be noted that employment levels for responding hospitals in these latter three occupations were quite low. High vacancy rates were not accompanied by a high absolute number of job vacancies. The anesthesiology, internal medicine, and OB/GYN occupations were characterized by the largest number of job openings, and the latter two of these three specialties also had very high job vacancy rates of 11.2 and 12.4% respectively.

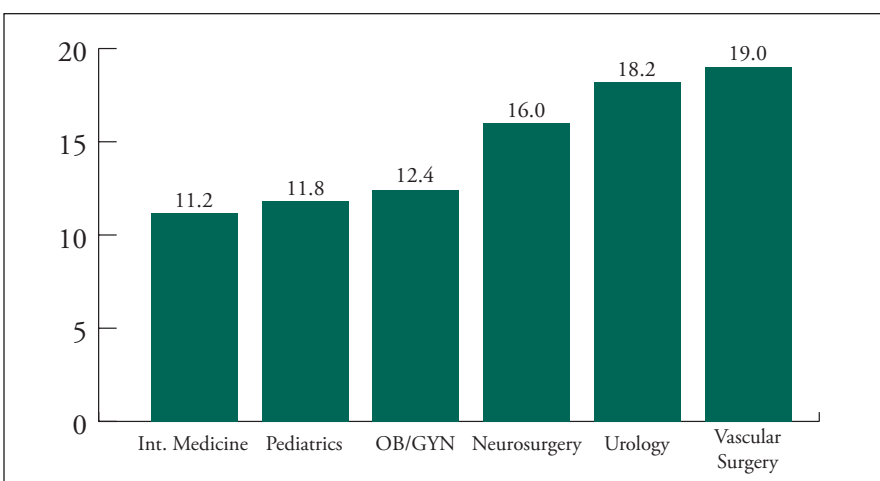
²¹ See Massachusetts Department of Workforce Development, *op. cit.*, "Table 5: Statewide Job Vacancies by Major Occupational Group."

²² Medical scientists, respiratory therapists, and nursing instructors had vacancy rates above those of all 15 physician specialties combined in the second quarter of 2006.

TABLE 17: ESTIMATES OF FULL-TIME EQUIVALENT EMPLOYMENT, JOB VACANCIES, AND VACANCY RATES BY PHYSICIAN SPECIALTY IN MASSACHUSETTS TEACHING HOSPITALS

SPECIALTY	EMPLOYMENT	VACANCIES	JOB VACANCY RATE
Vascular Surgery	17	4	19.0
Urology	18	4	18.2
Neurosurgery	21	4	16.0
OB/GYN	191	27	12.4
Pediatrics	120	16	11.8
Internal Medicine	151	19	11.2
General Surgery	68	7	9.3
Orthopedics	65	6	8.5
Radiology	241	19	7.3
Cardiology	90	7	7.2
Anesthesiology	285	20	6.6
Psychiatry	47	3	6.0
Gastroenterology	90	5	5.3
Family Practice	200	11	5.2
Emergency Medicine	219	8	3.5
Total	1,823	160	8.1

CHART 5: THE SIX PHYSICIAN SPECIALTIES WITH THE HIGHEST JOB VACANCY RATES IN 2006



The four physician specialties with the highest job vacancy rates in 2005 and in 2006 are listed in Table 18. In the 2006 survey, the highest vacancy rates were in the vascular surgery, urology, neurosurgery, and OB/GYN specialties. The urology field was not covered in the 2005 job vacancy survey. Of the other three specialties making the top-four list in

2006, two of them (neurosurgery and vascular surgery) also were among the four highest in 2005. The job vacancy rate reported for OB/GYN was considerably higher in the 2006 survey than it was in the 2005 survey (12.4% vs. 4.5%), indicating a growing shortage in this physician specialty in the state's teaching hospitals.

TABLE 18: COMPARING THE FOUR PHYSICIAN SPECIALTIES WITH THE HIGHEST JOB VACANCY RATES IN 2005 AND 2006	
2005 SURVEY	2006 SURVEY
Orthopedics	Vascular Surgery
Internal Medicine	Urology
Neurosurgery	Neurosurgery
Vascular Surgery	OB/GYN

2.7 — Job Vacancies Reported by Medical Directors

The 2006 surveys of the physician workforce in Massachusetts included a survey of the medical directors of medical groups across the state. Fifteen surveys were completed by medical directors. The questionnaires for this group also included a set of questions on full-time equivalent employment and job vacancies for all physicians in their respective medical groups. The total number of FTE physicians in these 15 medical groups combined was 604 and the number of job vacancies was estimated at 63, yielding a job vacancy rate of 9.5% (see Table 19). This job vacancy rate is more than one full percentage point higher than the job vacancy rate for the 15 physician specialties in the state's teaching hospitals.

TABLE 19: ESTIMATES OF FULL-TIME PHYSICIAN EMPLOYMENT, JOB VACANCIES, AND JOB VACANCY RATES FROM THE SURVEY OF MEDICAL DIRECTORS (N=15)	
VARIABLE	VALUE
Estimated Full-Time Equivalent Employment	604
Job Vacancies	63
Job Vacancy Rate	9.5%

Medical directors were asked to provide information on new hires, separations, and vacancies for the three specialties accounting for the largest number of physicians in their medical groups; however, they were not asked to provide data on the exact number of physicians employed in these specialties. Thus, we cannot estimate vacancy rates for these individual specialties. We can, however, compare the amount of new hiring activity with the reported number of vacancies to identify difficulties filling available job openings.

In Table 20, we list the three physician specialties cited most often by medical directors as accounting for the greatest number of FTEs. In 2007, the three most frequently cited specialties were internal medicine, pediatrics, and family medicine. For each specialty listed, the medical directors identified the number of new hires and separations over the past six months as well as the number of vacancies. For all specialties and selected physician specialties listed on the survey form, we calculated the number of new hires and vacancies and the ratio of vacancies to new hires. The findings are presented in Table 21. For all specialties combined, there were twice as many existing vacancies as new hires in the past 6 months. For internal medicine job slots, there were 2.3 times as many vacancies as new hires over the past 6 months. These results suggest a considerably long lag time between posting a vacancy and being able to fill it. When asked how long it takes to recruit a physician for their organizations, the medical directors cited a median recruitment time of 11 to 12 months, with nearly one-third claiming 18 months or longer. Seventy percent (70%) responded that the average amount of time needed to recruit a physician had increased over the past 3 years. Long lag times in recruitment would be expected to have adverse effects on the timeliness of the delivery of health care services in these institutions.

TABLE 20: THE PHYSICIAN SPECIALTIES CITED MOST OFTEN BY MEDICAL DIRECTORS AS ACCOUNTING FOR THE LARGEST NUMBER OF PHYSICIANS IN THEIR GROUP

SPECIALTY	TIMES CITED
Internal Medicine	9
Pediatrics	5
Family Medicine	5

TABLE 21: NEW HIRES AND VACANCIES IN THE PHYSICIAN SPECIALTIES CITED BY MEDICAL DIRECTORS AS ACCOUNTING FOR THE LARGEST NUMBER OF PHYSICIANS

SPECIALTY	NEW HIRES	VACANCIES	VACANCIES/ NEW HIRES
All	26	51	2.0
Internal Medicine	16	37	2.3
Pediatrics/Family Medicine/ OB/GYN	9	12	1.3

SECTION 3: ANALYSIS OF THE RESPONSES TO QUESTIONS ABOUT PROFESSIONAL LIABILITY EXPENSES

During the 12-year period ending in 2006, professional liability expenses in Massachusetts increased 127%, only slightly less than the 138% increase nationally.²³ Without question, rate increases of this magnitude should be taken very seriously, because they adversely impact the physician's direct cost of maintaining a practice. Over time, increases at this rate will financially weaken even the strongest physician's practice.

While these generalizations are entirely valid, they are nonetheless generalizations based on data for 15 very different specialties with significant variations in risk. In order to develop a more complete understanding of the scope and impact of professional liability expenses on a physician's practice, one must establish just how pervasive they are within each specialty and how steep the increases have been over time.

But before we address these important issues in detail, the results of the analysis in this section can be summarized as follows:

- First, over the six MMS Physician Workforce Studies, between one-quarter (24%) and 30% of the physicians surveyed reported that increases in liability fees exceeded 15% of their total operating costs. This is not only troublesome — it is also extremely financially severe (see Chart 6).
- Second, in the 2007 study, roughly one-half of the physicians surveyed report that they are altering or limiting their practices because of the fear of being sued. Four specialties — emergency medicine, neurosurgery, OB/GYN, and orthopedics — report that their practices have been significantly impacted by the threat of being sued.
- Finally, in 2007, among five specialties — OB/GYN, neurology, urology, general surgery, and orthopedics — significantly high ratios of those surveyed indicated that high professional liability rates are pushing them to make a career change. Note also that these are the very same specialties with high ratios of respondents who are dissatisfied with the Massachusetts

²³ Massachusetts Medical Society, *Physician Practice Environment Index Report, 2006*. Available at www.massmed.org/index (accessed June 21, 2007).

practice environment and are currently contemplating a career move outside of Massachusetts.

With regard to the twin issues of just how pervasive and sharp the rates of increase in professional liability fees are among the various specialties, the relevant survey data are displayed in Table 22.

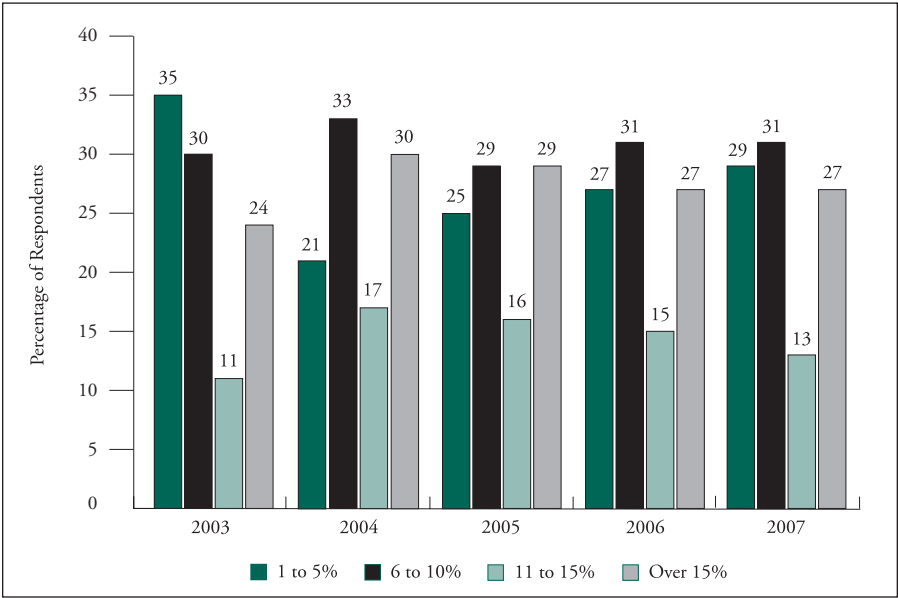
TABLE 22: HOW HAVE YOUR PROFESSIONAL LIABILITY RATES CHANGED OVER THE PAST YEAR?		
SPECIALTY	PERCENTAGE OF RESPONDENTS WITH RATE INCREASES	AVERAGE PERCENT RATE INCREASE
Urology	82	18
Emergency Medicine	78	29
Neurosurgery	74	37
OB/GYN	69	38
Orthopedics	61	26
General Surgery	59	34
Cardiology	58	15
Family Practice	58	15
Internal Medicine	54	36
Psychiatry	52	25
Pediatrics	49	16
Gastroenterology	48	16
Anesthesiology	38	20
Vascular Surgery	33	14
Radiology	20	N/A
Sample Mean	56	27

Aside from the fact that large percentages of the 15 specialties reported professional liability rate increases, one important conclusion can be derived from these data. For the sample as a whole, the average 2006 rate increase amounted to 27%, but also note that there are significant variations in the magnitude of these increases across the 15 specialties. The average rate increase provides us with some insight into potentially wide ranges of premiums charged by the various professional liability insurance carriers. The average rates of increase among five specialties — OB/GYN, neurosurgery, internal medicine, general surgery, and emergency medicine — were greater than the sample mean.

Another way to look at the impact of professional liability expenses on physicians is to reorganize the survey data into a frequency distribution

showing the percent liability expenses account for in physicians’ total operating costs. First, the data will be presented for the entire sample; the data will then be disaggregated by physician specialty.

CHART 6: WHAT PERCENT OF YOUR TOTAL OPERATING COSTS DO PROFESSIONAL LIABILITY RATES REPRESENT?



These responses provide support for an important conclusion concerning the characteristics of the aggregate sample. Across the five study years, between one-quarter and 30% of the physicians surveyed reported that increases in liability fees exceeded 15% of their total operating expenses. This is not only troublesome — it is also financially severe. Based on conversations with physicians, the 15% figure was established as a threshold point at which operating profitability could be called into question.

A final way to statistically identify the specific specialties that experienced significant increases in their professional liability costs is to single out those for which liability expenses accounted for more than 15% of total operating costs. This statistical measure provides us with an important financial parameter in addition to those specialties where strong rate increases per se have already been noted. These data are shown in Table 23.

TABLE 23: PHYSICIAN PRACTICES WITH PROFESSIONAL LIABILITY COSTS THAT EXCEED 15 PERCENT OF TOTAL OPERATING COSTS

SPECIALTY	2007	2003–2006 MEAN
Neurosurgery	100%	61%
OB/GYN	71	76
General Surgery	54	54
Emergency Medicine	43	24
Orthopedics	37	36
Radiology	33	22
Vascular Surgery	33	47
Anesthesiology	27	21
Pediatrics	19	9
Psychiatry	17	21
Urology	17	--
Cardiology	15	8
Family Practice	15	14
Internal Medicine	14	14
Gastroenterology	0	13
Sample Mean	27%	26%

These ratios fit logically into the pattern shown in Table 23; namely, there are three specialties for which professional liability fees strongly impact the profitability of physicians' practices. These are neurosurgery, OB/GYN, and general surgery.

The final two statistical dimensions in this section on the adverse impacts of high professional liability expenses on the physician practice focus on whether the premiums have caused physicians to limit the scope of practice or forced practice changes because of the fear of being sued. The detailed responses to these two questions are shown in Tables 24 and 25.

TABLE 24: ALTERING OR LIMITING THE SCOPE OF PRACTICE DUE TO RISING PROFESSIONAL LIABILITY RATES AND THE FEAR OF BEING SUED

	HAVE PROFESSIONAL LIABILITY RATES CAUSED YOU TO LIMIT THE SCOPE OF YOUR PRACTICE?		HAVE YOU ALTERED OR LIMITED YOUR PRACTICE BECAUSE OF THE FEAR OF BEING SUED?	
SPECIALTY	YES 2007	MEAN 2004–2006	YES 2007	MEAN 2004–2006
Anesthesiology	6%	7%	35%	40%
Cardiology	7	11	48	34
Emergency Medicine	8	10	69	61
Family Practice	24	24	51	49
Gastroenterology	11	18	35	60
General Surgery	33	32	59	56
Internal Medicine	7	10	46	47
Neurosurgery	53	36	63	61
OB/GYN	40	36	74	61
Orthopedics	26	50	60	62
Pediatrics	7	10	39	38
Psychiatry	8	8	37	40
Radiology	13	19	50	52
Urology*	9	--	46	--
Vascular Surgery	7	21	40	40
Sample Mean	14%	17%	48%	48%

*2007 data only

There are a number of conclusions these disaggregated responses support, but two seem most important:

- First is that for most specialties, professional liability expenses do not seem to have caused physicians to limit the scope of their practice, but the fear of a suit does play a significant role among approximately one-half of the physician respondents, especially in emergency medicine, family practice, general surgery, neurosurgery, OB/GYN, orthopedics, and radiology.
- Second is to note specifically the four specialties in which particularly high ratios of physicians have reported across the four MMS surveys that the threat of a suit has forced them to alter or limit their practices (see Table 24). Not surprisingly, these four are also cited above: emergency medicine, neurosurgery, OB/GYN, and orthopedics.

We will conclude this analysis of the impact of professional liability expenses on the physician practice with what must be considered the ultimate question: have professional liability insurance costs influenced physicians' decisions to make a career change? The responses to this question are shown in Table 25.

TABLE 25: HAVE PROFESSIONAL LIABILITY INSURANCE COSTS INFLUENCED YOUR DECISION TO MAKE A CAREER CHANGE?		
	PERCENT THAT ANSWERED YES	
SPECIALTY	2007	2003–2006 MEAN
OB/GYN	58	56
Neurosurgery	50	43
Urology*	36	--
General Surgery	31	34
Orthopedics	26	33
Family Practice	16	12
Vascular Surgery	13	33
Cardiology	11	11
Emergency Medicine	11	23
Gastroenterology	11	21
Internal Medicine	10	15
Anesthesiology	7	13
Psychiatry	6	7
Pediatrics	4	7
Radiology	0	18
Sample Mean	14	20

**2007 data only*

The very high response ratios for five specialties — OB/GYN, neurosurgery, urology, general surgery, and orthopedics — are of special note. In the 2007 survey, the response rates among these five specialties were also the highest among all survey respondents in terms of dissatisfaction with the Massachusetts practice environment (see Table 32, page 93) and in terms of seeking a career change because of the harsh practice environment (see Table 34, page 99). It should also be noted that two of these specialties — neurosurgery and general surgery — had high response ratios for the number of physicians currently contemplating a career move outside of Massachusetts (see Table 34, page 99).

To say the very least, this discussion points to the empirical reality that physician attitudes toward their practice environment, the desire for a career change, and professional liability fees are all interlaced to produce a dynamic that is adversely impacting physicians' effectiveness.

SECTION 4: SURVEY RESULTS REGARDING THE OPINIONS OF PROGRAM DIRECTORS OF RESIDENCY/FELLOWSHIP PROGRAMS

In 2007, medical school program directors were asked to respond to four specific questions regarding their residents. We begin our analysis in this section with the responses of program directors concerning the percentage of their residents and fellows who left Massachusetts.

One of the root causes of the physician shortage in Massachusetts derives from the unusually large ratio of residents and fellows who leave upon completion of their training. The data shown in Table 26 provide support for this generalization.²⁴

TABLE 26: PROGRAM DIRECTORS’ RESPONSES REGARDING THE PERCENTAGE OF RESIDENTS/FELLOWS THAT LEFT MASSACHUSETTS	
ACADEMIC YEAR	PERCENTAGE OF RESIDENTS/FELLOWS THAT LEFT MASSACHUSETTS
1998–1999	54
1999–2000	58
2000–2001	59
2001–2002	55
2002–2003	52
2003–2004	52
2004–2005	51

Slightly more than one-half of residents and fellows pursue the next step in their medical careers outside Massachusetts. While the aggregate ratios show modest variations over time, it should be noted that during the 2004–2005 academic year, there were 4,780 residents in Massachusetts-based programs.²⁵ Since 51% pursued their careers elsewhere, this translates into an out-migration of over 2,438 residents. Given the continued tightness in the Commonwealth’s physician labor market, this is a trend that

²⁴ Data were not collected over the past two years; these responses are reported to provide historical background.

²⁵ State-Level Data for Accredited Graduate Medical Education Programs in the US, Aggregate Statistics on All Resident Physicians Actively Enrolled in Graduate Medical Education During 2004–2005, Massachusetts — Table 1. Total Number of Resident Physicians and Program Year 1 Resident Physicians in ACGME-Accredited and Combined Specialty GME Programs During 2004–2005.

must ultimately be monitored — especially in the wake of an increased demand for patient services.

The five preceding MMS Physician Workforce Studies have also included a detailed set of questions to determine the professional and personal factors program directors believe play a critical role in the decision-making process of their residents and fellows to either stay or leave Massachusetts. The results are shown in Tables 27 and 28 and will be presented in detail in subsequent analysis.

The dominant factors that affect residents' and fellows' decisions regarding where to practice are summarized in Table 29. The data displayed in these tables provide important insight into program directors' assessments of the opinions and attitudes of their residents and fellows. For analytical purposes, we are most interested in differentiating the views for those who are favorably inclined to stay in Massachusetts from those who plan to seek practice opportunities outside the state.

TABLE 27: PERCENTAGE OF PROGRAM DIRECTORS RATING THE PRACTICE ENVIRONMENT AND SALARY LEVELS FAVORABLE FOR RESIDENTS/FELLOWS WHO PLAN TO WORK IN MASSACHUSETTS (2002–2005, 2007 SURVEY DATA*)

SURVEY YEAR	PRACTICE ENVIRONMENT	SALARY LEVEL
2002	20%	5%
2003	14	3
2004	15	7
2005	27	5
2007	17	7

**Data not available for 2006*

TABLE 28: PERCENTAGE OF PROGRAM DIRECTORS RATING THE RESEARCH AND CLINICAL OPPORTUNITIES FAVORABLE FOR RESIDENTS/FELLOWS THAT PLAN TO WORK IN MASSACHUSETTS (2002–2005, 2007 SURVEY DATA*)

SURVEY YEAR	RESEARCH OPPORTUNITIES	CLINICAL OPPORTUNITIES
2002	79%	37%
2003	85	35
2004	73	41
2005	70	48
2007	71	46

**Data not available for 2006*

The data displayed in Table 27 show very clearly that two of the dominant factors pushing young residents and fellows out of Massachusetts are the unfavorable practice environment and the uncompetitive salary levels. On the positive side, the research opportunities in Massachusetts clearly are perceived as a major factor keeping physicians in Massachusetts.

Without question, the attitudes of the residents and fellows are important. Indeed, they must be taken seriously, because they are most likely discussed with their counterparts throughout the country, thus potentially prejudicing early career physicians — as well as established physicians — about the less-than-attractive practice environment in Massachusetts. The long-term impact of these circumstances is very clear; specifically, it is most unlikely that an adequate number of physicians will be drawn to Massachusetts to meet the growing demand for medical care.

We can conclude this section by presenting the complete set of data concerning seven professional factors and nine personal factors that impact the Massachusetts-trained resident and/or fellow's decision to pursue a career here. These are shown in Table 29.

TABLE 29: 2007 SURVEY RESULTS REGARDING FACTORS THAT AFFECT RESIDENTS' AND FELLOWS' CHOICE OF LOCATION, AS SEEN BY PROGRAM DIRECTORS			
PROFESSIONAL FACTORS	MASSACHUSETTS FAVORABLE	MASSACHUSETTS NEUTRAL	MASSACHUSETTS UNFAVORABLE
Research Opportunities	71%	27%	2%
Clinical Opportunities	46	32	22
Intellectual Opportunities	85	15	0
On-Call Schedule/Work Hours	17	74	9
Diverse Patient Demographics	34	64	2
Practice Environment	17	28	55
Strength of Peer Group	71	26	3
PERSONAL FACTORS			
Salary Level	7%	20%	73%
Salary Arrangement	5	32	63
Cost of Living	1	7	92
Housing Costs	1	7	92
Tax Environment in Massachusetts	1	47	52
Proximity to Extended Family	47	49	4
Local Amenities	63	35	2
Geographic Location	66	34	0
Community Issues	52	38	10

SECTION 5: PHYSICIAN SATISFACTION, ATTITUDES TOWARD THE PROFESSION, AND FUTURE CAREER PLANS

Attitudes among Massachusetts physicians about their professional careers and their opinions about the professional nature of their respective work situations are important factors that affect the workforce and the provision of quality patient care. It is in this context that the MMS Physician Workforce Study has always included in its surveys a series of questions about what has grown to be considered “physician satisfaction.”

In one sense, the work environment for physicians is not much different from that of any other highly trained professional. There will always be the stress and strains of work. They are an integral element in any highly demanding work situation. In another sense, the work environment for the physician is quite different. After all, physicians are the frontline providers for the population’s health and wellness. It is here that all of us have grown to expect physicians to work at the highest level of professionalism in spite of whatever occupational adversities may be in their path.

For many years, there has been considerable discussion that the physician practice environment in Massachusetts has deteriorated. With the creation of the MMS Physician Practice Environment Index²⁶ in 2002, the extent of this deterioration, as well as the factors contributing to it, have been empirically documented. Specifically, in each of the past 13 years, the Massachusetts practice environment has deteriorated. Further, the rate of deterioration in Massachusetts has been 26% faster than in the United States as a whole. Historically, the dominant factors explaining the deterioration in the Massachusetts Index have been the rising costs of maintaining a practice, the ratio of housing prices to physician income, and increases in professional liability fees.

²⁶ *The Massachusetts Medical Society (MMS) Physician Practice Environment Index Report is a statistical indicator of nine selected factors that impact the delivery of patient care in Massachusetts and the United States. The indicators are as follows: 1) applications to medical schools, 2) percent of physicians over 55 years of age, 3) median physician income levels, 4) ratio of median housing prices to median physician income, 5) mean number of hours spent on patient care activities, 6) physician cost of doing business, 7) number of visits per emergency department, 8) change in average malpractice rates, and 9) number of advertisements for physician employment in the New England Journal of Medicine. Source: Massachusetts Medical Society, Physician Practice Environment Index, 2007. Available at www.massmed.org/mmsindex (accessed June 21, 2007).*

The following provide a meaningful context in which to judge the responses to 12 specific questions concerning physician attitudes toward their profession.

Inasmuch as the questions in the 2007 Physician Workforce Study are generally consistent with those asked in the preceding MMS studies, their results provide the opportunity to judge clearly the extent to which Massachusetts physicians' attitudes may have changed over time as the physician practice environment continues to worsen.

As one reviews the detailed analysis of the survey responses, one conclusion seems to be unmistakably clear: physician opinions and attitudes regarding the practice environment have remained relatively uniform over time, as related below:

- First, the aggregate sample data over all six MMS Physician Workforce Studies provide support for the conclusion that Massachusetts physicians remain committed to medicine, even in the face of a harsh practice environment. Roughly eight out of ten physicians surveyed reported that they find their medical careers either very rewarding or rewarding (see Chart 7).
- Second, twenty-five to forty percent (25 to 40%) of physicians responded that they are very satisfied or satisfied with the practice environment, but when disaggregated by specialty, there are sharp variances. Specifically, in the 2007 survey data, 9 of the 15 specialties expressed much higher levels of dissatisfaction with the practice environment than the overall sample, while only 3 specialties had dissatisfaction ratios well below the mean.
- Third, while approximately three-quarters (76%) of the physicians surveyed indicated that they plan to continue to practice in Massachusetts, we must attach considerable importance to the fact that one out of four physicians indicated that they are contemplating making a career change or leaving the state if the practice environment does not improve. These survey results imply that 5,873 physicians are on the brink of leaving the state or the practice of medicine altogether.
- Fourth, a careful review of the disaggregated data over the past four years shows that four specialties — general surgery, OB/GYN, orthopedics, and neurosurgery — have high ratios of physicians who are either contemplating out-of-state moves or career changes. An additional four specialties also have

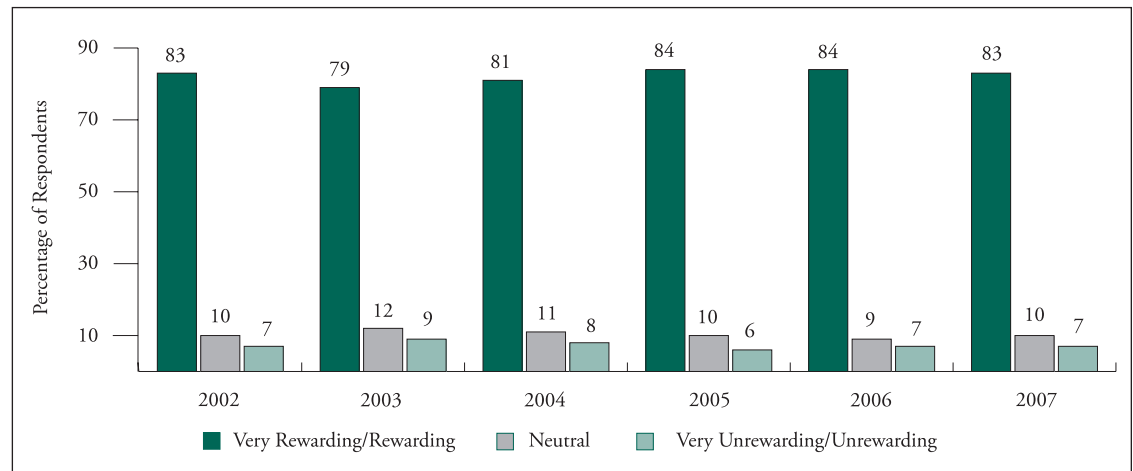
relatively high ratios of responses in 2007 indicating that many of them seem to be on the edge in terms of ending their current careers in Massachusetts; these are emergency medicine, family practice, urology, and vascular surgery.

- Finally, again this year, the survey data confirm that uncompetitive salary levels and low salary expectations five years into the future are a fundamental issue with the physician labor market problems now confronting Massachusetts. Specifically, the 2003 to 2007 survey data show that two-thirds to three-quarters of physicians believe that their current salary levels are very uncompetitive or uncompetitive for their specialty vis-à-vis other states, and 86% believe that over the next five years, their salary levels will either decline or remain the same.

5.1 — Physician Attitudes toward the Practice of Medicine

In the context of a deteriorating practice environment, it is critical to determine statistically the extent to which the deterioration has adversely impacted physician attitudes. Chart 7 provides specific time series data on the attitudes of Massachusetts physicians toward their profession.

CHART 7: RATING MEDICINE AS A PROFESSION



These survey results leave no doubt that the vast majority of physicians continues to consider medicine a very rewarding or rewarding profession. Furthermore, the consistency of this finding shows little variation across the four age groups shown in Table 30.

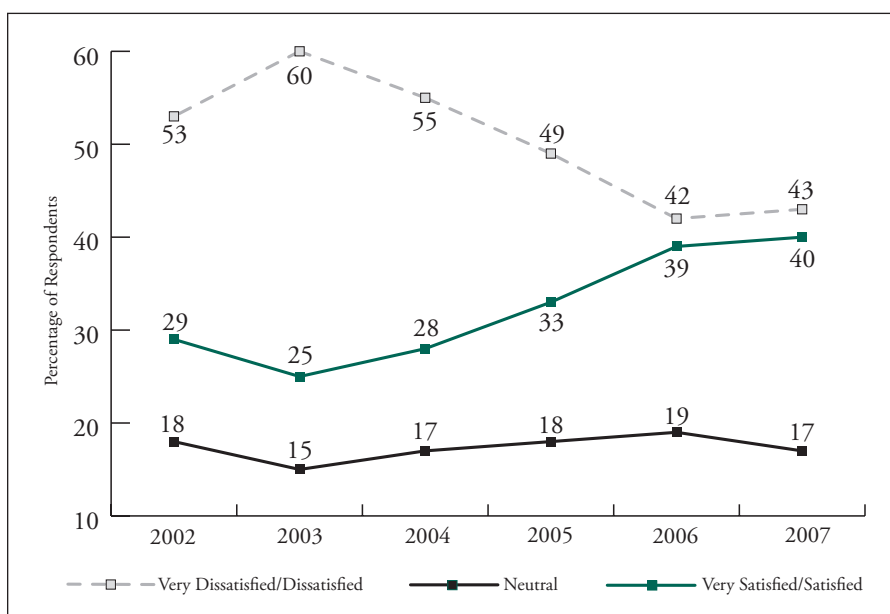
TABLE 30: SATISFACTION WITH THE PROFESSION OF MEDICINE, DISAGGREGATED BY AGE GROUP

	VERY REWARDING/REWARDING	
	2007 SURVEY DATA	2002–2006 SURVEY MEAN
>60 Years of Age	87%	84%
50–59 Years of Age	81	82
40–49 Years of Age	81	80
<40 Years of Age	87	82
Sample	83%	82%

5.2 — Physician Attitudes toward the Practice Environment and Career Plans

In this section, we will analyze a number of the critical dimensions of the practice environment and their effect on physicians. In a most interesting way, the complex impact of the practice environment on physician attitudes is encapsulated in the responses displayed in Chart 8 and in Table 31.

CHART 8: SATISFACTION WITH THE CURRENT PRACTICE ENVIRONMENT



These aggregated sample data show that over the past six years, there has been a shift among Massachusetts physicians toward becoming less dissatisfied with the existing practice environment. On the surface, this conclusion is important, if for no other reason than that it seems to counter many of the survey responses cited elsewhere in this and earlier surveys, but in the disaggregated analysis that follows, it will become apparent that

this conclusion does not convey the complete picture. But first, the survey results displayed in Chart 8 are presented for the four age groups.

In Table 31, it is readily apparent that the mean dissatisfaction levels for the four age groups for both years are closely clustered around their respective sample means.

TABLE 31: SATISFACTION WITH THE CURRENT PRACTICE ENVIRONMENT, DISAGGREGATED BY AGE GROUP

AGE GROUP	VERY DISSATISFIED/DISSATISFIED	
	2007	2006
>60 Years of Age	42%	45%
50–59 Years of Age	50	47
40–49 Years of Age	44	44
<40 Years of Age	34	28
Sample	43%	42%

Additional insight into these conclusions can be gained when the response data are further disaggregated by physician specialty. The relevant data are displayed in Table 32.

TABLE 32: SATISFACTION WITH THE CURRENT PRACTICE ENVIRONMENT, DISAGGREGATED BY SPECIALTY

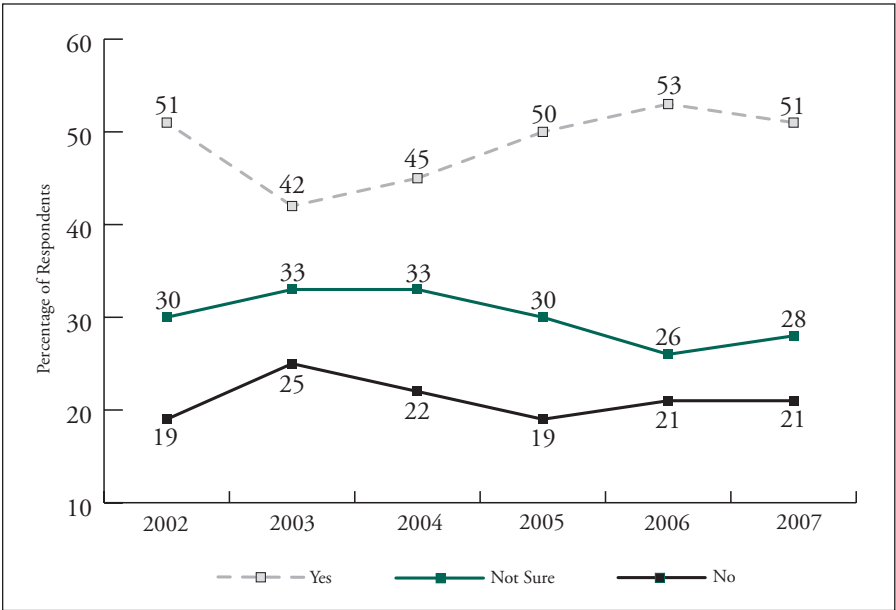
SPECIALTY	PERCENT WITHIN SPECIALTIES THAT WERE DISSATISFIED OR VERY DISSATISFIED	
	2007	2006
Vascular Surgery	67	44
Urology*	55	--
Neurosurgery	53	46
OB/GYN	49	59
Orthopedics	48	45
Psychiatry	48	47
Family Practice	47	40
General Surgery	45	48
Internal Medicine	45	45
Anesthesiology	43	28
Cardiology	41	33
Emergency Medicine	41	49
Gastroenterology	32	63
Pediatrics	30	27
Radiology	30	30
Sample Mean	43	42

*2007 data only

The data disaggregated by physician specialty broaden our understanding about the conclusions derived on the basis of the declines in the dissatisfaction ratios discussed above. More specifically, the generalizations made on the basis of the data contained in Chart 8 are, to be sure, statistically accurate, but one must keep in mind that they are means derived from highly aggregated sample data. A much more complete perspective can be gleaned from a careful review of the responses disaggregated by specialty, as shown in Table 32. Note specifically that there are significant differences between the highest and lowest dissatisfaction ratios by specialty. The lowest response rate in 2007 is for radiology and pediatrics (at 30%), while the highest is for vascular surgery (67%). The range of statistical disparity in the 2006 survey results is equally great. These extremes strongly affect the statistical means displayed in Chart 8.

We will now begin to consider other important findings derived from the study in order to paint a complete picture of physician labor markets in Massachusetts.

CHART 9: CONSIDERING THE CURRENT PRACTICE ENVIRONMENT, WOULD YOU CHOOSE MEDICINE AS A PROFESSION AGAIN?



In Chart 9, it is most interesting to note that even in the face of what is widely acknowledged as a deteriorating practice environment, the physician respondents are divided as to whether they would choose a medical career if given the opportunity to start over. There are many different ways to interpret these survey data, but one way to look at them is that roughly one-half of the physicians now practicing in Massachusetts feel that, if given the chance, they would either not choose a medical career or are not sure they made the right career choice.

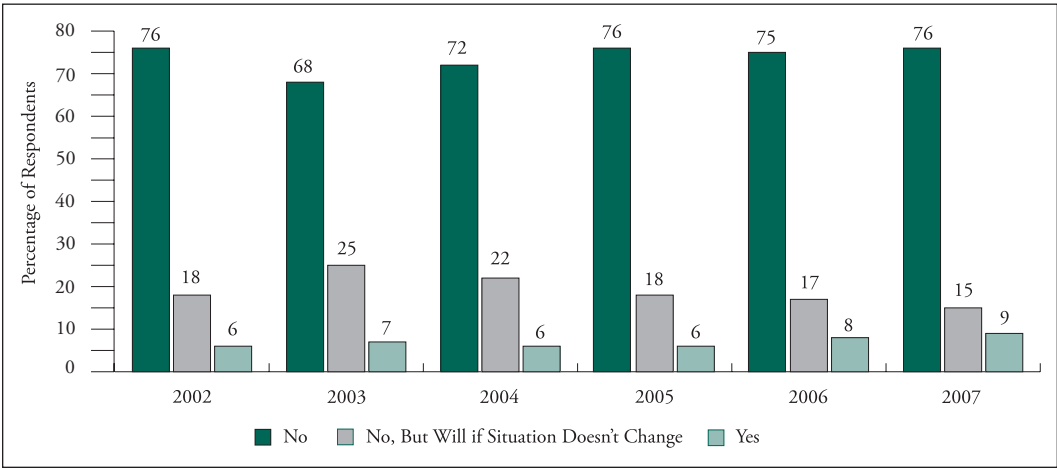
Additional insight into these responses can be gained by disaggregating the 2006–2007 survey data by specialty.

TABLE 33: CONSIDERING THE CURRENT PRACTICE ENVIRONMENT, WOULD YOU CHOOSE MEDICINE AS A PROFESSION AGAIN? (DISAGGREGATED BY SPECIALTY)		
	PERCENT WITHIN SPECIALTIES THAT RESPONDED NO	
SPECIALTY	2007	2006
General Surgery	27	25
Internal Medicine	24	20
Family Practice	23	24
Emergency Medicine	21	26
Neurosurgery	21	20
Psychiatry	21	21
Orthopedics	20	27
Cardiology	19	19
OB/GYN	17	28
Anesthesiology	16	14
Gastroenterology	16	27
Pediatrics	13	16
Radiology	11	19
Urology*	36	--
Vascular Surgery	7	44
Sample Mean	21	21

**Specialty added in 2007*

The 2006 and 2007 response rates are interesting in that most are tightly clustered around the mean. Because of this distribution, interpretation of these survey results is straightforward; namely, there is a significant percentage concentrated between 16 and 25% of physicians currently practicing in Massachusetts who, irrespective of their specialties, would not choose medicine as a career if they had a second chance. The unusually high negative response rate for urology must be recognized as symptomatic of a specialty that is now operating under considerable labor market stress. The responses for urology are not a complete surprise. Signs of stress in this specialty's workforce were precisely the reason the specialty was added to the study this year. The sharp decline between 2006 and 2007 in vascular surgery reflects sampling or response rate variations in the two-year period.

CHART 10: ARE YOU PLANNING TO MOVE OUT OF MASSACHUSETTS TO PRACTICE MEDICINE BECAUSE OF THE CURRENT PRACTICE ENVIRONMENT?



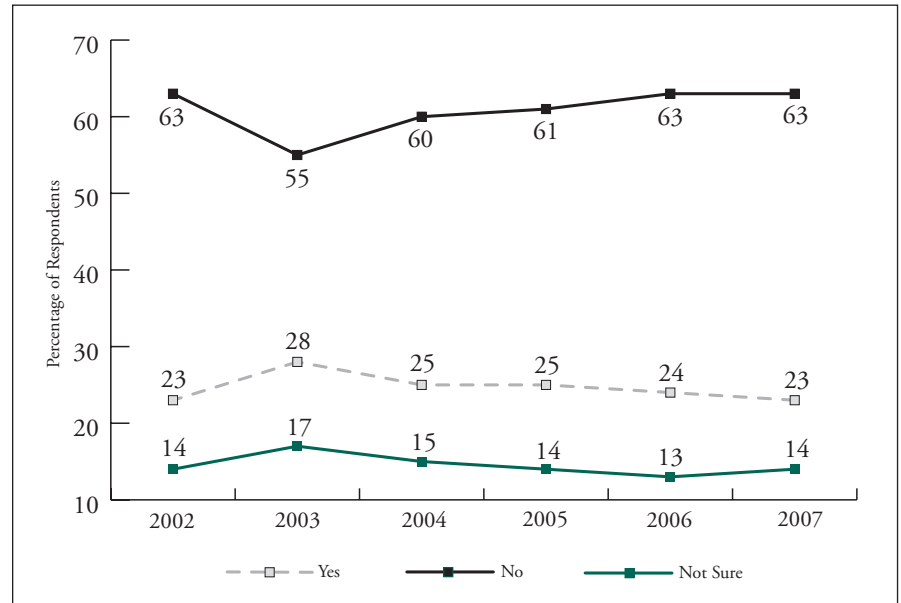
Quite encouragingly, these responses provide strong support for the conclusion that roughly three-quarters of those surveyed plan to continue to practice in the Commonwealth. This positive conclusion seems to hold relatively firm over time and even in the face of what we believe is strong empirical evidence — as opposed to physician attitudes — that the practice environment has continued to deteriorate over the past 13 years.²⁷

Without elaboration, we must not overlook the remaining quarter who responded that they are contemplating leaving or will leave if the environment does not change. Given that the total physician supply amounts to 24,470, this implies that, on average, over the past six years, 5,783 physicians are operating at the margin of staying or leaving the state.

There is another option to overcome the adverse practice environment; this is to simply change careers. The responses concerning this option are displayed in Charts 11 and 12.

²⁷ Massachusetts Medical Society, *Physician Practice Environment Index Report, 2007*. Available at www.massmed.org/mmsindex (accessed June 21, 2007).

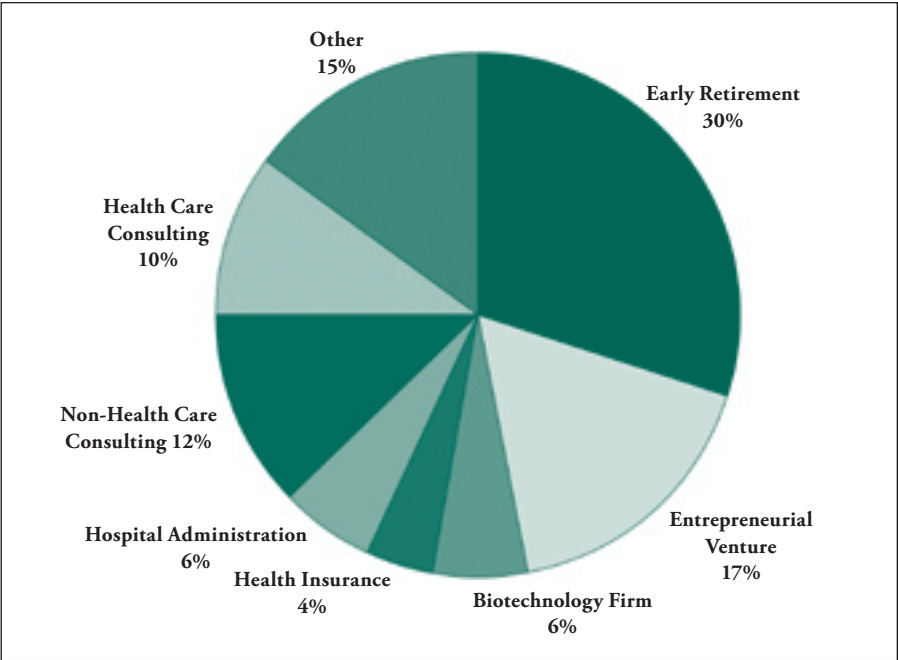
CHART 11: ARE YOU CONTEMPLATING A CAREER CHANGE BECAUSE OF THE CURRENT PRACTICE ENVIRONMENT?



Inasmuch as only a relatively small ratio — 14% — responded that they were uncertain, interpretation of these data shows that physicians' attitudes about contemplating a career change are straightforward. Quite encouragingly, roughly two-thirds indicated that they expect to continue their medical careers in Massachusetts, and almost one-quarter are considering new careers.

Shown in the Chart 12 is the range of occupational alternatives for physicians now practicing in Massachusetts who are currently contemplating a career change.

CHART 12: IF YOU ARE CONTEMPLATING A CAREER CHANGE, WHAT CAREER WILL YOU LIKELY CHOOSE?



Inasmuch as the average age of the sample respondents is 53, and 25% are above 60 years of age, it is not surprising that 30% indicated that they expect to pursue early retirement. If such an exodus were to take place — even gradually over several years — it would likely mean disastrous consequences for the delivery of quality medical care.

The selection of other, new career options is not surprising, for most are closely related to the more broadly defined health care industry.

At this point, it is important to integrate the survey data regarding physicians moving out of state and the data regarding physicians changing careers into an analytically meaningful table in which we are able to highlight those specialties where the response rates exceeded the sample means in each of the preceding four years. These data are shown in Table 34.

TABLE 34: SPECIALTIES FOR WHICH RESPONSES TO PLANNING A CAREER CHANGE OR MOVING OUT OF MASSACHUSETTS WERE EQUAL TO OR GREATER THAN THE OVERALL MEAN FOR 2007 OR THE PREVIOUS YEARS

	2007		2006		2005		2004	
SPECIALTY	YES, PLAN ON CAREER CHANGE	YES, MOVE OUT OF MASSACHUSETTS	YES, PLAN ON CAREER CHANGE	YES, MOVE OUT OF MASSACHUSETTS	YES, PLAN ON CAREER CHANGE	YES, MOVE OUT OF MASSACHUSETTS	YES, PLAN ON CAREER CHANGE	YES, MOVE OUT OF MASSACHUSETTS
Anesthesiology	--%	16%	--%	--%	26%	15%	--%	16%
Cardiology	--	--	--	12	--	--	--	--
Emergency Medicine	36	9	--	--	--	--	--	--
Family Practice	25	10	--	--	26	--	--	--
Gastroenterology	24	11	37	10	--	--	28	--
General Surgery	28	12	29	12	29	9	29	--
Internal Medicine	26	--	27	8	--	--	--	--
Neurosurgery	35	11	--	--	30	15	30	15
OB/GYN	29	9	28	--	31	--	31	--
Orthopedics	26	--	37	17	36	8	36	8
Psychiatry	--	10	--	--	--	--	--	--
Radiology	--	--	--	16	--	--	--	--
Urology*	27	9	*	*	*	*	*	*
Vascular Surgery	27	20	--	--	--	--	--	--
Sample Mean	24%	9%	24%	8%	25%	6%	25%	6%

*Specialty added in 2007

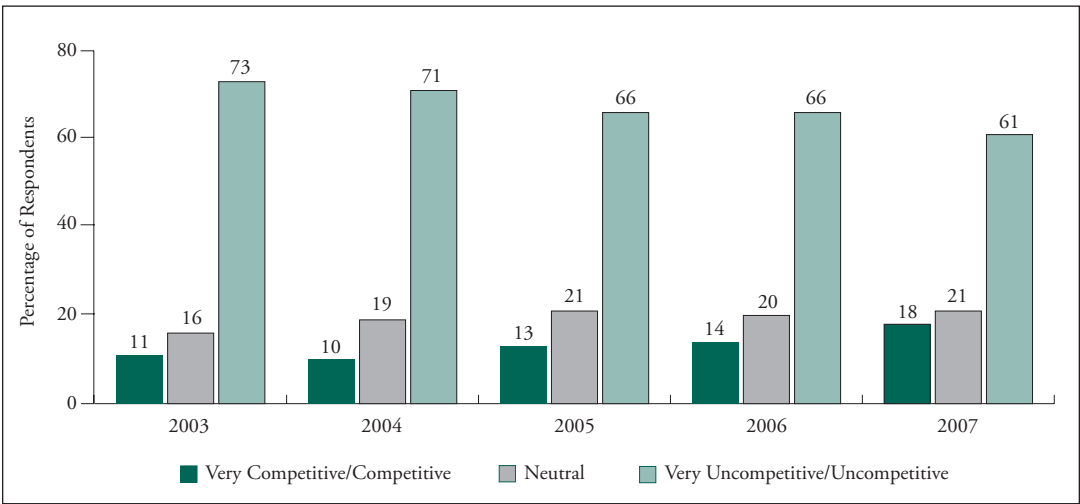
Because these data tell us a great deal about the opinions and attitudes among practicing physicians, it is valuable to highlight the three most important conclusions:

- First, the 2007 survey data are quite different from the data obtained in earlier years in that there is a rather dramatic increase in the number of specialties with means equal to or greater than the sample means, indicating higher ratios of physicians who may choose another career or to move out of Massachusetts.
- Second, over time, four specialties — general surgery, OB/GYN, orthopedics, and neurosurgery — have consistently been singled out as occupations where relatively high ratios of practicing physicians are either contemplating moves out of state or new careers.
- Finally, in 2007, four additional specialties — emergency medicine, family practice, urology, and vascular surgery — show up as emerging labor market problem areas with physicians either contemplating moves out of state or new careers.

5.3 — Physician Attitudes toward Current Income Levels, Salary Expectations, and the Trade-Off between Work Demands and Other Interests

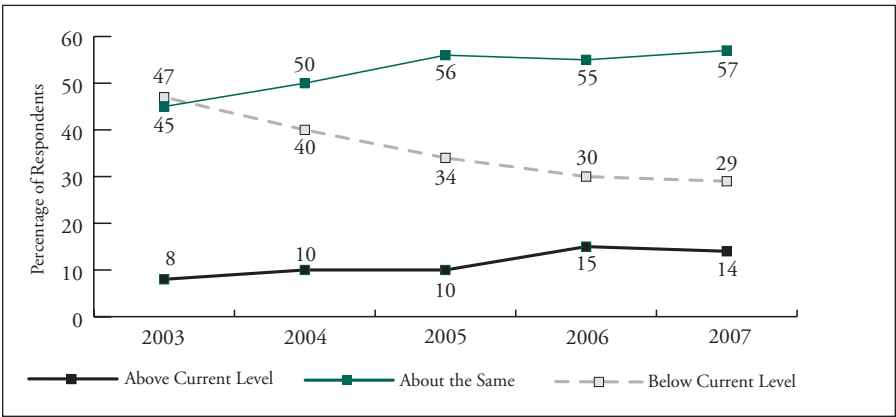
Since 2003, the MMS Survey of Practicing Physicians has collected data on the competitiveness of physician salaries in Massachusetts. Each year, two specific questions were asked. The first relates to salary, or income, competitiveness. The results are displayed Chart 13.

CHART 13: HOW DO YOU RATE YOUR INCOME TODAY COMPARED TO YOUR SPECIALTY IN OTHER STATES?



The second question relates to income expectations over the next five years. The responses are displayed in Chart 14.

CHART 14: OVER THE NEXT FIVE YEARS, HOW WOULD YOU RATE YOUR SALARY EXPECTATIONS?



The obvious conclusions to be derived from these survey results are unmistakably clear; specifically, physician salary levels are very uncompetitive

or uncompetitive vis-à-vis other states, and the overwhelming majority of physicians (57% in 2007) expect their salary levels either to remain at their current levels or to be below current levels over the next five years.

It is in this context that one must recognize the hard reality that uncompetitive salaries and low salary expectations are a likely reason for much of the physician labor market problems now confronting Massachusetts.

We will conclude this section of the analysis with comments on the work demands on Massachusetts physicians. What follows is a series of two charts and a table. The first chart shows the average number of hours worked per week, the second shows the changes in the hours worked as reported over the past six survey years, and finally, the table displays the number of hours worked by specialty.

CHART 15: HOW MANY HOURS, ON AVERAGE, DO YOU WORK PER WEEK?

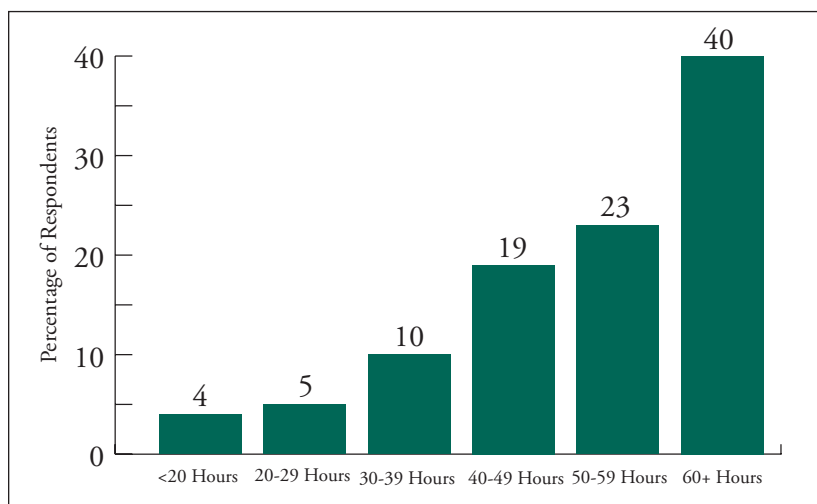


CHART 16: IN THE CONTEXT OF YOUR PRACTICE OVER THE LAST YEAR, HAVE YOUR WORK HOURS INCREASED, DECREASED, OR REMAINED UNCHANGED?

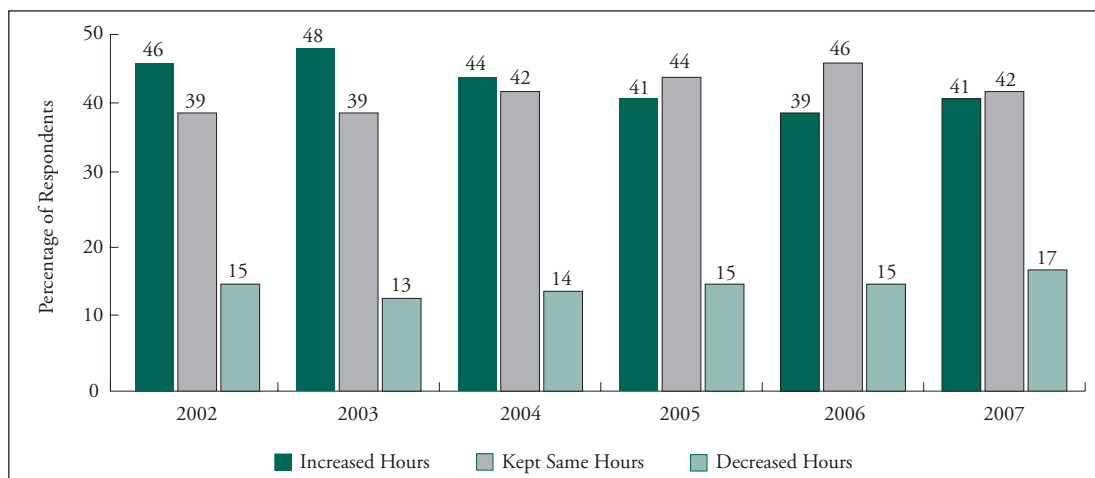


TABLE 35: PERCENTAGE OF SURVEY RESPONDENTS WHO INCREASED THEIR WORK HOURS IN THE PAST YEAR

SPECIALTY	2007 SURVEY	2004–2006 SURVEY MEAN
Neurosurgery	68%	44%
Urology	64	--
Anesthesiology	58	45
Radiology	56	44
Cardiology	55	43
Family Practice	49	43
Orthopedics	47	56
Vascular Surgery	47	63
General Surgery	42	50
Internal Medicine	42	44
OB/GYN	34	36
Pediatrics	33	32
Psychiatry	33	33
Gastroenterology	32	39
Emergency Medicine	28	35
Sample Mean	41%	41%

Inasmuch as these data are largely self-explanatory, the interpretative comments will focus on the three most important points.

- First, the average 2007 work week for the physicians responding to the MMS survey amounts to 53.9 hours. Forty percent (40%) of the responding physicians reported that they work 60 or more hours per week.
- Note that during the time period between 2004 and 2006, only two specialties are well above the sample mean (+10%), but in 2007, five are well above it (+10%). These data provide additional support that certain specialties are continuing to experience tightening labor markets.
- Finally, the percentage of respondents who indicated that their work hours increased over the past year provide insight into the occupational demands on the various specialties. While it should be noted that all 15 specialties reported increased work hours over the 2004 to 2006 survey period, 9 of these specialties are currently experiencing labor market shortages. Labor market shortages are not the sole driver of increased work hours, however; it could be that longer hours may be the

only means for sustaining income levels — demonstrating yet another symptom of the deteriorating professional environment.

We will conclude this discussion concerning the various dimensions of the physician workload by examining the average number of hours worked each week by function (see Table 36).

TABLE 36: AVERAGE WORK HOURS PER WEEK BY FUNCTION

SPECIALTY	AVERAGE HOURS OF PATIENT CARE	AVERAGE HOURS OF RESEARCH	AVERAGE HOURS OF TEACHING	AVERAGE HOURS OF ADMINISTRATION	AVERAGE TOTAL HOURS
Neurosurgery	56.7	2.0	2.9	8.0	69.6
Urology	50.5	1.8	3.9	7.4	63.6
Orthopedics	47.0	2.7	5.7	9.6	65.0
Vascular Surgery	45.7	3.6	8.9	11.4	69.6
Anesthesiology	43.2	3.1	12.4	6.9	65.6
OB/GYN	41.7	1.4	3.8	9.8	56.7
General Surgery	41.7	4.1	5.5	9.7	61.0
Gastroenterology	40.5	5.0	3.6	6.1	55.2
Cardiology	40.2	5.0	5.7	8.6	59.5
Internal Medicine	35.4	3.6	3.7	12.6	55.3
Pediatrics	33.6	3.1	3.0	8.5	48.2
Family Practice	33.2	0.6	4.2	12.4	50.4
Psychiatry	30.4	2.6	3.8	9.1	45.9
Emergency Medicine	30.1	3.4	3.7	9.1	46.3
Radiology	28.0	4.3	5.1	4.9	42.3
Sample Mean	36.4	3.0	4.4	10.1	53.9
Sample Average Percent of Time Spent by Function	67%	6%	8%	19%	100%

Without doubt, there are a number of conclusions that can be derived from these data, but four are most important.

- First is that for the sample as a whole, only 67% of hours in a typical work week are devoted to patient care. While this is significant in itself, what one must also note are the large variations in the average hours worked in direct patient care across the 15 specialties. The 56.7 average weekly hours that neurosurgeons spend providing patient care is nearly twice the amount provided by radiologists, emergency medicine physicians, and psychiatrists.

- Note that internal medicine, family practice, and vascular surgery all report administrative hours well above the mean compared to all of the other specialties. This is interesting because the two primary care specialties, internal medicine and family practice, appear for the first time in 2006 and 2007 as experiencing critical or severe labor shortages.
- Finally, that 19% of the physician work week is devoted to satisfy administrative demands is not only surprising, but it also must be judged as most disturbing. Said another way, for every 36 hours of each week the physician spends in patient care, an additional 10 hours must be allocated to addressing administrative demands.

In all six studies, a series of questions were included about “trade-off” issues; that is, patient care versus administrative work, physician income versus hours worked, and hours worked versus pursuing personal interests. The time series responses for each of these survey questions over the six survey years are plotted in Charts 17, 18, and 19.

CHART 17: HOW SATISFIED ARE YOU WITH THE NUMBER OF HOURS YOU ARE ABLE TO SPEND ON PATIENT CARE VERSUS ADMINISTRATION?

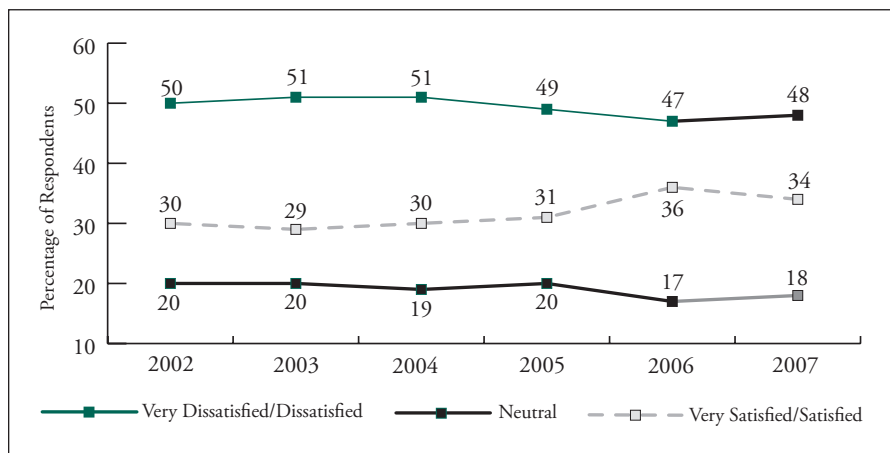


CHART 18: HOW SATISFIED ARE YOU WITH THE TRADE-OFF BETWEEN YOUR INCOME AND THE NUMBER OF HOURS YOU WORK?

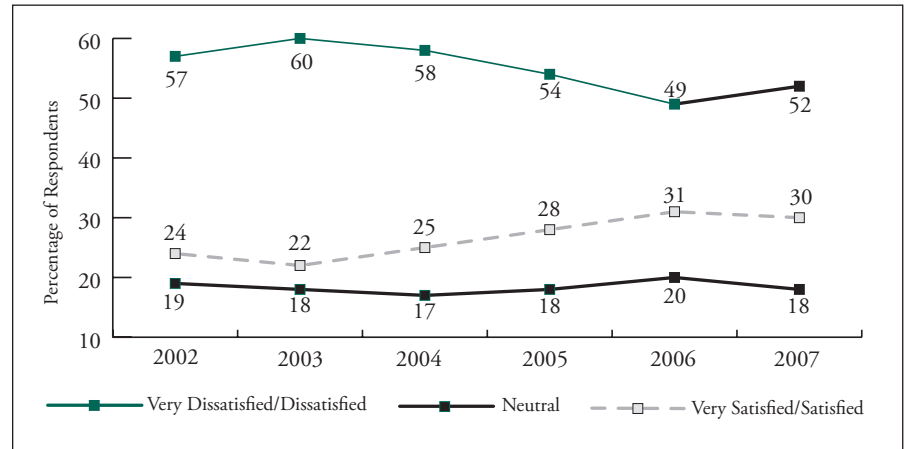
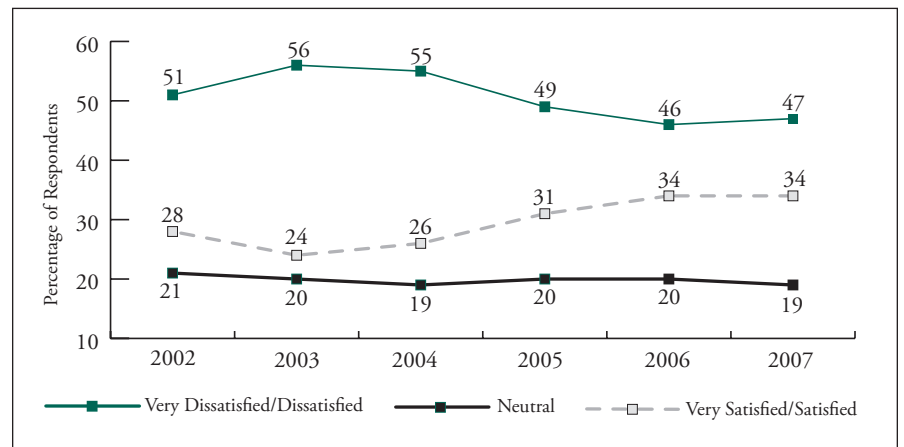


CHART 19: HOW SATISFIED ARE YOU WITH THE NUMBER OF HOURS YOU WORK PER WEEK VERSUS YOUR ABILITY TO PURSUE HOME LIFE AND/OR PERSONAL INTERESTS?



Interpretation of these survey results is very straightforward: approximately one-half of the physicians responding indicated that they were very dissatisfied/dissatisfied with their work-related trade-offs regarding all three issues.

In order to identify those specialties where the trade-off levels are most significant, the data in Table 37 show the specific response rates by specialty. The percentages are based only on the 2007 survey results.

TABLE 37: SURVEY RESULTS FOR THE THREE TRADE-OFF QUESTIONS DISAGGREGATED BY PHYSICIAN SPECIALTY, 2007 SURVEY DATA			
	PERCENT WITHIN SPECIALTY WHO WERE DISSATISFIED OR VERY DISSATISFIED		
SPECIALTY	INCOME VERSUS HOURS WORKED	HOURS WORKED VERSUS OTHER INTERESTS	HOURS SPENT ON PATIENT CARE VERSUS ADMINISTRATIVE ISSUES
Anesthesiology	50	57	26
Cardiology	55	59	34
Emergency Medicine	28	28	33
Family Practice	51	46	65
Gastroenterology	38	42	40
General Surgery	57	46	28
Internal Medicine	58	53	61
Neurosurgery	68	68	37
OB/GYN	56	47	46
Orthopedics	55	46	46
Pediatrics	43	38	37
Psychiatry	53	40	46
Radiology	22	44	22
Urology	55	64	73
Vascular Surgery	80	80	60
Sample Mean	52	47	48

Interpretation of these survey ratios is not as consistent as one would like, but two conclusions are readily apparent:

- First, in three specialties — internal medicine, urology, and vascular surgery — the rates are consistently above 50% for all three questions, indicating dissatisfaction in most areas of work.
- Second, among four specialties — emergency medicine, gastroenterology, pediatrics, and radiology — the response rates to the three trade-off issues are in the very low range. Clearly, this reflects a much higher — or less troublesome — level of practice satisfaction than exists among the other specialties.

5.4 — Massachusetts Physicians' Satisfaction with the Balance of Hours Spent on Patient Care versus Administrative Tasks and Income Relative to Work Hours

Similar to the format of surveys in earlier years, the 2007 Survey of Practicing Physicians asked physicians to rate their satisfaction with the current balance of hours spent on patient care versus administrative tasks and the trade-off between their income and the number of hours they work.²⁸ In this section of the report, we will analyze physicians' responses to these questions and analyze the statistical links between their reported levels of satisfaction and their willingness to change careers or move their medical practices out of Massachusetts.

On the question regarding satisfaction with the current balance of hours spent on patient care versus administrative duties, physicians were given five response categories from which to choose, ranging from "very satisfied" to "very dissatisfied." In analyzing their responses to this question, we combined the "very satisfied" and "satisfied" responses into one category and the "very dissatisfied" and "dissatisfied" responses into a second category. The "neutral" responses constitute the third category.

Only slightly more than one-third of the physicians reported that they were satisfied or very satisfied with the existing balance of hours spent on patient care versus administrative tasks (see Table 38 and Chart 20). Another 18% voiced a neutral opinion on this question; however, close to one-half of the respondents indicated that they were either dissatisfied or very dissatisfied with the number of hours they were able to devote to patient care (Table 38 and Chart 20). The percentage of physicians expressing dissatisfaction with their balance of hours spent on patient care versus administrative tasks was statistically identical to the percent providing such responses in 2006 (47.4% vs. 47.2%).²⁹

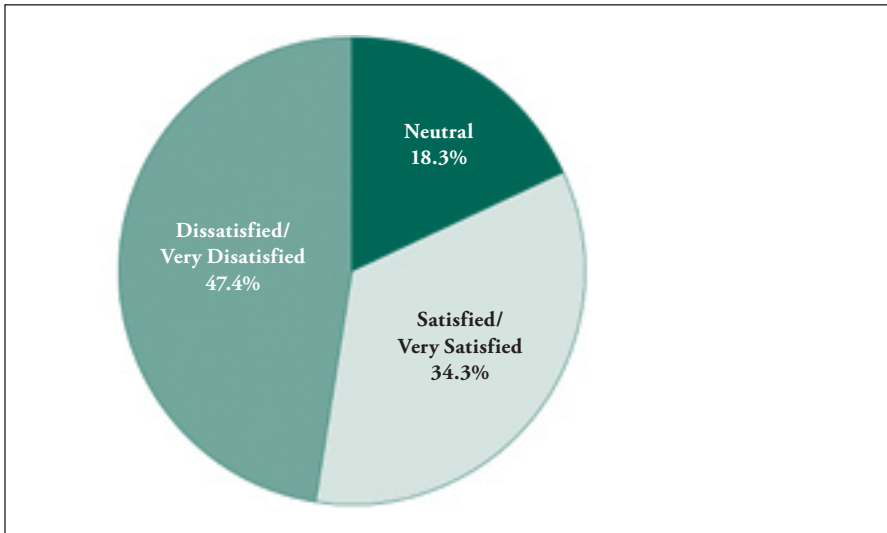
TABLE 37: DEGREE OF PHYSICIAN SATISFACTION WITH THE CURRENT BALANCE OF HOURS SPENT ON PATIENT CARE VERSUS ADMINISTRATIVE TASKS (N=1,252)

DEGREE OF SATISFACTION	NUMBER	PERCENT
Very Satisfied/Satisfied	430	34.3
Neutral	229	18.3
Very Dissatisfied/Dissatisfied	593	47.4
Total	1,252	100.00

²⁸ See *Massachusetts Medical Society Physician Satisfaction Survey, 2007*.

²⁹ See *Massachusetts Medical Society Physician Workforce Study, June 2006*.

CHART 20: PERCENT DISTRIBUTION OF PHYSICIANS BY THEIR DEGREE OF SATISFACTION WITH THE CURRENT BALANCE OF HOURS SPENT ON PATIENT CARE VERSUS ADMINISTRATIVE TASKS



In the 2006 analyses of physician satisfaction or dissatisfaction with the balance of hours spent on patient care versus administrative tasks, we compared the responses to respondents' views on making career changes and possibly relocating outside of the state. Findings of those analyses revealed fairly strong statistically significant links between satisfaction with the balance of work hours and willingness to consider career changes and relocating outside the Commonwealth. Similar and expanded analyses of these relationships follow.

Nearly one-fourth of the entire sample of physicians responded that they were contemplating a career change because of the current practice environment in Massachusetts, and another 14% were unsure whether they would change careers (Table 39 and Chart 21). The percentage of physicians reporting a willingness to change careers was strongly related to their degree of dissatisfaction with the balance of hours spent between patient care and administrative duties (Table 39 and Chart 22). The share of Massachusetts physicians reporting a willingness to change careers ranged from a low of 2% among those who were very satisfied with their balance of work hours to 19% among those who were neutral to a high of 51% among the physicians who were very dissatisfied with their balance of work hours (Chart 22). The physicians who were very dissatisfied with their balance of work hours were 25 times as likely as their peers who were very satisfied to consider changing careers.

TABLE 39: PHYSICIANS CONTEMPLATING A CAREER CHANGE BECAUSE OF THE CURRENT PRACTICE ENVIRONMENT IN MASSACHUSETTS BY THEIR SATISFACTION WITH THE NUMBER OF HOURS THEY ARE ABLE TO SPEND ON PATIENT CARE VERSUS ADMINISTRATIVE TASKS

DEGREE OF SATISFACTION	YES		NO		NOT SURE		TOTAL	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
Very Satisfied	2	2.0	95	95.0	3	3.0	100	7.0
Satisfied	48	14.5	254	77.0	28	8.5	330	26.4
Neutral	43	18.8	156	68.1	30	13.1	229	18.3
Dissatisfied	125	28.2	233	52.5	86	19.4	444	35.5
Very Dissatisfied	76	51.0	47	31.5	26	17.4	149	11.9
Total	294	23.5	785	62.7	173	13.8	1252	100

Chi-Square = 170.7
Degrees of Freedom = 8
Sig. = 0.01

CHART 21: PHYSICIANS CONTEMPLATING A CAREER CHANGE BECAUSE OF THE CURRENT PRACTICE ENVIRONMENT IN MASSACHUSETTS

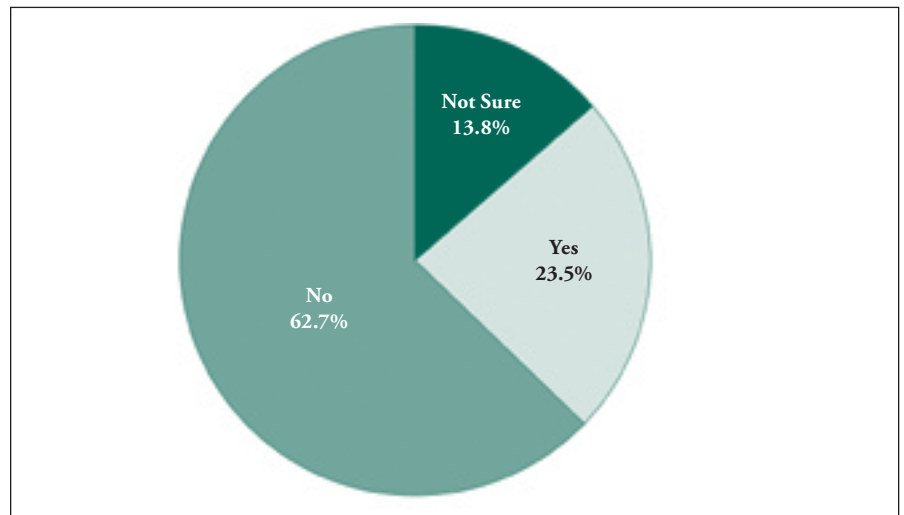
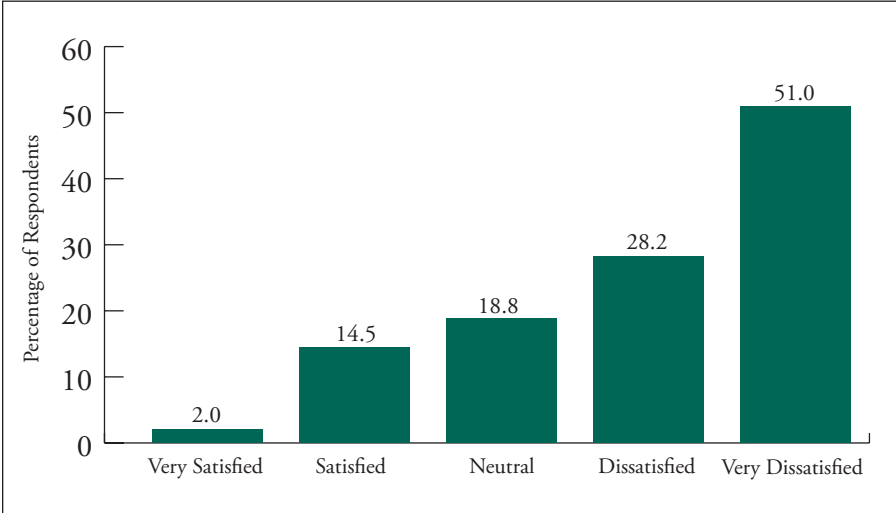


CHART 22: PHYSICIANS CONTEMPLATING A CAREER CHANGE BECAUSE OF THE CURRENT PRACTICE ENVIRONMENT IN MASSACHUSETTS BY THEIR SATISFACTION WITH THE NUMBER OF HOURS THEY ARE ABLE TO SPEND ON PATIENT CARE VERSUS ADMINISTRATIVE TASKS



To test whether satisfaction/dissatisfaction with work-hour balance was statistically independent of a willingness to change careers, we conducted a chi-square analysis. The null hypothesis underlying the chi-square test is that the two variables are statistically independent of each other; that is, the willingness of a physician to change careers is independent of his or her degree of satisfaction with the current work-hour balance. The statistical analysis yielded a chi-square statistic of 170.7, which is statistically significant at the .01 level. The null hypothesis of independence between the degree of satisfaction with the current work-hour balance and a willingness to change careers was soundly rejected.

The relationship between physicians’ degree of satisfaction with their incomes relative to their work hours and their willingness to consider a career change was also examined (see Table 40 and Chart 23). Contemplating a career change was strongly associated with physicians’ degree of satisfaction with the trade-off between their incomes and the hours they work. Only 5% of the physicians who were very satisfied with their incomes relative to their work hours were considering a career change, and the share rose to only 9% for those who were satisfied with their current income/work-hour balance. In contrast, 27% of the physicians who were dissatisfied with their incomes were considering a career change, and this ratio rose to just under 50% for those who were very dissatisfied with their income/work-hour trade-off. The relative difference between the top and bottom of the satisfaction scale with respect to career changes was more than 9 to 1. A chi-square test of the independence between satisfaction with income relative to work hours and a willingness to change careers

yielded a chi-square statistic of nearly 213, which is statistically significant at the .01 level. The null hypothesis of independence between satisfaction with the trade-off of income and work hours and a willingness to change careers was strongly rejected. The physicians who were dissatisfied with their incomes relative to their work hours were far more likely to report a willingness to change careers.

TABLE 40: PHYSICIANS CONTEMPLATING A CAREER CHANGE BECAUSE OF THE CURRENT PRACTICE ENVIRONMENT IN MASSACHUSETTS BY THEIR SATISFACTION WITH THE TRADE-OFF BETWEEN INCOME AND NUMBER OF WORK HOURS

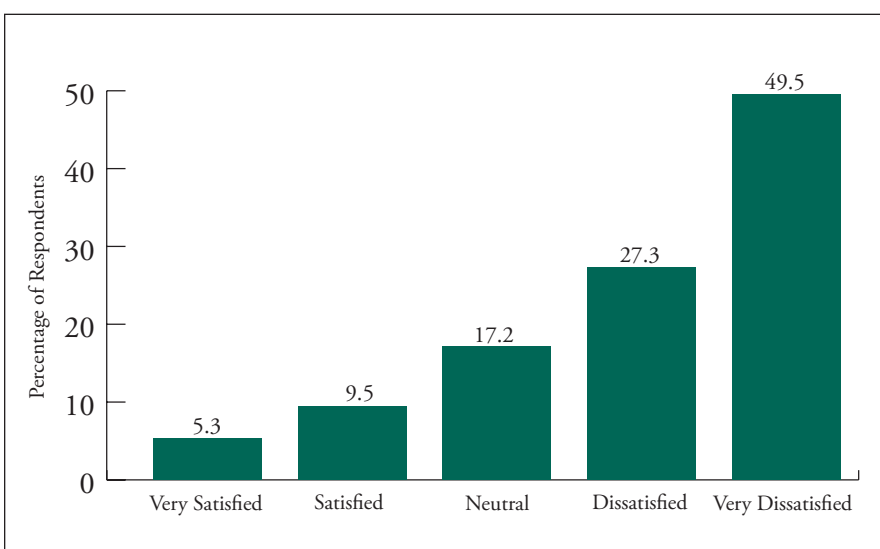
DEGREE OF SATISFACTION	YES		NO		NOT SURE		TOTAL	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
Very Satisfied	4	5.3	68	90.7	3	4.0	75	6.0
Satisfied	29	9.5	260	85.2	16	5.2	305	24.3
Neutral	38	17.2	155	70.1	28	12.7	221	17.6
Dissatisfied	121	27.3	230	51.9	92	20.8	443	35.3
Very Dissatisfied	104	49.5	71	33.8	35	16.7	210	16.7
Total	296	23.6	784	62.5	174	13.9	1,254	100%

Chi-Square = 212.8

Degrees of Freedom = 8

Sig. = 0.01

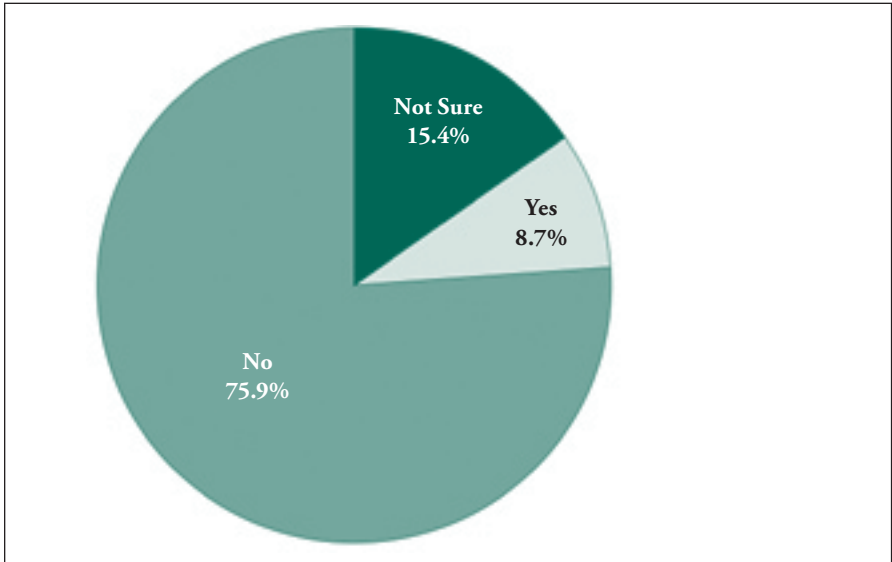
CHART 23: PHYSICIANS CONTEMPLATING A CAREER CHANGE BECAUSE OF THE CURRENT PRACTICE ENVIRONMENT IN MASSACHUSETTS BY THEIR SATISFACTION WITH THE TRADE-OFF BETWEEN INCOME AND NUMBER OF WORK HOURS



5.5 — Satisfaction with the Current Work Environment and Plans to Move out of State

Physicians responding to the survey were also asked whether they planned to move out of state due to the current practice environment. Nearly 9% of all respondents cited a willingness to move out of state, another 15% were not sure whether they would move, and the remaining 76% stated that they were not planning to move out of state. Nine percent (9%) of the respondents indicated plans to move out of state — approximately one percentage point more than indicated plans to move in 2006. These reported plans should not be treated lightly by economic and state health policymakers. Between July 2000 and July 2006, nearly 14% of the resident population of Massachusetts moved out of the state to other states across the country, and the number of out-migrants to other states exceeded the number of in-migrants from other states by more than 280,000.³⁰

CHART 24: PHYSICIANS PLANNING TO MOVE OUT OF MASSACHUSETTS TO PRACTICE MEDICINE BECAUSE OF THE CURRENT PRACTICE ENVIRONMENT



The fraction of physicians who cited plans to move out of Massachusetts rose with their level of dissatisfaction with the balance of hours devoted to patient care versus administration (see Table 41 and Chart 25). Only 3% of those who were very satisfied with the balance of work hours reported plans to move out of state, and this share rose slightly,

³⁰ For evidence on components of population change in Massachusetts between 2000 and 2005, see Andrew Sum, Ishwar Khatriwada, Joseph McLaughlin, et. al., *Mass. Economy: The Labor Supply and Our Economic Future*, Massachusetts Institute for A New Commonwealth and the Boston Foundation, Boston, 2006.

to almost 5%, for those who were satisfied with the current work-hour balance. Nearly 11% of the physicians who were dissatisfied with their work-hour balance cited plans to move out of state, and the share rose to 16% if they were very dissatisfied with the balance of hours devoted to patient care versus administration (Chart 25). A chi-square test of the relationship between the degree of satisfaction with the current work-hour balance and plans to move out of state yielded a χ^2 statistic of 65.3, which is significant at the .01 level. The null hypothesis of statistical independence between satisfaction with the work-hour balance and plans to move out of the state was strongly rejected.

TABLE 41: PHYSICIANS PLANNING TO MOVE OUT OF MASSACHUSETTS TO PRACTICE MEDICINE BECAUSE OF THE CURRENT PRACTICE ENVIRONMENT BY THEIR SATISFACTION WITH THE NUMBER OF HOURS THEY ARE ABLE TO SPEND ON PATIENT CARE VERSUS ADMINISTRATIVE TASKS

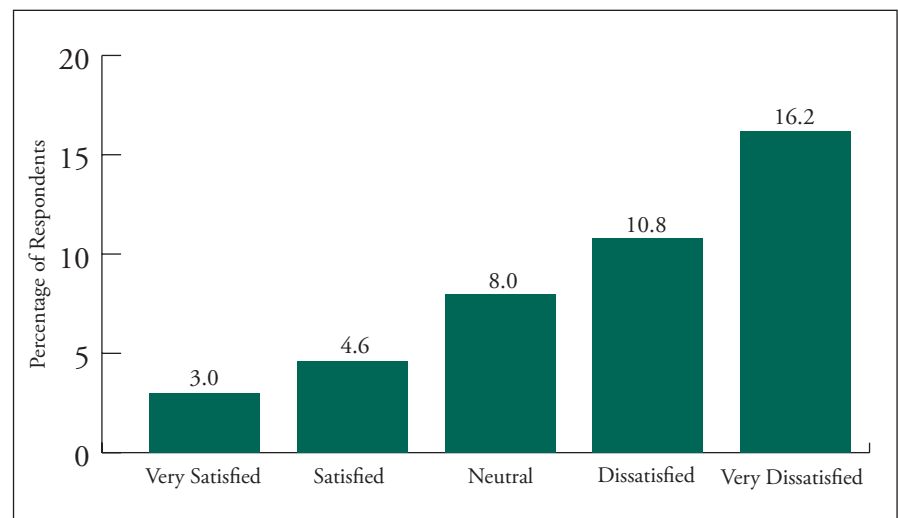
DEGREE OF SATISFACTION	YES		NO		NOT SURE		TOTAL	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
Satisfied	15	4.6	281	85.7	32	9.8	328	26.3
Neutral	18	8.0	169	75.4	37	16.5	224	18.0
Dissatisfied	48	10.8	314	70.4	84	18.8	446	35.8
Very Dissatisfied	24	16.2	88	59.4	36	24.3	148	11.9
Total	108	8.7	946	75.9	192	15.4	1,246	100.0

Chi-Square = 65.3

Degrees of Freedom = 8

Sig. = 0.01

CHART 25: PERCENT OF PHYSICIANS PLANNING TO MOVE OUT OF MASSACHUSETTS TO PRACTICE MEDICINE BECAUSE OF THE CURRENT PRACTICE ENVIRONMENT BY THEIR SATISFACTION WITH THE NUMBER OF HOURS THEY ARE ABLE TO SPEND ON PATIENT CARE VERSUS ADMINISTRATIVE TASKS



The statistical links between physicians' satisfaction with their income/work-hour trade-off and their plans to move out of state were also examined (Table 42). The percentage of physicians who were planning to move out of state rose steadily as their satisfaction level with their pay/hours of work trade-off declined. None of the physicians who were very satisfied with their balance between income and hours of work had any specific plans to move out of state, although close to 3% of them were uncertain about such plans. For those physicians indicating a neutral level of satisfaction, 5% planned to move out of state, and 22% were either planning to relocate or uncertain about this decision. Among those voicing a high level of dissatisfaction with their incomes relative to work hours, nearly 20% planned to move out of state, and another 30% were unsure whether they would do so. This last group of physicians was *18 times* more likely to either plan to move out of state or consider doing so than their counterparts who were very satisfied with their incomes relative to work hours.

TABLE 42: PHYSICIANS PLANNING TO MOVE OUT OF MASSACHUSETTS TO PRACTICE MEDICINE BECAUSE OF THE CURRENT PRACTICE ENVIRONMENT BY THEIR SATISFACTION WITH THE TRADE-OFF BETWEEN INCOME AND NUMBER OF WORK HOURS

DEGREE OF SATISFACTION	YES		NO		NOT SURE		TOTAL	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
Very Satisfied	0	0.0	73	97.3	2	2.7	75	6.0
Satisfied	8	2.6	287	93.5	12	3.9	307	24.6
Neutral	12	5.4	172	77.8	37	16.7	221	17.7
Dissatisfied	47	10.8	311	71.3	78	17.9	436	34.9
Very Dissatisfied	41	19.6	105	50.2	63	30.1	209	16.7
Total	108	8.7	948	76.0	192	15.4	1,248	100.0

Chi-Square = 140.6

Degrees of Freedom = 8

Sig. = 0.01

The statistical relationships between plans to move out of state and degree of satisfaction with one's income relative to work hours were subjected to a chi-square test of statistical independence. The estimated value of the chi-square statistic was 140.6, which is statistically significant at the .01 level. The two variables are clearly closely linked to one another — physicians who are most dissatisfied with the trade-off between their income and work hours are by far the most likely to be planning a move out of state. Any increase in out-migration or physicians leaving the field of medical practice would only exacerbate the existing physician shortage situation in the Commonwealth.

5.6 — A Multivariate Statistical Analysis of Plans to Change Careers or Relocate Outside of the State

Physicians' plans to either change careers or move out of the state of Massachusetts were described in the preceding section, and the statistical associations between these plans and their degree of satisfaction with existing features of the practice environment (balance of hours spent on patient care versus administration/trade-offs between income and work hours) were analyzed. In this section, we will examine the statistical relationships between career changes/relocation plans and a variety of demographic background variables and physicians' satisfaction with selected aspects of the work environment in a multivariate framework.

A set of linear probability models of the willingness to change careers or move out of state will be estimated using a multiple regression analysis.³¹ The willingness to contemplate a career change or a move out of state will be modeled as a function of the physician's gender, age group, satisfaction with the balance of hours spent on patient care/administration, and satisfaction with income relative to work hours. Definitions of the dependent and independent variables in these multiple regression models are displayed in Table 43.

The first linear probability model analyzes the willingness of the physician to change careers. In this model, the base group is a female physician under age 40 who was satisfied with both her work-hour balance and her income. Neither the gender of the physician nor her or his age group had a statistically significant impact on the willingness to contemplate a career change. Physicians who were 40 to 59 years of age were somewhat more likely than their younger peers to consider a career change, but the estimated coefficient for this age variable (+.046) fell slightly short of significant at the .10 level.³² Dissatisfaction with the balance of work hours spent on patient care/administrative duties and with pay/work-hour trade-offs, however, did have large, significant impacts on the willingness to contemplate a career change. Those physicians dissatisfied with the existing balance of work hours devoted to patient care were between 9 and 10% more likely to express a willingness to change careers.³³ An even larger impact is generated by dissatisfaction with the current trade-off between income and hours worked. Physicians who were neutral or dissatisfied with the current trade-off between these two variables were 16% more likely to

³¹ For a review of the theoretical features of linear probability and logit models, see John H. Aldrich and Forrest D. Nelson, *Linear Probability, Logit, and Probit Models*, Sage Publications, Beverly Hills, 1984.

³² A two-tailed t-test was used in estimating the significance of the age variables.

³³ The dissatisfaction variable (NOTSATHOURS) includes physicians who were neutral about the current balance of hours between patient care and administrative duties as well as those who were dissatisfied with the current balance.

contemplate a career change than their peers who were satisfied with the existing trade-off. The coefficient on the NOTSATTRDOFF variable was highly statistically significant at .001 (see Table 43).

TABLE 43: DEFINITIONS OF DEPENDENT AND INDEPENDENT VARIABLES IN THE REGRESSION MODELS OF MASSACHUSETTS' PHYSICIANS OPINIONS ON CAREER CHANGES AND MOVING OUT OF STATE

VARIABLE	DEFINITION OF VARIABLE
DEPENDENT VARIABLE	
MODEL I	
CareerChg	A dichotomous variable representing the potential for career change 1 = if a physician is contemplating a career change because of the current practice environment in Massachusetts 0 = if else
MODEL II	
MovingOut	A dichotomous variable representing the potential for moving out of state 1 = if a physician is planning to move out of Massachusetts to practice medicine because of the current practice environment 0 = if else
INDEPENDENT VARIABLE	
NotSatHours	A dichotomous variable representing physician's satisfaction with hours of work 1 = if a physician is neutral, dissatisfied, or very dissatisfied with number of hours spent on patient care versus administrative duties 0 = if else
NotSatTrdoff	A dichotomous variable of the satisfaction with current trade-off between income and the number of hours of work 1 = if a physician is neutral, dissatisfied, or very dissatisfied with the current trade-off between the amount of income and number of hours of work 0 = if else
Male	A dichotomous gender variable 1 = male 0 = female
Age40–59	A dichotomous age variable 1 = if the physician is 40 to 59 years of age 0 = if else
Age60+	A dichotomous age variable 1 = if the physician is 60 years of age or older 0 = if else

TABLE 43: FINDINGS OF THE MULTIPLE REGRESSION ANALYSIS OF THE PHYSICIANS' CONSIDERATION OF A CAREER CHANGE DUE TO THE CURRENT PRACTICE ENVIRONMENT

VARIABLE	COEFFICIENT	STANDARD ERROR	T-STATISTIC	SIG. OF COEFFICIENT
Constant	.029	.033	.86	--
MALE	.010	.025	.38	--
AGE40–59	.046	.031	1.49	--
AGE60+	–.011	.03	–.28	--
NOTSATHOURS	.094	.027	3.47	***
NOTSATTRDOFF	.160	.208	5.73	***

$R^2 = .068$

Degrees of Freedom = 5, 1289

$F = 18.7^{***}$

Sig. of $F = .001$

*** Sig. .01

** Sig. .05

* Sig. .10

-- Not. Sig. .10

To illustrate the combined effects of demographic traits and satisfaction/dissatisfaction with key aspects of the practice environment on the willingness of physicians to contemplate a career change, we predicted the probabilities of such career changes for a hypothetical group of physicians. Our first group consists of the base group in the model: a female physician under 40 years of age who was satisfied with the balance of work hours spent on patient care and administrative tasks and with the trade-off between income and work hours. The probability of this individual considering a career change was only 2.9%. If the same hypothetical individual cited dissatisfaction with the balance of hours spent on patient care and administrative duties, she would have a 12.3% predicted probability of contemplating a career change. In our third hypothetical case, the physician is a 40- to 59-year-old who also voices dissatisfaction with her income relative to existing work hours. The predicted probability of this individual physician considering a career change rises to just under 33%, or *11 times higher than the base group physician* who was satisfied with both her work-hour balance and the income she received for her existing work hours. Clearly, a combination of dissatisfaction with the practice environment and one's income substantially raises the likelihood of a physician considering a career change.

TABLE 44: PREDICTED PROBABILITY OF A MASSACHUSETTS PHYSICIAN CONTEMPLATING A CAREER CHANGE DUE TO THE CURRENT PRACTICE ENVIRONMENT — THREE HYPOTHETICAL PHYSICIANS

CHARACTERISTIC OF PHYSICIAN	PREDICTED PROBABILITY OF A CAREER CHANGE
Woman, under 40 years of age, satisfied with both pay and current work-hour trade-off between patient care and administrative duties	.029
Woman, under 40, satisfied with pay, but not satisfied with current work-hour trade-off between patient care and administrative duties	.123
Woman, 40 to 59, not satisfied with either pay or current work-hour trade-off between patient care and administrative duties	.329

In our second model, the dependent variable is the probability of a physician making plans to relocate his or her practice outside of the state. Those who indicated definite plans to move out of state were assigned the value of one (1) for this variable, while those who either did not plan to move or were unsure about moving were assigned the value of zero (0). Results of our regression analysis of physicians' plans to move out of state are displayed in Table 45. Plans to move out of state were not significantly influenced by the gender of the physician, but they were significantly affected by the age of the physician and his or her degree of satisfaction with the existing work-hour balance and income. As hypothesized, those physicians 60 years of age and older were significantly less likely to plan to move out state than their counterparts under 40. Physicians who were dissatisfied with the balance of work hours devoted to patient care versus administration and with their incomes were significantly more likely to plan to move their practices out of state. The impact of dissatisfaction with one's income on the decision to move out of state exceeded that of dissatisfaction with the balance of one's work hours devoted to patient care (.075 vs. .031, a relative difference of 2.4 times).

TABLE 45: FINDINGS OF THE MULTIPLE REGRESSION ANALYSIS OF PHYSICIANS' CONSIDERATION OF MOVING OUT OF MASSACHUSETTS DUE TO THE CURRENT PRACTICE ENVIRONMENT

VARIABLE	COEFFICIENT	STANDARD ERROR	T-STATISTIC	SIG. OF COEFFICIENT
Constant	.020	.022	.90	--
MALE	.016	.017	.97	--
AGE40–59	–.011	.021	–.55	--
AGE60+	–.050	.025	1.98	**
NOTSATHOURS	.031	.017	1.70	**
NOTSATTRDOFF	.075	.019	3.99	***

$R^2 = .032$ *** Sig. .01 ** Sig. .05 * Sig. .10 $F = 8.02^{***}$
 Sig. of $F = .001$ -- Not. Sig. .10 Degrees of Freedom = 5, 1289

To illustrate the combined effects of demographic characteristics and satisfaction with work-hour balance and income on the possibility of a physician moving out of state, we predicted the probabilities of moving out of state for three different physicians (see Table 46). The first is a male physician 45 to 59 years of age who reported that he was satisfied with both the balance of work hours spent on patient care versus administrative duties and his current income relative to work hours. The predicted probability that such a physician was planning to move out of state was only 2.5%. Our second hypothetical physician has the same demographic traits as the first physician, but was dissatisfied with the current work-hour balance. This individual had a 5.6% probability of planning to move out of state. Our third hypothetical physician is a male under 40 who was dissatisfied with both the current balance of work hours and his income. This last individual had a 14.2% probability of planning to move out of state, which is nearly six times higher than our first hypothetical doctor.

TABLE 46: PREDICTED PROBABILITY OF A PHYSICIAN PLANNING TO MOVE OUT OF MASSACHUSETTS DUE TO THE CURRENT PRACTICE ENVIRONMENT — THREE HYPOTHETICAL PHYSICIANS

CHARACTERISTIC OF PHYSICIAN	PREDICTED PROBABILITY OF MOVING OUT OF STATE
Male, 40 to 59, satisfied with both pay and work-hour trade-off between patient care and administrative duties	.025
Male, 40 to 59, satisfied with pay, but dissatisfied with current trade-off between patient care and administrative duties	.056
Male, under 40, dissatisfied with both pay and trade-off between patient care and administrative duties	.142

In an expanded version of this second regression model, we redefined the two satisfaction variables to include only those physicians who reported dissatisfaction with both the balance of their work hours and their incomes. Two new dummy variables representing a “neutral” attitude toward satisfaction with the current balance of work hours and income were added to the linear probability model of moving out of state. Results of this expanded model yielded a larger coefficient on the variable representing dissatisfaction with income. The estimated size of the new coefficient was .094 for NOTSATTRDOFF. The predicted probability of our third hypothetical physician leaving the state rose from .142 to .166. These findings clearly reveal that dissatisfaction with the current trade-off between income and work hours was strongly associated with the likelihood of a physician planning to leave Massachusetts to practice elsewhere.

SECTION 6: REGIONAL DISPARITIES ACROSS THE PRINCIPAL URBAN LABOR MARKETS IN MASSACHUSETTS

The geographic distribution of medical care facilities and health care personnel clearly impact the provision of medical care. In analyzing the findings of the physician surveys, we classified responses into one of the following five geographic areas based on the locations of the facilities and physicians:

- Boston metropolitan
- New Bedford/Fall River/Barnstable County (Cape Cod)
- Pittsfield (Berkshire County)
- Springfield
- Worcester

While Massachusetts has a very comprehensive state health care—delivery system, patient demand and physician supply do not necessarily mesh perfectly to always provide services where and when they are needed. It is here that the geographic aspects of physician labor markets come into play in the patient demand and physician supply equation.

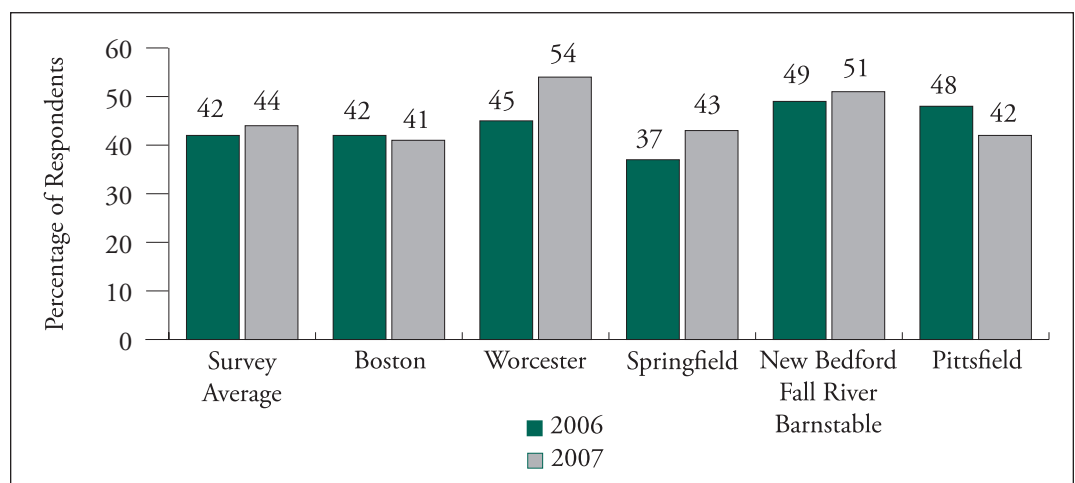
In this section of the study, we will analyze the responses from practicing physicians across the five urban areas cited above. Overall, the respondents' data by urban area can be organized into three clusters: physician dissatisfaction with the current practice environment, difficulty filling existing vacancies, and finally, the dual issues of recruitment and retention and their impact on the provision of medical services.

Before these data are analyzed in detail, the two main findings can be summarized as follows:

- In the past two years, 37 to 54% of the physicians currently practicing in the five principal urban labor markets in Massachusetts are dissatisfied with their practice environment. This statistic underscores the very real, pervasive nature of physician dissatisfaction throughout the state over the past two years.
- The current physician shortages may have impacted access to patient care: this year, respondents reported longer waits for medical appointments. Also, approximately one out of three currently practicing physicians report that they have already had to alter services and/or adjust professional staff to address current patient demand. In particular, it is especially difficult in New Bedford and Pittsfield, where a high percentage report that they have had to alter services, and in New Bedford and Springfield, where the highest percentages have had to adjust staffing.

In Chart 26, we display the survey results disaggregated across the five urban areas for those physicians who indicated that they were dissatisfied with the current practice environment.

CHART 26: PERCENT OF PHYSICIANS DISSATISFIED WITH THE CURRENT PRACTICE ENVIRONMENT



The survey data relating to difficulty filling existing vacancies across the five urban areas are summarized in Charts 27 and 28. Note that in both charts, the percent responses are reported only for those physicians who answered that they were experiencing some difficulty and/or significant difficulty filling vacancies.

CHART 27: PERCENTAGE OF RESPONDENTS EXPERIENCING DIFFICULTY FILLING PHYSICIAN VACANCIES

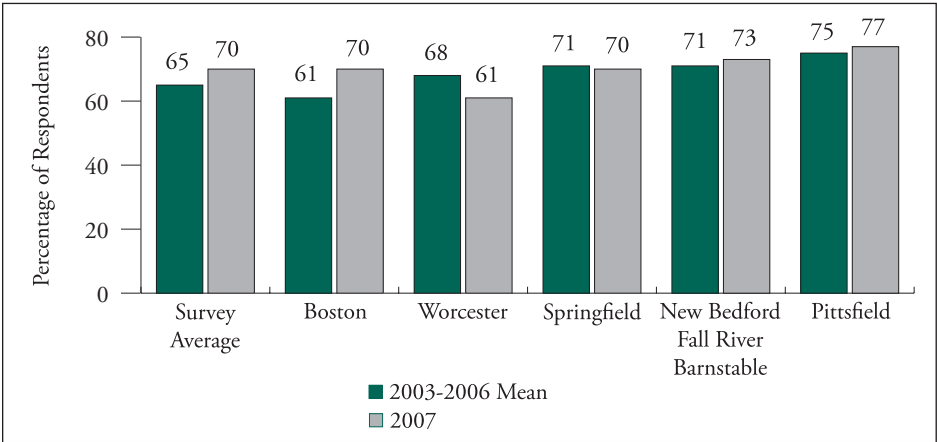
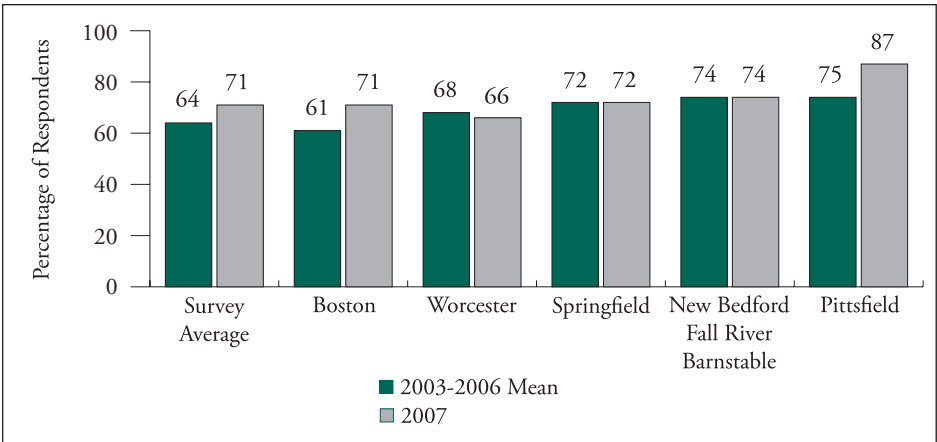


CHART 28: PERCENTAGE OF PHYSICIANS REPORTING THAT THE CURRENT POOL OF PHYSICIAN APPLICANTS IS INADEQUATE TO FILL VACANCIES



Taken together, the data displayed in Charts 27 and 28 provide considerable insight into the disparities across the five urban labor markets. Two interpretive comments are appropriate.

- The first is the obvious difficulty filling physician vacancies in Pittsfield because of what must be considered an inadequate number of applicants willing to practice in rural Berkshire County. This conclusion has been noted in all of the earlier MMS surveys, and these results were confirmed with the 2007 responses.

- Somewhat surprising is the sharp increase in the number of respondents in the Boston metropolitan area who in 2007 reported increasing difficulty recruiting physicians because of a limited pool of applicants.

A careful review of the survey responses to two questions regarding recruitment and retention suggest that the increasing difficulty recruiting in Boston may be a statistical aberration of the 2007 sample responses. Responses to these two questions are shown in Tables 47 and 48.

TABLE 47: OVER THE PAST THREE YEARS, HAS THE AMOUNT OF TIME NEEDED TO RECRUIT PHYSICIANS CHANGED?

GEOGRAPHIC AREA	TIME TO RECRUIT HAS INCREASED	
	2007	2006
Boston	52%	54%
New Bedford/Fall River/Barnstable	59	59
Pittsfield	52	58
Springfield	46	65
Worcester	32	51
Sample Mean	51%	56%

TABLE 48: OVER THE PAST THREE YEARS, HAS YOUR ABILITY TO RETAIN YOUR EXISTING STAFF OF PHYSICIANS CHANGED?

GEOGRAPHIC AREA	ABILITY TO RETAIN HAS CHANGED		ABILITY TO RETAIN PHYSICIANS MORE DIFFICULT	
	2007	2006	2007	2006
Boston	40%	43%	97%	98%
New Bedford/Fall River/Barnstable	44	34	100	100
Pittsfield	52	48	100	100
Springfield	39	42	97	100
Worcester	36	48	100	95
Sample Mean	40%	43%	98%	98%

With regard to our earlier comments, one should pay particular attention to the survey responses that over the past three years clearly show that the amount of time needed to recruit and retain physicians in Boston has not increased, but has actually declined fractionally. Between 2006 and 2007, there are some variations that potentially reflect changes in the labor market, but the variances are either small or only occurred for one year. Further trending will be necessary to determine if there is truly a change in the labor market in these areas. As for the Pittsfield physician supply

situation, the data shown in Table 48 illustrate another dimension of this labor market. Specifically, it is interesting to note that the percentage of physicians who indicated that retention is more difficult is considerably greater in Pittsfield than in the other four urban areas.

We may now turn our attention to the final cluster of two questions for the five urban labor markets. Shown in Table 49 are the survey results to these separate questions, which were both designed to determine whether current supply problems have caused physicians to alter their patient services and/or adjust their professional staffing patterns.

TABLE 49: HAVE PHYSICIAN SUPPLY PROBLEMS MADE IT NECESSARY FOR YOU TO ALTER SERVICES OR ADJUST YOUR PROFESSIONAL STAFFING?				
	YES, ALTERED SERVICES		YES, ADJUSTED STAFF	
GEOGRAPHIC AREA	2007	2003–2006 MEAN	2007	2003–2006 MEAN
Boston	30%	25%	32%	31%
New Bedford/Fall River/Barnstable	40	30	40	34
Pittsfield	43	36	30	38
Springfield	30	38	35	37
Worcester	31	31	29	34
Sample Mean	32%	27%	33%	32%

While these data provide a number of interesting insights into the impact of physician supply constraints on the provision of patient services, three conclusions merit specific comment.

- First is that current physician shortages have seriously impacted patient care. Approximately one out of three currently practicing physicians reports that they have already had to alter services and/or adjust staffing patterns to address current patient demand.
- Second is that the Boston urban labor market has been least affected by physician shortages, most certainly because it contains such a large agglomeration of medical and health care facilities. This urban concentration greatly facilitates labor market substitutions and other institutional adjustments that are less operationally or managerially disruptive and are most likely impossible in smaller labor markets.
- Finally, differentially harsher physician labor market conditions in Pittsfield once again show clearly in these responses, especially in the need to alter services. For the first time in this

urban analysis, the 2007 data support the conclusion that the physician shortage is differentially adverse to the New Bedford/Fall River/Barnstable areas.

SECTION 7: THE ROLE OF GENDER IN THE PRACTICE OF MEDICINE IN MASSACHUSETTS

Increasingly, gender plays a significant role in medicine. According to the American Medical Association, almost one in four (27%) of the currently practicing physicians in the United States is female. This is in sharp contrast to the mid-1970s, when this ratio amounted to only one in eleven (9%).³⁴ Notably, in 2006, approximately half (49%) of the medical students in U.S. medical schools were female.³⁵

Recent changes among the total population of Massachusetts practicing physicians trace out the evolution of similar patterns.

While these dynamics have been appreciated for quite some time, to date they have not been addressed in MMS Physician Workforce Studies. In this year's report, we disaggregate portions of the responses to the 2007 survey in order to gain a much better understanding of the opinions and attitudes of male versus female physicians.

Increasingly, the current and future role of female physicians will become critical to maintaining quality health care. This issue was addressed in a recent Association of American Medical Colleges (AAMC) report entitled, *Physician Workforce Shortages: Implications and Issues for Academic Health Centers and Policymakers*.³⁶ According to the AAMC, there will be a 100,000 physician shortfall by 2020. It is widely expected that a large part of this gap will be filled by increased labor force participation among new female physicians. The ultimate viability of this assumption rests not only on attracting new female medical school applicants, but also on retaining the existing supply of female physicians. Given the economic significance of the health care industry in Massachusetts, this is a very real issue, but it also raises the question of just how many of the currently practicing female physicians in Massachusetts are satisfied with their careers given the increasingly

³⁴ *Physician Characteristics and Distribution in the US, 2007 Edition, American Medical Association*

³⁵ *American Association of Medical Colleges, FACTS Table 18: Total Enrollment by Sex and School, 2002-2006 Available at www.aamc.org/data/facts/2006/factsenrl.htm (accessed June 22, 2007).*

³⁶ *Salsberg, Edward MPA; Grover, Atul MD, PhD. Physician Workforce Shortages: Implications and Issues for Academic Health Centers and Policymakers. Academic Medicine. 81(9):782-787, September 2006.*

harsh practice environment and how many of them may be expected to continue to pursue their medical careers in Massachusetts.

In the detailed analysis contained in this section, we will not be able to answer these questions as fully as we would like, but we will provide considerable new insight and several answers to them. Before we examine the analysis in detail, though, it will be helpful to state the four principal conclusions that can be derived from this analysis.

- First is that the MMS survey data provide considerable support for the conclusion that there are only modest disparities between female and male attitudes concerning the practice environment in Massachusetts.
- Second is that there are some differences between the amount of time given to patient care. The survey data support the conclusion that during an average clinical practice work week, male physicians provide 39 hours of patient care while female physicians provide 32 hours (see Chart 32).
- Third, in terms of expectations about future income growth, it is virtually impossible to imagine any professional occupation would have between one-third and one-fifth of its members believing their income levels five years hence would be below current levels, but this is the case among female physicians currently practicing in Massachusetts (Chart 35). Overall, male physicians are even more concerned regarding potential salary expectations, with between one-half and one-third responding that they expect their salary levels to be lower in five years.
- Finally, given the reality that between 2003 and 2007, approximately one-third to one-half of female physicians practicing in Massachusetts expressed dissatisfaction with their practice environment and one-fifth to one-quarter reported contemplating a career change (see Charts 29 and 31), it is very difficult to believe that it will be possible to retain significant numbers of the existing female physician labor force to even partially fill the 100,000 new physician vacancies forecasted for the year 2020 by the Council on Graduate Medical Education.³⁷

Before we begin the more detailed analysis, it will be helpful to establish the statistical gender parameters of the five preceding MMS Surveys of Practicing Physicians. These are shown in Table 50.

³⁷ Council on Graduate Medical Education, *Sixteenth Report: Physician Workforce Policy Guidelines for the United States, 2000-2020*, January 2005. Available at www.cogme.gov/report16.htm (accessed: July 6, 2007).

TABLE 50: GENDER CHARACTERISTICS OF THE MMS WORKFORCE SURVEYS, 2003–2007

	2003	2004	2005	2006	2007
Percent Male	74	70	70	70	65
Percent Female	26	30	30	30	35

The increasing participation of females in the medical profession in Massachusetts is clearly evident in the MMS sample data. While this shift to greater participation by females in Massachusetts is significant in itself, their opinions and attitudes about their profession are of crucial significance in meeting future health care needs.

The core of the disaggregated analysis in this section is based entirely on a series of seven questions contained in the physician satisfaction component of this study. The responses to these questions for the entire sample are analyzed in Section 5.

For a meaningful departure point, we have reproduced three charts that cover a logical sequence of survey questions on the various dimensions of the practice environment. The first relates to the level of dissatisfaction with the current practice environment; the second, the willingness to choose a career in medicine if the physician were to start over; and finally, the percent of currently practicing physicians who are contemplating a career change and future salary expectations. These three charts are followed by our analytical comments.

CHART 29: HOW SATISFIED ARE YOU WITH THE CURRENT PRACTICE ENVIRONMENT? PERCENTAGE OF PHYSICIANS DISSATISFIED/VERY DISSATISFIED

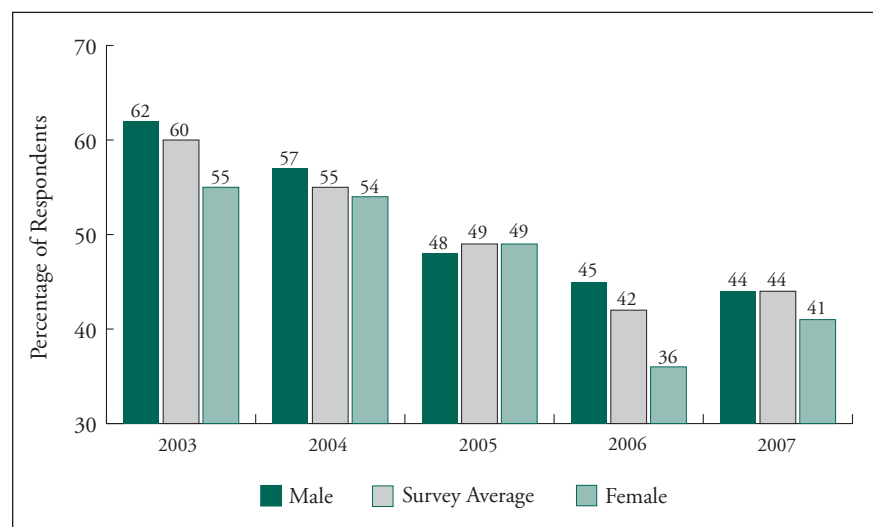


CHART 30: CONSIDERING THE CURRENT PRACTICE ENVIRONMENT, WOULD YOU CHOOSE MEDICINE AS A PROFESSION AGAIN? PERCENTAGE RESPONDING THAT THEY WOULD NOT CHOOSE MEDICINE AGAIN

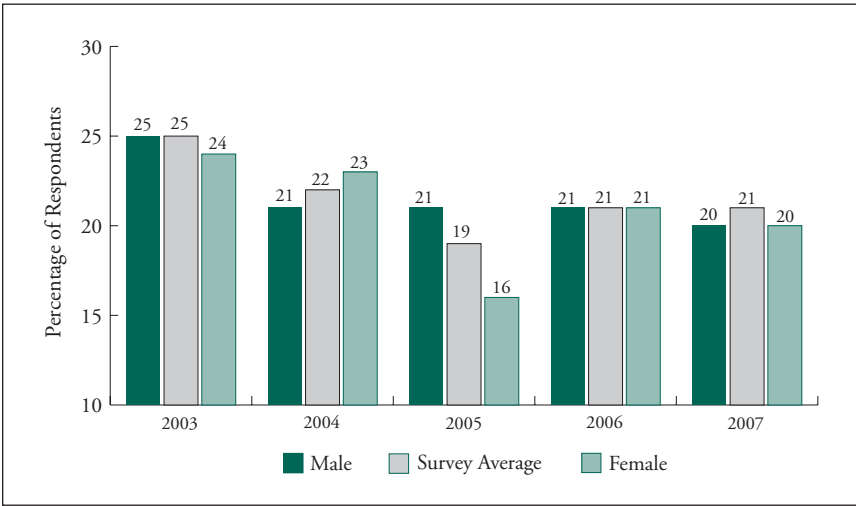
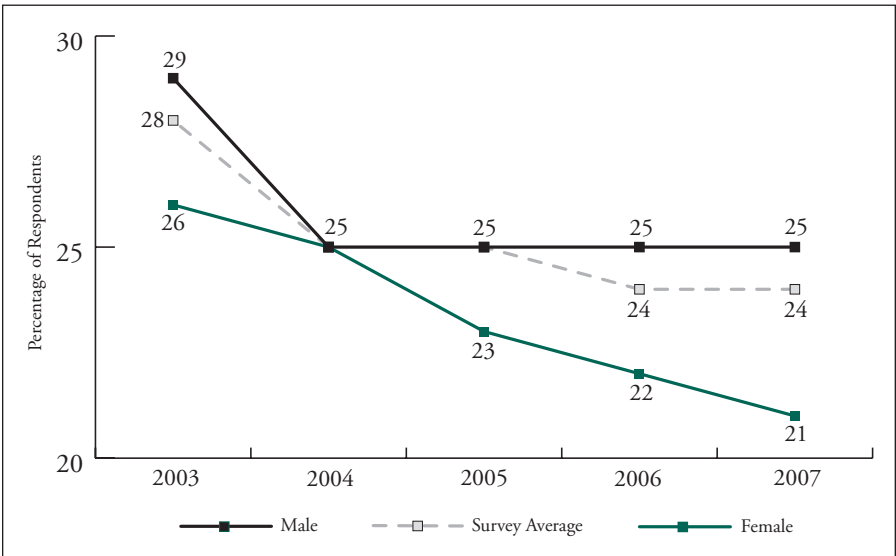


CHART 31: ARE YOU CONTEMPLATING A CAREER CHANGE BECAUSE OF THE CURRENT PRACTICE ENVIRONMENT? PERCENTAGE OF PHYSICIANS INDICATING THAT A CAREER CHANGE IS LIKELY



The responses to the three questions as shown in Charts 29 through 31 provide considerable insight into the attitudes of female physicians currently practicing in Massachusetts. The general conclusion from this sequence of charts is that there are only modest disparities between female and male attitudes concerning the practice environment.

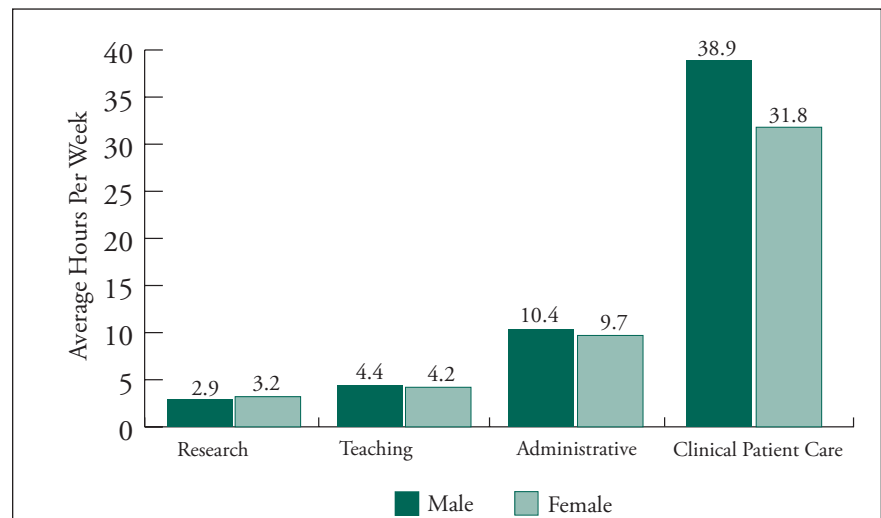
- With regard to the level of dissatisfaction toward the practice environment, there are declines in the percent response rates among both male and female physicians reporting dissatisfaction, but the declines among female physicians have had

sharper drops and have fallen to a lower level in the past two years (see Chart 29).

- With regard to the issue of choosing a career in medicine if offered another chance, there seems to be very little difference between the response rates among males and females. Over the five survey years, roughly 20 to 25% of the respondents indicated that they would not choose the profession again. But take note that the stability of this ratio is not the relevant point. The much more important point is that one out of four currently practicing physicians responded that they would not likely choose a career in medicine — a most disturbing finding in the face of an escalating physician shortage in Massachusetts (see Chart 30).
- Finally, there appears to be a certain amount of disparity with regard to the number of physicians responding that they are currently contemplating a career change. Note especially that the ratio of females reporting that a career change is possible has declined consistently over the five survey years, while the male ratio flattened out at 25%, but the statistical disparity is relatively modest (see Chart 31).

The next series of charts analyzed in the context of gender relates to attitudes concerning physician workloads. First, it is important to establish the average weekly physician workload and the average amount of time allocated to various physician activities. Shown in Chart 32 are the 2006 survey data for the four principal physician activities by gender.

CHART 32: 2007 SURVEY DATA CONCERNING AVERAGE WORK HOURS PER WEEK BY GENDER AND ACTIVITY



Before commenting specifically on these results, it will be worthwhile to set out the key findings on average weekly hours worked.

TABLE 51: AVERAGE HOURS WORKED PER WEEK BY GENDER, 2007 SURVEY	
Male	56.6
Female	48.9
Total Sample	53.9

There is an 8 hour or 14% difference between the average number hours worked each week by male versus female physicians. This may reflect the difference in the female-male specialty mix and the necessity among female physicians to address a greater array of home output demands as well as work demands.

Time spent in patient care is characterized by the largest gender differences in mean hours worked. There is a much more striking differential; that is, 38.9 hours for males and 31.8 hours for females. This amounts to 22% more time among males.

In the next two charts, the survey data are plotted for the percentage of physicians who increased their practice hours over the past year and the percentage of physicians who responded that they are dissatisfied/very dissatisfied with the trade-off between income and number of work hours.

CHART 33: PERCENTAGE OF PHYSICIANS DISSATISFIED OR VERY DISSATISFIED WITH THE TRADE-OFF BETWEEN INCOME AND NUMBER OF WORK HOURS, BY GENDER

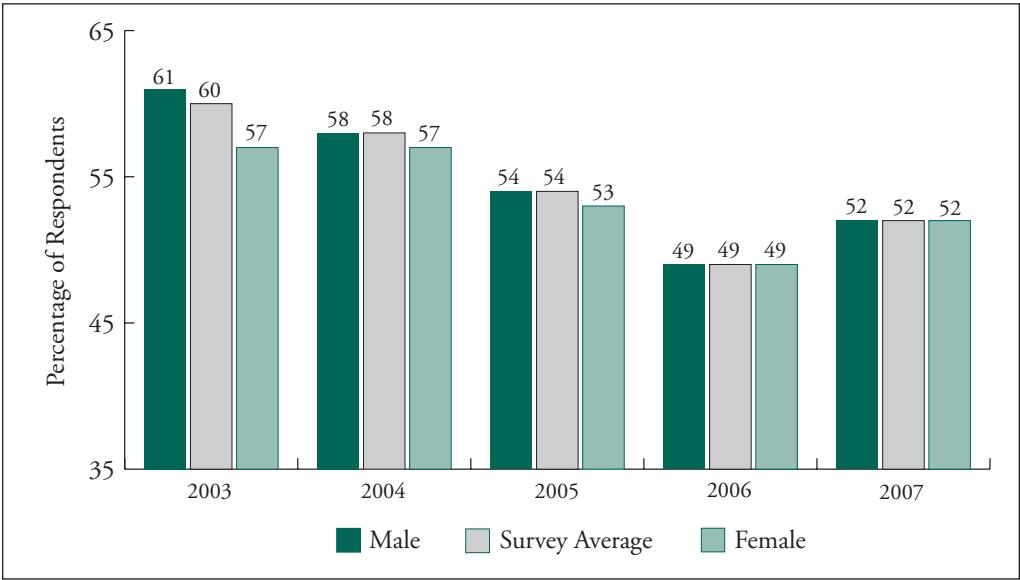
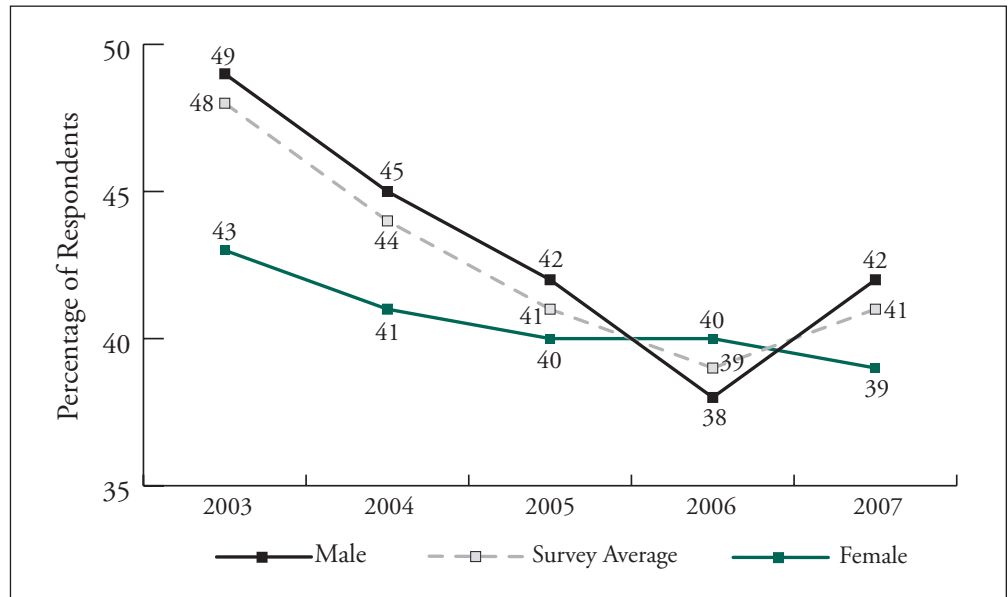


CHART 34: PERCENTAGE OF PHYSICIANS THAT INDICATED INCREASED WORK HOURS, BY GENDER

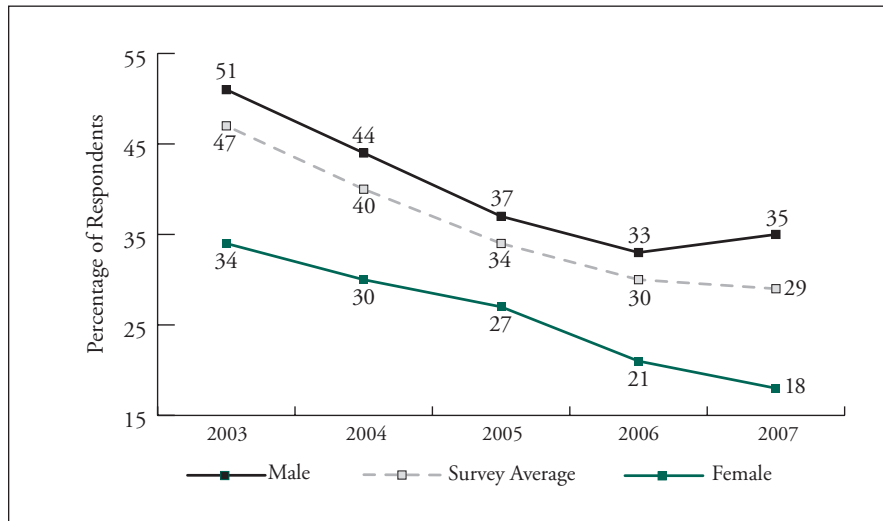


Interpretation of the survey results presented in Chart 33 is straightforward; specifically, it appears that only small variations exist in the responses by gender. Both male and female physicians are dissatisfied/very dissatisfied with the trade-off between income and the number of hours they work. While this conclusion is not surprising, it must be judged within the context of the survey results shown in Chart 30. Specifically, it is interesting to note that even though the percentage of respondents with increased work hours declined steadily between 2003 and 2006, the levels of dissatisfaction still remain in the lower 40% range for males and the upper 30% range for females.

When these responses are judged against those discussed earlier in the context of the dissatisfaction with the practice environment and one's career objectives in medicine, it seems quite clear that roughly four out of ten physicians — irrespective of gender — are not very pleased with their career situations in Massachusetts.

We can now turn our attention to the final chart in this series in which the survey results on income expectations are analyzed by gender. The data presented in Chart 35 concern income expectations over the next five years. In this chart, the responses are for those physicians who indicated that they expect their future salaries to be below current levels.

CHART 35: PERCENTAGE OF RESPONDENTS WITH FIVE-YEAR SALARY EXPECTATIONS BELOW CURRENT LEVELS, BY GENDER



There are two conclusions that can be derived from the response data; unquestionably, the second is by far the most important.

- It is interesting to note that given the continued pressures to tighten reimbursements, and in light of other cost containment issues, over the five survey years, there has been a rather dramatic decline in the number of male and female physicians expecting lower income levels — simply stated, between 2003 and 2007, less physicians are reporting that they expect their income levels to be below current levels in five years.
- Second, in terms of expectations about future income growth, it is virtually impossible to imagine that any professional occupation would have between one-fifth and one-half of its members believing that their income levels five years hence would be below current levels, but this is the case among male and female physicians currently practicing in Massachusetts. Said another way, even under the most pessimistic conditions, does it seem logical that professionally trained individuals, irrespective of gender, believe that their future income stream at best will remain unchanged? The growth dynamics of the economy almost always lead to rising incomes in all but industries that are in decline. Further, to see such high ratios of physicians expecting their future incomes to decline is nearly incomprehensible, and it certainly makes a very strong statement about the opinions and attitudes of many physicians currently practicing in Massachusetts.

SECTION 8: PATIENT ACCESS TO HEALTH CARE

As Massachusetts attempts to accomplish insuring all of its residents, an adequate physician supply is vitally important. Preventing illnesses and minimizing chronic conditions can lower health care costs and improve quality of life. Therefore, data that lends insight into whether patients have timely access to health care is an essential indicator of the adequacy of the physician workforce supply.

With this in mind, for the fifth year, the 2007 Physician Workforce Study includes data regarding patient access to care and patient opinions on a variety of health care issues. First, the annual MMS survey included a series of five questions on issues surrounding patient access to care from the physician perspective.

Second, to complement those questions, the MMS commissioned two telephone surveys: one of patients and one of physician offices in Massachusetts. Opinion Dynamics Corporation conducted 600 telephone interviews of randomly selected Massachusetts-based physician offices in February and March 2007. The range of interview questions covered issues such as the amount of lapsed time before a new patient appointment could be arranged, whether the physician's panel of patients was open or closed, and other related questions. For this survey, six specialties were selected: cardiology, family practice, internal medicine, OB/GYN, orthopedic surgery, and gastroenterology.

The second survey commissioned by the MMS, also conducted by Opinion Dynamics Corporation, was the fifth annual public opinion survey of 400 adult Massachusetts residents regarding their experiences accessing health care and their opinions on the Massachusetts health care system in general. Interviews were completed by telephone during April 2007. These two additional telephone surveys give a broader perspective on the effect physician supply has on patient access to care and the health care system as a whole.

Tables with data from all four survey years of the public opinion survey can be found in Appendix B. Detailed data related to the physician office survey can be found in Appendix C.

The depth of knowledge on physician shortages is greatly enhanced by using these three surveys, which frequently underscore the same problem areas. Some of the major conclusions among the surveys follow:

- Access to primary care physicians continues to worsen.
- In general, people with lower incomes and without insurance experience more difficulty accessing care.
- Physicians' ability to refer patients to specialists is becoming more problematic.
- Fewer respondents today are able to schedule an appointment with a doctor within a week of calling.
- New patients have longer wait times to see a physician compared to existing patients.

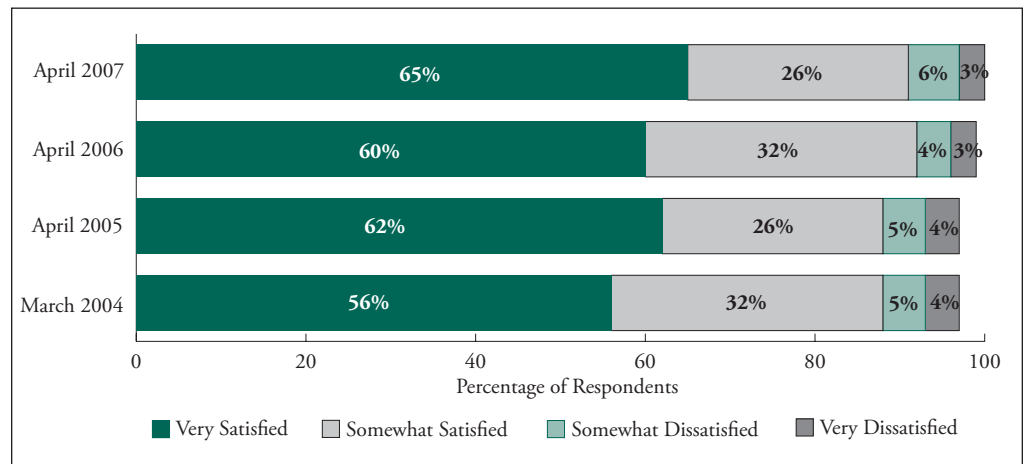
8.1 — Patient Satisfaction: Public Opinion Survey

Based on the 2007 public opinion survey, most Massachusetts residents are satisfied with the care they receive. Nearly two-thirds (65%) of Massachusetts residents report being very satisfied with their care, while 26% report being somewhat satisfied. The percentage of respondents who report being very satisfied has risen in the past few years, from 56% in 2004 to 65% in 2007.

Income and insurance coverage factor into satisfaction with health care. The following data confirm the need currently being addressed by new Massachusetts health care reform to eliminate health care disparities. While most residents are satisfied with their care, a disparity remains between high income individuals (who usually have private insurance) and other residents.

- People who have private health insurance are twice as likely to report being very satisfied with their care when compared with those without insurance (70% vs. 35%).
- Among the few dissatisfied respondents, difficulties in scheduling (26%), insurance issues (24%), the cost of coverage (15%), and bad service (15%) are mentioned most often. Those who are satisfied with the care they received talked about such issues as the promptness of their care (22%), the quality of the doctors (20%), a lack of problems (14%), and good coverage (13%).

CHART 36: HAVE YOU BEEN SATISFIED OR DISSATISFIED WITH THE HEALTH CARE YOU RECEIVED DURING THE LAST 12 MONTHS?



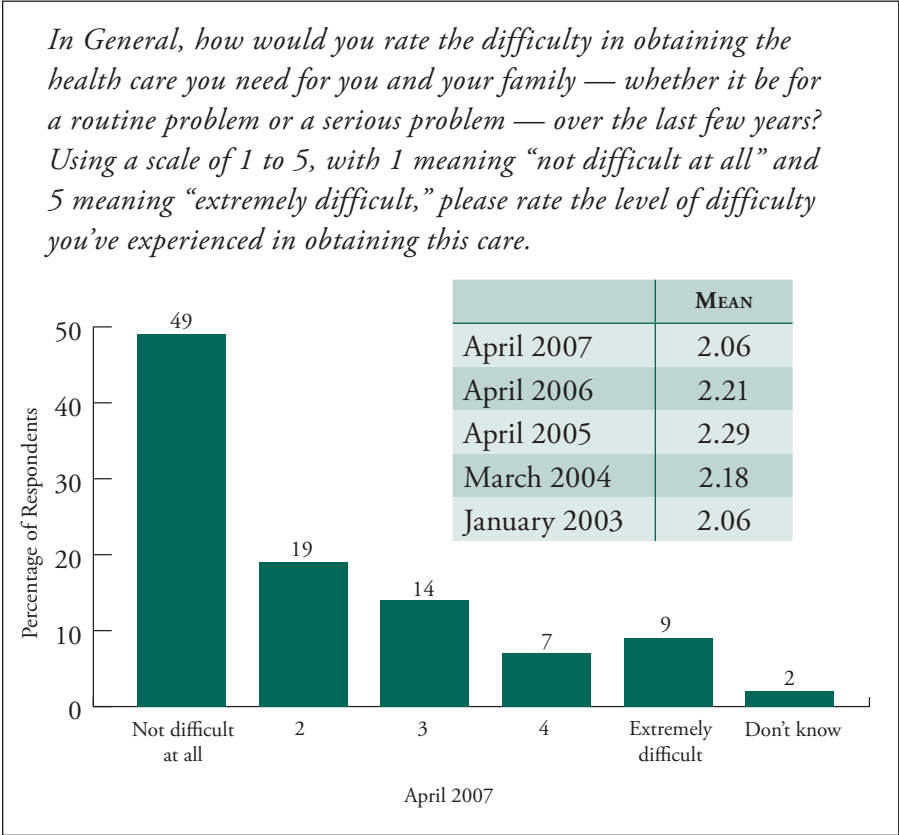
The few dissatisfied respondents were asked what type of office provided their care. Approximately one-third (32%) visited a hospital or clinic, while 26% visited a doctor's office. It should be noted that some respondents who reported dissatisfaction pointed to coverage issues rather than a specific incident as the cause of their dissatisfaction.

8.2 — Problems Accessing Health Care: Public Opinion Survey

When compared with the results of last year's public opinion survey, this year's results indicate that fewer respondents today are able to schedule an appointment with a doctor within a week of calling.

- For example, less than half (42%) of all respondents who made an appointment to see a primary care physician could be seen within a week, down from 53% in 2005 and 2006. The same trend is reported regarding appointments with specialists or when scheduling procedures; fewer people are able to see a physician within a week.
- Those that have the greatest difficulty accessing care are people with household incomes between \$20,000 and \$35,000 per year. People in this income bracket often have jobs that do not provide insurance, yet earn too much to qualify for Medicaid. Thirty-one percent (31%) of respondents with household incomes between \$20,000 and \$35,000 rated their difficulty accessing care as a 4 or a 5, compared with only 14% of other residents. Similarly, 29% of those who did not attend college reported experiencing difficulties.

CHART 37: ABILITY TO ACCESS CARE



Those who reported difficulty with access were also asked who is the most responsible for their problems gaining access. As has been the case in past surveys, the most common response relates to insurance, whether expressed as insurance companies or HMOs (37%). Fifteen percent (15%) blame the government, while 13% blame the economy or economic circumstances and 4% place blame on physicians.

Among those who lack insurance, 38% blame the economy or economic circumstances. Among respondents who have private insurance but still have had problems, the most common response is insurance companies (34%).

CHART 38: RESPONSIBILITY FOR ACCESS-TO-CARE ISSUES

Which one of the following do you believe is most responsible for the problems you've had gaining access to health care?

	APRIL 2007	APRIL 2006	APRIL 2005	MARCH 2004	JANUARY 2003
Insurance companies	23%	20%	25%	32%	25%
Government	15	15	16	15	14
HMOs	14	11	8	16	19
The economy or your economic circumstances	13	12	8	5	--
Physicians	4	5	3	3	4
Hospitals	3	6	5	4	2
Drug companies	2	4	6	3	--
Patients	N/A	1	1	--	1
All of them	16	19	19	17	25
Unsure	9	8	8	5	10

Asked of those who answered "Difficult" (rating of "3, 4 or 5") to Q3 (n=120)

8.3 — Waiting for an Appointment

The public opinion telephone survey found that approximately one in five (21%) respondents were forced to wait to get necessary medical care, roughly the same figure derived from prior surveys. About one-third (35%) of the people who said they experienced delays are uninsured.

The most commonly cited reason for delays is overcrowded doctors' offices (23%), up 13% from last year, followed by scheduling problems (16%), a lack of insurance (12%), and the need to wait for a referral (10%).

Primary Care Physician Visits

As we have consistently found in previous years, the time patients wait for appointments can be an indicator of a strained specialty or, from the patient viewpoint, overcrowded physician offices. Shown in the Table 52 are the average number of days a new or existing patient can be expected to wait to secure an appointment with either of the two principal primary care specialists.

Practicing Physician Satisfaction Survey

TABLE 52: FROM TODAY, HOW LONG (IN DAYS) WOULD A PATIENT HAVE TO WAIT FOR A ROUTINE OR REGULAR OFFICE VISIT?

SPECIALTY	NEW PATIENT			EXISTING PATIENT		
	2007	2006	2005	2007	2006	2005
Family Practice	19.5	25.5	20.7	10.2	12.1	12.0
Internal Medicine	34.4	29.6	33.7	17.1	16.0	15.2
Total Sample	26.2	25.6	26.2	15.4	14.7	15.3

The reason for singling out primary care specialties is that they are usually considered the entry point for medical care as well as the referral source for the more complex system of specialists. These data provide support for three important generalizations:

- First is that across the total sample, the physicians' responses are relatively consistent concerning the number of days a patient will have to wait before securing an appointment. And not surprising is that for a new patient, it takes, on average, 10 days longer to access a physician's care than it does for an existing patient.
- Second is the somewhat surprising conclusion that the lag time to receive an appointment with a family practitioner is somewhat shorter than for the total sample.

The findings above are reinforced by the results of the survey of physician offices and the public opinion survey.

Physician Office Telephone Survey

- Just over half (51%) of internists are accepting new patients, down from 64% in 2006 and 66% in 2005. The average wait time among those accepting new patients is up, as well — to 52 days compared to 33 days in 2006 and 47 days in 2005. In addition, fewer internists are accepting Medicaid — 59% now, down from 73% in 2006 and 79% in 2005.
- Finally, the increased wait times have not caused problems for many patients — similar to prior survey years, this year only 8% say waiting for appointment caused a problem.

Public Opinion Telephone Survey

- According to the public opinion survey, less than one-half (42%) of all respondents who made an appointment to see a primary care physician could be seen within a week, down from 53% in 2005 and 2006. The same trend emerges regarding appointments with specialists or when scheduling procedures. More than one-fifth (21%) had to wait more than a month to receive an appointment with a primary care provider (see Chart 39).
- The most commonly cited reason for delays is overcrowded doctors' offices (23%), up 13% from last year, followed by scheduling problems (16%), a lack of insurance (12%), and the need to wait for a referral (10%).

CHART 39: WAIT TIMES FOR APPOINTMENTS

Please think back to your last visit to a primary care physician. How long did you have to wait between the time you made an appointment and the day you actually saw the doctor?

	APRIL 2007	APRIL 2006	APRIL 2005	MARCH 2004	JANUARY 2003
A few days	34%	44%	45%	18%	26%
More than a few days, but less than a week	8	9	8	10	6
Between one and two weeks	17	10	12	14	14
Between two and three weeks	5	3	6	7	8
Between three weeks and one month	6	5	6	9	8
Between one and two months	6	7	6	12	11
Between two and three months	5	6	3	8	7
More than three months	10	10	7	15	13
Don't remember	5	5	5	5	5
Refused	4	2	2	2	2

Specialist Visits

As demonstrated throughout this study, many specialties continue to show labor market stress. As a result, the practicing physician, public opinion, and physician office surveys asked a variety of questions to gather data regarding how long patients wait for appointments and how difficult it is to refer patients to specialists. The amount of time a patient must wait for an appointment is an indicator of difficulty accessing care, especially when the medical problem is serious. Shown in Table 53 are the average wait times required to obtain an appointment with a specialist. Note that these times are expressed in terms of days and are from the perspective of the physicians currently practicing in the 12 specialties included in the survey.

Practicing Physician Survey

TABLE 53: FROM TODAY, HOW LONG (IN DAYS) WOULD A PATIENT HAVE TO WAIT FOR A ROUTINE OR REGULAR OFFICE VISIT?

	NEW PATIENT			EXISTING PATIENT		
SPECIALTY	2007	2006	2005	2007	2006	2005
Anesthesiology*	33.7	22.6	30.1	24.6	14.7	19.4
Cardiology*	24.8	28.9	21.8	19.7	20.6	12.9
Gastroenterology*	33.6	37.0	39.1	23.9	19.0	24.3
General Surgery*	8.9	12.0	9.8	8.1	7.8	6.6
Neurosurgery*	21.7	43.3	38.1	18.3	23.2	27.7
OB/GYN	40.4	25.6	35.2	29.3	20.1	25.4
Orthopedics*	18.4	20.5	23.2	10.7	12.6	11.1
Pediatrics	25.1	21.6	24.7	17.2	15.7	20.9
Psychiatry	24.2	23.2	18.8	9.6	9.1	8.3
Radiology*	7.0	10.1	5.4	6.4	9.1	8.3
Urology [†]	23.7	--	--	23.0	--	--
Vascular Surgery	23.2	18.0	16.7	12.0	8.8	9.5
Total Sample	26.2	25.6	26.2	15.4	14.7	15.3

*Specialties classified as operating in critically/severe labor market conditions in at least four of the last six years

[†]2007 data only

Again, a number of different conclusions emerge, each depending on one's interest in a particular specialty; but two interesting generalizations can be made about these responses:

- First, in 2007, for new patients there is a somewhat longer wait time in three specialties — anesthesiology, gastroenterology, and OB/GYN. Two of these specialties currently operate in very stressed labor markets (anesthesiology and gastroenterology).
- Second is that in only one specialty — gastroenterology — were the number of wait days for new patients longer than the sample means for all three years.

From a different perspective, the 2007 practicing physician survey included a question about whether practicing physicians noticed any difficulty in their patients receiving timely consultation with specialty care physicians. The survey results are shown in Table 54. Note that the ratios displayed in this table are for those physicians who indicated that they experienced difficulty making referrals.

Practicing Physician Survey

TABLE 54: PERCENTAGE OF PHYSICIANS WHO REPORTED DIFFICULTY MAKING TIMELY REFERRALS TO SPECIALTY CARE PHYSICIANS

SPECIALTY	2007	2006	2005
Anesthesiology	56%	41%	55%
Cardiology	60	48	47
Family Practice	82	76	79
Gastroenterology	46	70	53
General Surgery	57	63	68
Internal Medicine	78	71	78
Neurosurgery	68	64	69
OB/GYN	56	48	52
Orthopedics	58	79	58
Pediatrics	82	82	83
Psychiatry	64	69	56
Radiology	20	46	57
Urology*	89	--	--
Vascular Surgery	79	67	59
Sample Mean	72%	70%	70%

**2007 data only*

Again, several explanatory comments will be helpful in interpreting the results:

- The obvious and most important conclusion is that over the three years this question was included in the MMS survey, seven out of ten physicians indicated that they experienced difficulty making timely referrals.
- While many of the responses over the three survey years moved in a “saw tooth” fashion — ups and downs that probably reflect variations in the year-to-year sample response rates — it is important to note that among two specialties, cardiology and vascular surgery, progressively higher ratios of physicians have reported difficulty.
- Although urology was first introduced into the MMS survey in 2007, it is interesting to note that, at 89%, urologists reported the most difficulty securing timely consultation.

8.4 — Access to Specialists from the Patient Perspective

In order to gain a patient perspective of access to specialists, Opinion Dynamics Corporation included questions related to specialist visits in the public opinion and physician office telephone surveys.

In the public opinion survey, respondents who visited a cardiologist, orthopedist, gastroenterologist, OB/GYN, or who had a colonoscopy or mammogram in the past three years were asked about the wait time between making the appointment and seeing the doctor, and whether the wait caused a problem. Table 55 summarizes experiences with various types of specialty visits.

Public Opinion Telephone Survey

TABLE 55: ACCESS TO SPECIALISTS — PATIENT PERSPECTIVE, 2007				
SPECIALIST/PROCEDURE	VISITED OR HAD PROCEDURE	LESS THAN ONE-WEEK WAIT	MORE THAN TWO-WEEK WAIT	WAIT CAUSED PROBLEM
Cardiologist	20%	31%	36%	1%
Orthopedist	28	28	32	17
Gastroenterologist	20	19	45	7
OB/GYN*	39	19	52	7
Colonoscopy	33	8	57	1
Mammogram*	77	14	52	3

*Asked only of women

Some important conclusions can be derived from this data:

- For the first time since 2003, less than one-half (43%) of all of the respondents reported being able to see a doctor in a few days or less. Eighteen percent (18%) say they had to wait one to two weeks (up from 11% a year ago), and one-quarter (25%) had to wait more than two weeks for an appointment.
- In the past year, the number of respondents who said that wait times were a problem in these circumstances has increased; 17% of respondents who have had to take care of a serious but non-life threatening medical problem say the wait for an appointment was a problem, up from 7% in the previous two surveys.
- In the majority of cases (64%), respondents said the wait was a result of the doctor not being able to see the patient sooner. In most other cases (23%), patients said their own schedule made it hard to see the doctor sooner.

8.5 — Access to Care: Barriers for New Patients

In order to determine the availability of care for patients when physician offices close their panels, the 2007 MMS practicing physician survey and the Opinion Dynamics physician office telephone survey included specific questions on this matter. The relevant responses from the practicing physician survey are shown in Table 56.

TABLE 56: IS YOUR PANEL OF PATIENTS OPEN OR CLOSED? IF CLOSED, FOR HOW LONG?

	OPEN PANEL			CLOSED PANEL			IF CLOSED, AVERAGE NUMBER OF MONTHS		
SPECIALTY	2007	2006	2005	2007	2006	2005	2007	2006	2005
Anesthesiology	100%	97%	98%	0%	3%	2%	--	--	--
Cardiology	83	90	93	17	10	7	31.2	4.0	15.0
Family Practice	68	75	64	32	25	36	46.7	26.3	20.8
Gastroenterology	97	86	87	3	14	13	--	--	19.6
General Surgery	97	97	98	3	3	2	--	--	--
Internal Medicine	56	69	64	44	31	36	36.2	22.8	30.3
Neurosurgery	93	94	93	7	6	7	--	8.5	12.0
OB/GYN	92	97	93	8	3	7	24.0	3.0	3.7
Orthopedics	98	100	100	2	0	0	--	--	--
Pediatrics	85	90	89	15	10	11	45.1	7.0	23.3
Psychiatry	75	74	81	25	26	19	12.4	12.1	11.1
Radiology	80	95	97	20	5	3	--	--	6.0
Urology*	100	--	--	0	--	--	--	--	--
Vascular Surgery	100	100	100	0	0	0	--	--	--
Sample Mean	77%	82%	81%	23%	18%	19%	32.6	19.7	24.0

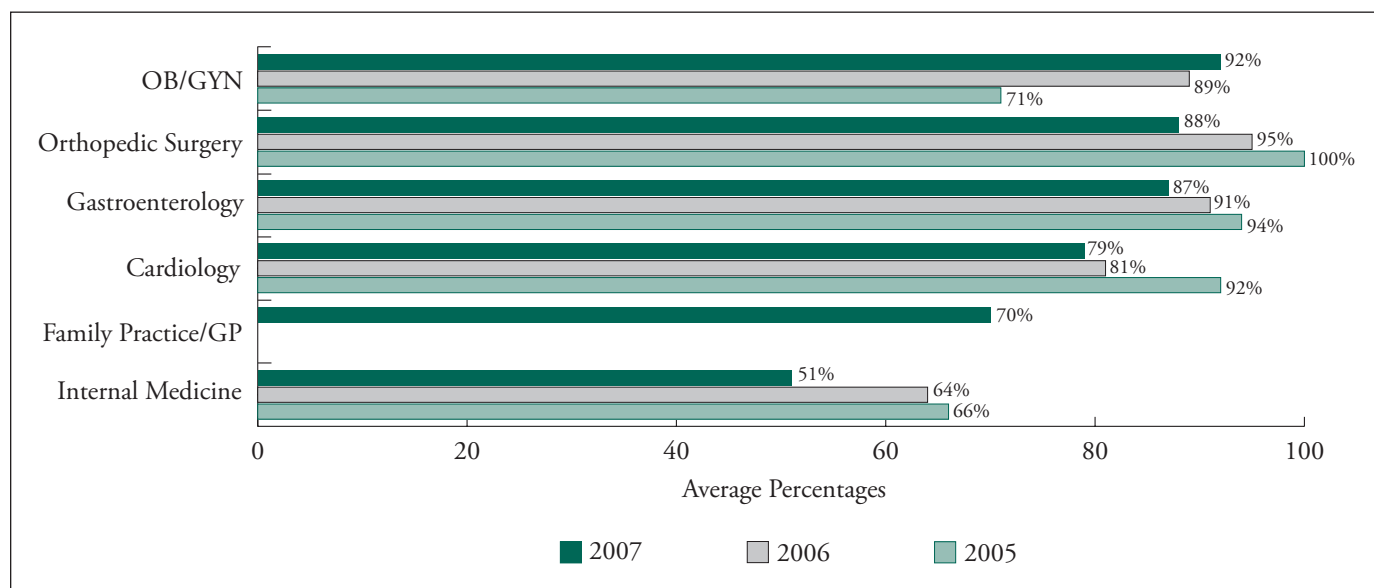
*2007 data only

A review of these data show that the vast proportion of physicians currently practicing in Massachusetts continue to operate with open patient panels. There are only three notable exceptions to this; these are the physicians in the following specialties: family practice, internal medicine, and psychiatry. And not surprising is that these specialties have very long wait times before their practices would be open to new patients. Recall that these three specialties are the ones currently experiencing the tightest labor markets. Further, inasmuch as the wait times for all three specialties have increased over the three MMS survey years, it is very clear that the labor markets are becoming even tighter over time.

The physician office telephone survey findings are shown over three years in Chart 40.

Note that this is the first year family practice offices were surveyed. The trend for all of the specialties tracked from 2005 to 2007 is that fewer new patients are being accepted. Internal medicine and family practice show the lowest rate of accepting new patients, which is not surprising considering the data gleaned from the practicing physician survey also found these two specialties to have long wait times for new patients. The only exception is the rate of accepting new patients for OB/GYN, which has increased over the three years.

CHART 40: ACCEPTING NEW PATIENTS



8.6 — Wait Times by County and Specialty: Physician Office Telephone Survey

The telephone survey of physician offices asked whether physicians were accepting new patients, and if so, what the wait time would be to obtain an appointment. The following data disaggregates the wait times for each specialty by county with detailed data on each county in Table 57.

Cardiology

When grouped by county, the shortest average wait time is 13 days in Berkshire, while the longest average wait time is 54 days in Worcester County.

Family Practice/General Practitioner

This is the first year this specialty was included in the study. The shortest average wait time is 12 days in Berkshire County, while the longest average wait time is 66 days in Bristol County.

Gastroenterology

The longest average wait time is 53 days in Middlesex County, and the shortest average wait time is 12 days in Hampshire County.

Internal Medicine

The longest average wait time is 109 days in Bristol County, and the shortest average wait time is 21 days in Hampden.

OB/GYN

The shortest average wait time is 33 days in Hampshire County.

The longest average wait time is 119 days in Berkshire County.

Orthopedic Surgery

The shortest average wait time is in Franklin County (11 days), while the longest average wait time is in Suffolk County (47 days).

Table 57 shows the average wait time for a new patient to get an appointment with a specialist in each county.

TABLE 57: AVERAGE WAIT TIMES (IN NUMBER OF DAYS) BY COUNTY						
COUNTY	CARDIOLOGY	GASTROENTEROLOGY	INTERNAL MEDICINE	OB/GYN	ORTHOPEDIC SURGERY	FAMILY PRACTICE/ GENERAL PRACTITIONER
Barnstable	24	15	N/A	65	22	33
Berkshire	13	22	39	119	27	12
Bristol	37	24	109	79	23	66
Dukes	N/A	N/A	N/A	N/A	N/A	1
Essex	23	34	51	37	14	41
Franklin	N/A	N/A	N/A	N/A	11	22
Hampden	33	45	94	47	22	19
Hampshire	22	12	21	33	14	27
Middlesex	17	53	66	39	18	30
Norfolk	22	22	40	52	15	25
Plymouth	28	17	64	36	15	28
Suffolk	31	31	44	54	47	25
Worcester	54	43	28	36	17	53

8.7 — Public Opinion Telephone Survey: Cost Barriers to Accessing Care

The cost of health care continues to be seen as the biggest issue facing Massachusetts residents. As was true in the past three studies, more people mention cost and affordability than any other as the most important health care issue. Nearly one-third (31%) of respondents cite cost as the most important issue, while an additional 9% mention the cost of insurance. Sixteen percent (16%) mention either the uninsured or a desire for universal care as the most important issue. None of these figures have changed significantly in the past two years.

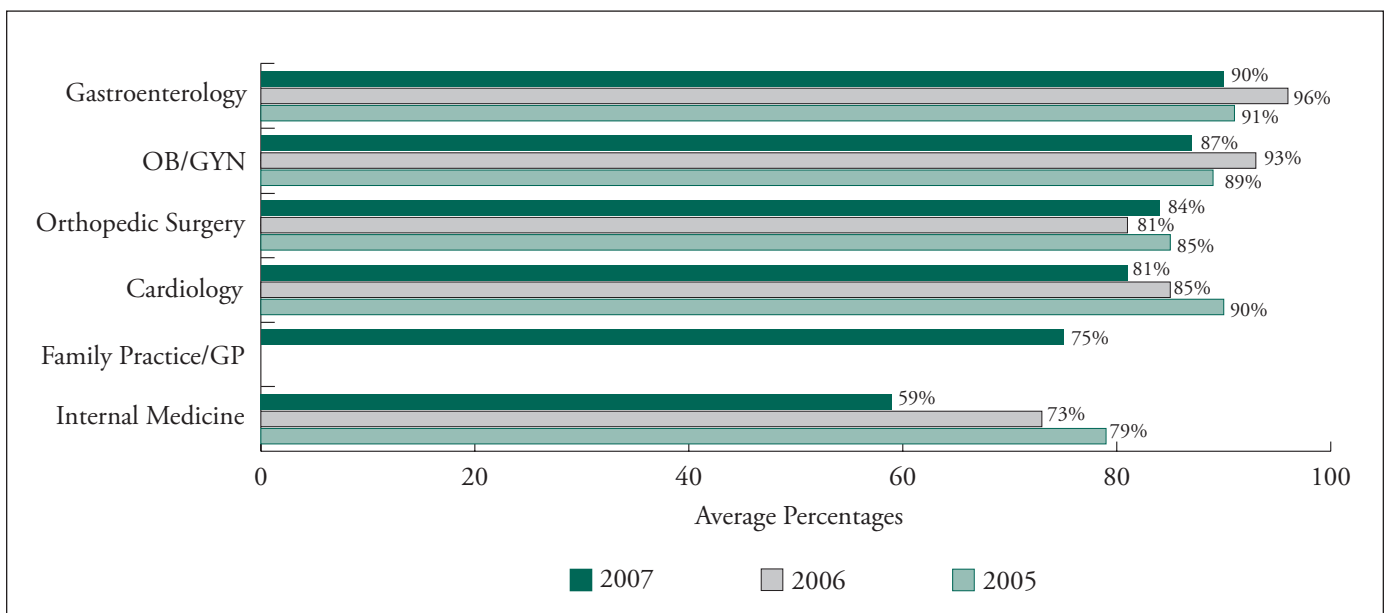
Most residents believe access to timely, cost-effective care is very important. This data has remained stable since 2003. When asked to rate the importance of access to health care on a 1 to 5 scale, with 1 meaning not

important at all and 5 meaning extremely important, the mean response is 4.41; nearly two-thirds (64%) give this issue the highest rating for importance. Once again, perceptions around the importance of access to care have changed little since the question was first asked in 2003.

8.8 — Physicians Accepting Medicaid: Massachusetts Compared to the Nation (Physician Office Telephone Survey)

Chart 41 shows the average percentages of offices that reported accepting Medicaid in 2005, 2006, and 2007.

CHART 41: PHYSICIAN OFFICE TELEPHONE SURVEY: ACCEPT MEDICAID?



In Massachusetts, physicians are typically extremely willing to accept Mass Health (Medicaid) patients and the corresponding low reimbursements.

This year, there is a significant drop in internal medicine physicians who accept MassHealth from 73% to 59%. This dramatic drop could be a statistical anomaly, or it could be symptomatic of the strained business environment in primary care. However, a large percentage (approximately 75% or more in five of six specialties) continues, for the third year in a row, to accept MassHealth patients. One conclusion that can be reached is that Massachusetts physicians are socially conscientious and care for patients regardless of their ability to pay. When measured against the Merritt, Hawkins & Associates “2004 National Survey of Patient Wait Times,”

in which Medicaid acceptance rates across the country were 50%, 60%, and 44 % for cardiology, OB/GYN, and orthopedic surgery respectively, Massachusetts is far above the national average.

8.9 — Public Policy: Public Opinion Survey

For five years now, the public opinion survey has gauged reactions to public policy actions that could be or are being undertaken to address the medical access issue.

- Nearly three-quarters (74%) of residents oppose higher copays based on insurers' internal quality and cost ratings. While we only asked one question on this topic, the overwhelming opposition we found to using internal insurers' ratings for determining copays indicates that this is an idea that the public is unlikely to embrace.
- As we have seen in the past, a majority of the public opposes requiring patients to pay a larger portion of their medical costs through higher copays and deductibles. Over half (54%) of all respondents are strongly opposed this idea, while 17% are somewhat opposed to it. At the same time, the percentage of respondents who strongly oppose the idea has dropped in the past year, from 65% in 2006 to 54% in 2007.
- College graduates are less likely to be opposed to this idea than are people who do not have a college degree. While nearly two-thirds (66%) of people without a college degree strongly oppose the idea of requiring patients to pay a larger share of their medical costs, the same is true of 44% of those with a college degree.
- Finally, respondents were asked if they are aware that a variety of sources began posting information regarding the quality and cost of care provided by medical groups and some individual physicians. Approximately one-third (32%) of respondents responded that they are aware this information is available. Over half (54%) of the respondents said they are very or somewhat likely to use this information now that they know it is available; 24% are very likely, and 30% are somewhat likely.

SECTION 9: CONCLUSIONS AND POLICY CONSIDERATIONS

The Massachusetts Medical Society's six consecutive years of data from its comprehensive Physician Workforce Studies show that many specialties, including primary care, continue to demonstrate extreme stress.

The stakes are high. The success of the renowned health care reform effort, Chapter 58, depends in part on the existence of an adequate number of physicians to care for the thousands of new people who will now have better access to the Commonwealth's extraordinary health care resources. Without enough physicians, promise of universal coverage becomes illusory.

Some of the causes of these shortages are endemic to the region's economic fabric, such as high housing and energy costs. These complex issues are being addressed in many sectors of the community, and are beyond the scope of this report. But resolving some of the other causes of these shortages are well within the purview of the Commonwealth's political, business, and health care leaders.

Focus on Physician Workforce Development

Work with stakeholders to ensure a robust physician workforce. There are acute shortages in such specialties as anesthesia, cardiology, gastroenterology, and neurosurgery, and a significantly growing problem in primary care. While there is need for resolution across specialties, good coordination of care through primary care physicians is essential in order to delivery quality, cost-effective care. Many groups, particularly the American College of Physicians and its Advanced Medical Home, have proposed promising new models for delivering health care today. These and other approaches must be examined and pilots implemented to determine if these ideas have merit. Without careful workforce planning now across the physician workforce marketplace, Massachusetts will suffer at exactly the time it moves to increase access to care through new insurance models.

Medical Education Debt Reduction

Work with all stakeholders to ensure a robust physician workforce by introducing new legislation that allows for medical education debt reduction for those who commit to a yet-to-be-determined number of years of clinical practice in Massachusetts.

Administrative Simplification

Reduce the overwhelming administrative burden on physician practices — a burden that has placed undue economic stress on physician practices, which, in turn, has placed limits on time spent caring for patients. Policymakers must also ensure that the ongoing efforts to measure and report on the quality and cost of health care do not add to these administrative burdens.

APPENDIX A: SAMPLE CHARACTERISTICS AND RESPONDENT PROFILES

The following table summarizes the response rates for each of the surveys.

SURVEY TYPE	NUMBER OF SURVEYS MAILED*	COMPLETED	RESPONSE RATE
Practicing Physicians	7,145	1,295	18.1%
Department Chiefs at Teaching Hospitals	116	65	56.0
Medical Staff Presidents at Community Hospitals	68	35	51.5
Chief Medical Officers/ Medical Directors of Medical Groups	75	15	20.0
Resident Program Directors	110	60	54.5

**Excludes returned mail*

Survey of Practicing Physicians

The overall response rate for the practicing physician survey was 18.1% (N=1,295). The following tables show the profiles of the respondents.

RESPONDENT PROFILES	
SPECIALTY	PERCENT
Anesthesiology	4.5
Cardiology	3.4
Emergency Medicine	4.5
Family Practice	9.0
Gastroenterology	2.9
General Surgery	5.3
Internal Medicine	27.0
Neurology/Neurosurgery	1.5
OB/GYN	5.4
Orthopedics	5.2
Pediatrics	13.6
Psychiatry	15.1
Radiology	8
Urology	8
Vascular Surgery	1.2

GENDER	PERCENT
Male	64.7
Female	35.3

AGE GROUP	PERCENT
<40	18.1
40–49 years	27.5
50–59 years	29.5
60>	24.9

GEOGRAPHIC LOCATION	PERCENT
Boston	68.7
New Bedford/Fall River/Barnstable	8.4
Pittsfield	2.8
Springfield	10.0
Worcester	10.1

APPENDIX B: PUBLIC OPINION POLL — TELEPHONE SURVEY OF MASSACHUSETTS RESIDENTS, APRIL 2007

1. WHAT DO YOU THINK IS THE SINGLE MOST IMPORTANT HEALTH CARE ISSUE FACING MASSACHUSETTS TODAY?

ISSUE	APRIL 2007	APRIL 2006	APRIL 2005
Cost of health care/Affordability	31%	30%	38%
The uninsured/Lack of insurance	9	15	14
Cost of insurance	9	10	1
Access to health care/Availability/ Qualifying	7	4	9
Want universal care	7	--	2
Insurance coverage/health care	5	2	2
Cost of prescription drugs/ medication	5	8	7
Name of affliction — cancer, AIDS, obesity, etc.	4	3	3
Elderly care/issues	4	8	5
Quality of care/Service/ Find doctors	2	3	1
Doctor shortage/leaving field	1	1	1
Stem cell research	--	--	1
ER issues	--	--	1
None/Nothing	--	--	--
(Other)	6	4	4
(Don't know/Refused)	12	14	15

2. ONE ISSUE SOME PEOPLE SAY IS IMPORTANT IS *ACCESS* TO HEALTH CARE — THAT IS, THE DEGREE TO WHICH PEOPLE CAN FULFILL THEIR MEDICAL NEEDS IN A TIMELY, COST-EFFECTIVE, AND EFFICIENT MANNER. ON A SCALE OF 1 TO 5, WHERE 1 MEANS NOT IMPORTANT AT ALL, AND 5 MEANS EXTREMELY IMPORTANT, PLEASE RATE HOW IMPORTANT YOU FEEL THIS ASPECT OF THE HEALTH CARE SYSTEM IS.

SURVEY YEAR	MEAN	1	2	3	4	5	(DK)
April 2007	4.41	3%	3%	9%	19%	64%	2%
April 2006	4.47	3	3	10	15	69	1
April 2005	4.50	3	2	11	10	73	2
March 2004	4.42	2	5	9	19	64	1
January 2003	4.46	3	3	8	16	69	1

3. IN GENERAL, HOW WOULD YOU RATE THE DIFFICULTY YOU EXPERIENCE *OBTAINING* THE HEALTH CARE YOU NEED FOR YOU AND YOUR FAMILY — WHETHER IT BE FOR A ROUTINE PROBLEM OR A SERIOUS PROBLEM — OVER THE LAST FEW YEARS? ON A SCALE OF 1 TO 5, WHERE 1 MEANS NOT DIFFICULT AT ALL, AND 5 MEANS EXTREMELY DIFFICULT, PLEASE RATE THE LEVEL OF DIFFICULTY YOU’VE EXPERIENCED IN OBTAINING THIS CARE.

SURVEY YEAR	MEAN	1	2	3	4	5	(DK)
April 2007	2.06	49%	19%	14%	7%	9%	2%
April 2006	2.21	48	15	15	9	12	1
April 2005	2.29	45	15	17	7	15	2
March 2004	2.18	46	17	18	9	9	1
January 2003	2.06	49	16	16	10	7	2

4. SPECIFICALLY, WHY DO YOU FEEL THAT WAY?

REASON	APRIL 2007	
	NOT DIFFICULT (1, 2)	DIFFICULT (3, 4, 5)
Good access to care/Easy to get appointment	27%	2%
Good health insurance/Good coverage plan	22	4
No problems	17	2
Have insurance/health care	17	4
Cost high/Too high	3	21
Bad access/Can't get appointment	4	19
Bad/limited coverage	2	12
Don't have it/Not provided at work/Out of work	--	12
Good doctor(s)	3	1
Healthy/Not sick/Lucky to feel well	4	--
Relates condition or treatment experience	1	7
Not easy/Can't find good/right doctor/plan	--	8
Process/Paperwork bad	1	4
Affordable	2	--
Referrals tough/Referrals to specialist	1	3
Concerned about others	1	2
Cost of medication/prescriptions	1	--
Elderly/Medicare/Medicaid	--	1
Self/spouse insurance through work	--	--
(Other)	4	8

5. [IF RESPONSES 3, 4, 5 TO Q3] WHICH ONE OF THE FOLLOWING DO YOU BELIEVE IS MOST RESPONSIBLE FOR THE PROBLEMS YOU'VE HAD GAINING ACCESS TO HEALTH CARE?

RESPONSIBLE PARTY	APRIL 2007	APRIL 2006	APRIL 2005	MARCH 2004	JANUARY 2003
Insurance companies	23%	20%	25%	32%	25%
Government	15	15	16	15	14
HMOs	14	11	8	16	19
The economy or your economic circumstances	13	12	8	5	--
Physicians	4	5	3	3	4
Hospitals	3	6	5	4	2
Drug companies	2	4	6	3	--
Patients	N/A	1	1	--	1
(All of them)	16	19	19	17	25
(Unsure)	9	8	8	5	10

6. WAS THERE ANY TIME DURING THE PAST 12 MONTHS WHEN YOU WAITED TO GET MEDICAL CARE YOU THOUGHT YOU NEEDED?

ANSWER	APRIL 2007	APRIL 2006	APRIL 2005	MARCH 2004*	JANUARY 2003*
Yes, waited to get care	21%	18%	17%	22%	29%
No, did not wait to get care	79	81	82	78	70
(Not sure)	1	1	1	--	1

**Was there any time during the past 12 months when you either put off or waited to get medical care you thought you needed?*

7. [IF YES] WHAT WAS THE PRIMARY REASON YOU WAITED TO GET THAT MEDICAL CARE?

REASON	APRIL 2007
Overcrowded office/Didn't wait/Office backed up	23%
Scheduling problem	16
No insurance/Limited coverage	12
Wait for specialist/referral	10
Cost of treatment/Finances	8
Held up by insurance company/system	7
Time/Convenience	5
Don't like doctor/Don't want to see	1
(Other)	13
(Don't know)	5
(Refused)	1

**8. ALL THINGS CONSIDERED, HAVE YOU BEEN SATISFIED OR DISSATISFIED WITH THE HEALTH CARE YOU HAVE RECEIVED DURING THE LAST 12 MONTHS?
[IF SATISFIED OR DISSATISFIED] IS THAT VERY, OR SOMEWHAT?**

DEGREE OF SATISFACTION	APRIL 2007	APRIL 2006	APRIL 2005	MARCH 2004
Very satisfied	65%	60%	62%	56%
Somewhat satisfied	26	32	26	32
Somewhat dissatisfied	6	4	5	5
Very dissatisfied	3	3	4	4
(Don't know)	1	3	4	3

SPECIFICALLY, WHY ARE YOU (SATISFIED/DISSATISFIED) WITH YOUR CARE?

REASON	SATISFIED	DISSATISFIED
Prompt/See when needed	22%	--%
Positive comments about doctors(s)	20	1
No problems/Satisfied/Needs met	14	--
Good plan/Coverage	13	8
Get good care	12	--
Long wait/Hard to schedule	5	26
Cost of coverage	4	15
No major illness/Good health	4	3
Insurance co/paperwork/hassles	2	24
Lack of care/Bad service	2	15
Good hospitals/facilities	2	--
Poor/Limited coverage	1	12
Easy to get referrals	2	--
Difficult to get things done	1	3
Not enough time with doctor	1	3
Difficult to get referrals	1	--
Can afford it	1	--
Expensive prescriptions	1	--
Bad doctors/staff	--	3
(Other)	2	3
(Don't know)	7	6
(Refused)	1	2

10. [IF DISSATISFIED] IN WHAT KIND OF OFFICE OR LOCATION DID YOU GET UNSATISFACTORY CARE?

PROVIDER	APRIL 2007
Hospital/clinic	32%
Doctor's office	26
(Other)	21
(Don't know)	21

11. HAVE YOU HAD AN APPOINTMENT WITH A PRIMARY CARE PHYSICIAN IN THE LAST YEAR?

ANSWER	APRIL 2007	APRIL 2006	APRIL 2005	MARCH 2004*	JANUARY 2003*
Yes	89%	83%	85%	77%	83%
No	11	18	16	22	16
(Not sure)	--	--	--	1	1

**Have you had a routine doctor's appointment in the last year?*

12. [IF YES] PLEASE THINK BACK TO YOUR LAST VISIT TO A PRIMARY CARE PHYSICIAN. HOW LONG DID YOU HAVE TO WAIT BETWEEN THE TIME YOU MADE THE APPOINTMENT AND THE DAY YOU ACTUALLY SAW THE DOCTOR?

WAIT TIME	APRIL 2007	APRIL 2006	APRIL 2005	MARCH 2004*	JANUARY 2003*
A few days	34%	44%	45%	18%	26%
More than a few days, but less than one week	8	9	8	10	6
Between one and two weeks	17	10	12	14	14
Between two and three weeks	5	3	6	7	8
Between three weeks and one month	6	5	6	9	8
Between one and two months	6	7	6	12	11
Between two and three months	5	6	3	8	7
More than three months	10	10	7	15	13
(Don't remember)	5	5	5	5	5
(Refused)	4	2	2	2	2

**Please think back to your last doctor's appointment. How long did you have to wait between the time you made the appointment and the day you actually saw the doctor?*

13. [IF GREATER THAN A FEW DAYS] WAS THE DELAY IN SEEING THE DOCTOR PRIMARILY DUE TO:

REASON	APRIL 2007	APRIL 2006	APRIL 2005	MARCH 2004
The inability of the doctor to see you sooner	50%	51%	47%	49%
Your own schedule making it hard to see the doctor sooner	27	27	39	28
Because financial or insurance issues made it hard to schedule	2	2	2	2
(Not sure)	21	20	12	21

14. WAS THE LENGTH OF TIME YOU HAD TO WAIT FOR AN APPOINTMENT A PROBLEM FOR YOU OR NOT?

ANSWER	APRIL 2007	APRIL 2006	APRIL 2005
Yes	8%	9%	8%
No	92	90	91
(Not sure)	--	1	1

15. DURING THE PAST YEAR, HAVE YOU HAD A MEDICAL APPOINTMENT IN WHICH YOU SAW A NURSE, A NURSE PRACTITIONER, OR A PHYSICIAN ASSISTANT, BUT DID NOT SEE A DOCTOR?

ANSWER	APRIL 2007
Yes, nurse	5%
Yes, nurse practitioner	26
Yes, physician assistant	8
Yes, not a doctor but don't know who it was	2
No	58
(Not sure)	2

16. [IF YES] DID YOU MAKE THIS APPOINTMENT BY CHOICE, OR BECAUSE YOU COULDN'T GET AN APPOINTMENT WITH A MEDICAL DOCTOR?

ANSWER	APRIL 2007
By choice	53%
Couldn't get an appointment with a medical doctor	35
Didn't know I wasn't going to see a medical doctor until the appointment	6
(Not sure)	6

17. HAVE YOU HAD A DOCTOR'S APPOINTMENT IN THE LAST YEAR TO TAKE CARE OF A SERIOUS, BUT NON-LIFE THREATENING MEDICAL PROBLEM?

ANSWER	APRIL 2007	APRIL 2006	APRIL 2005	MARCH 2004	JANUARY 2003
Yes	46%	39%	40%	42%	46%
No	54	62	60	58	53
(Not sure)	--	--	1	--	1

18. [IF YES] PLEASE THINK BACK TO YOUR LAST DOCTOR'S APPOINTMENT FOR A SERIOUS BUT NON-LIFE THREATENING MEDICAL PROBLEM. HOW LONG DID YOU HAVE TO WAIT BETWEEN THE TIME YOU MADE AN APPOINTMENT AND THE DAY YOU ACTUALLY SAW THE DOCTOR?

WAIT TIME	APRIL 2007	APRIL 2006	APRIL 2005	MARCH 2004	JANUARY 2003
A few days	43%	53%	53%	54%	55%
More than a few days, but less than one week	8	6	8	14	8
Between one and two weeks	18	11	8	9	13
Between two and three weeks	4	7	4	2	6
Between three weeks and one month	6	5	7	6	4
Between one and two months	8	5	4	7	4
Between two and three months	2	4	3	3	3
More than three months	5	2	3	3	3
(Don't remember)	3	3	6	1	2
(Refused)	2	3	4	1	2

19. [IF GREATER THAN A FEW DAYS] WAS THE DELAY IN SEEING THE DOCTOR PRIMARILY DUE TO:

REASON	APRIL 2007	APRIL 2006	APRIL 2005	MARCH 2004
The inability of the doctor to see you sooner	64%	60%	65%	67%
Your own schedule making it hard to see the doctor sooner	23	26	21	21
Because financial or insurance issues made it hard to schedule	3	3	5	1
(Not sure)	9	11	9	11

20. WAS THE LENGTH OF TIME YOU HAD TO WAIT FOR AN APPOINTMENT A PROBLEM FOR YOU OR NOT?

ANSWER	APRIL 2007	APRIL 2006	APRIL 2005
Yes	17%	7%	7%
No	82	91	90
(Not sure)	1	2	4

Over the last three years have you scheduled an office visit with each of the following specialists?

21. CARDIOLOGIST — A HEART DOCTOR

ANSWER	APRIL 2007	APRIL 2006	APRIL 2005
Yes	20%	16%	17%
No	79	84	83
(Not sure)	1	--	--

22. ORTHOPEDIST — A DOCTOR WHO TREATS DISEASES AND INJURIES DEALING WITH BONES AND MUSCLES

ANSWER	APRIL 2007	APRIL 2006	APRIL 2005
Yes	28%	21%	20%
No	72	79	81
(Not sure)	--	--	--

23. GI — A GASTROENTEROLOGIST — A DOCTOR WHO TREATS THE DIGESTIVE SYSTEM, INCLUDING STOMACH AILMENTS, AND PERFORMS COLONOSCOPIES

ANSWER	APRIL 2007	APRIL 2006	APRIL 2005
Yes	20%	17%	16%
No	79	83	84
(Not sure)	1	1	1

24. AN OB/GYN (WOMEN ONLY)

ANSWER	APRIL 2007	APRIL 2006	APRIL 2005
Yes	39%	40%	47%
No	61	59	53
(Not sure)	--	1	--

25. [IF YES TO Q21] APPROXIMATELY HOW LONG DID YOU HAVE TO WAIT BETWEEN THE TIME YOU MADE AN APPOINTMENT WITH YOUR CARDIOLOGIST'S OFFICE AND THE DAY YOU ACTUALLY SAW THE DOCTOR?

WAIT TIME	APRIL 2007	APRIL 2006	APRIL 2005
Less than a week	31%	38%	38%
Between one and two weeks	23	14	26
Between two weeks and a month	17	10	9
Between one and two months	4	5	7
More than two months	15	19	10
(Not sure)	10	14	10

26. [IF YES TO Q21] WAS THE LENGTH OF TIME YOU HAD TO WAIT FOR THIS APPOINTMENT A PROBLEM FOR YOU OR NOT?

ANSWER	APRIL 2007	APRIL 2006	APRIL 2005
Yes	1%	8%	1%
No	99	90	97
(Not sure)	--	2	1

27. [IF YES TO Q22] APPROXIMATELY HOW LONG DID YOU HAVE TO WAIT BETWEEN THE TIME YOU MADE AN APPOINTMENT WITH YOUR ORTHOPEDICS' OFFICE AND THE DAY YOU ACTUALLY SAW THE DOCTOR?

WAIT TIME	APRIL 2007	APRIL 2006	APRIL 2005
Less than a week	28%	39%	31%
Between one and two weeks	33	18	22
Between two weeks and a month	17	18	24
Between one and two months	10	9	15
More than two months	5	9	1
(Not sure)	7	7	6

28. [IF YES TO Q22] WAS THE LENGTH OF TIME YOU HAD TO WAIT FOR THIS APPOINTMENT A PROBLEM FOR YOU OR NOT?

ANSWER	APRIL 2007	APRIL 2006	APRIL 2005
Yes	17%	20%	22%
No	81	77	77
(Not sure)	2	4	1

29. [IF YES TO Q23] APPROXIMATELY HOW LONG DID YOU HAVE TO WAIT BETWEEN THE TIME YOU MADE AN APPOINTMENT WITH YOUR GP'S OFFICE AND THE DAY YOU ACTUALLY SAW THE DOCTOR?

WAIT TIME	APRIL 2007	APRIL 2006	APRIL 2005
Less than a week	19%	22%	27%
Between one and two weeks	30	27	13
Between two weeks and a month	14	18	17
Between one and two months	21	13	14
More than two months	10	9	11
(Not sure)	7	10	17

30. [IF YES TO Q23] WAS THE LENGTH OF TIME YOU HAD TO WAIT FOR THIS APPOINTMENT A PROBLEM FOR YOU OR NOT?

ANSWER	APRIL 2007	APRIL 2006	APRIL 2005
Yes	7%	15%	14%
No	90	85	86
(Not sure)	2	--	--

31. [IF YES TO Q24] APPROXIMATELY HOW LONG DID YOU HAVE TO WAIT BETWEEN THE TIME YOU MADE AN APPOINTMENT WITH YOUR OB/GYN'S OFFICE AND THE DAY YOU ACTUALLY SAW THE DOCTOR?

WAIT TIME	APRIL 2007	APRIL 2006	APRIL 2005
Less than a week	19%	14%	29%
Between one and two weeks	20	22	18
Between two weeks and a month	17	19	20
Between one and two months	23	20	13
More than two months	12	20	7
(Not sure)	9	6	13

32. [IF YES TO Q24] WAS THE LENGTH OF TIME YOU HAD TO WAIT FOR THIS APPOINTMENT A PROBLEM FOR YOU OR NOT?

ANSWER	APRIL 2007	APRIL 2006	APRIL 2005
Yes	7%	10%	5%
No	92	90	95
(Not sure)	1	--	--

33. HAVE YOU HAD A COLONOSCOPY WITHIN THE LAST THREE YEARS?

ANSWER	APRIL 2007	APRIL 2006	APRIL 2005
Yes	33%	33%	24%
No	66	67	76
(Not sure)	1	--	--

34. [IF YES TO Q33] APPROXIMATELY HOW LONG DID YOU HAVE TO WAIT BETWEEN THE TIME YOU MADE AN APPOINTMENT AND THE DAY YOU ACTUALLY HAD THE COLONOSCOPY?

WAIT TIME	APRIL 2007	APRIL 2006	APRIL 2005
Less than a week	8%	9%	21%
Between one and two weeks	22	26	22
Between two weeks and a month	32	24	29
Between one and two months	17	13	10
More than two months	8	10	7
(Not sure)	14	18	10

35. [IF YES TO Q33] WAS THE LENGTH OF TIME YOU HAD TO WAIT FOR THE COLONOSCOPY A PROBLEM FOR YOU OR NOT?

ANSWER	APRIL 2007	APRIL 2006	APRIL 2005
Yes	1%	3%	1%
No	98	97	99
(Not sure)	2	--	--

36. HAVE YOU HAD A MAMMOGRAM IN THE LAST THREE YEARS (WOMEN ONLY)?

ANSWER	APRIL 2007	APRIL 2006	APRIL 2005
Yes	77%	69%	63%
No	23	31	37

37. [IF YES TO Q36] APPROXIMATELY HOW LONG DID YOU HAVE TO WAIT BETWEEN THE TIME YOU MADE AN APPOINTMENT FOR THE MAMMOGRAM AND THE DAY YOU ACTUALLY HAD THE MAMMOGRAM?

WAIT TIME	APRIL 2007	APRIL 2006	APRIL 2005
Less than a week	14%	17%	17%
Between one and two weeks	24	21	22
Between two weeks and a month	15	18	19
Between one and two months	12	9	14
More than two months	25	26	20
(Not sure)	9	9	9

38. [IF YES TO Q36] WAS THE LENGTH OF TIME YOU HAD TO WAIT FOR THE MAMMOGRAM A PROBLEM FOR YOU OR NOT?

ANSWER	APRIL 2007	APRIL 2006	APRIL 2005
Yes	3%	2%	6%
No	95	96	94
(Not sure)	2	2	--

39. ON ANOTHER TOPIC, DO YOU FAVOR OR OPPOSE REQUIRING PATIENTS TO PAY A LARGER PORTION OF THEIR MEDICAL COSTS THROUGH LARGER COPAYS AND DEDUCTIBLES? [IF FAVOR OR OPPOSE] IS THAT STRONGLY OR JUST SOMEWHAT (FAVOR/OPPOSE)?

DEGREE OF OPINION	APRIL 2007	APRIL 2006	APRIL 2005	MARCH 2004	JANUARY 2003
Strongly favor	5%	2%	6%	4%	6%
Somewhat favor	11	9	9	12	10
Somewhat oppose	17	18	15	24	21
Strongly oppose	54	65	62	54	57
(Don't know)	14	7	9	6	6

40. SOME INSURERS ARE REQUIRING THAT PATIENTS PAY HIGHER COPAYS TO SEE DOCTORS WHO SCORE LOWER ON THE INSURERS' INTERNAL QUALITY AND COST RATINGS. DO YOU FAVOR OR OPPOSE HAVING HIGHER COPAYS BASED ON INSURERS' INTERNAL QUALITY AND COST RATINGS OF DOCTORS? [IF FAVOR OR OPPOSE] IS THAT STRONGLY OR JUST SOMEWHAT (FAVOR/OPPOSE)?

DEGREE OF OPINION	APRIL 2007
Strongly favor	3%
Somewhat favor	10
Somewhat oppose	19
Strongly oppose	55
(Don't know)	14

41. A VARIETY OF SOURCES, INCLUDING THE STATE AND INSURERS, RECENTLY BEGAN POSTING INFORMATION REGARDING THE QUALITY AND COST OF CARE PROVIDED BY MEDICAL GROUPS AND IN SOME CASES INDIVIDUAL PHYSICIANS ON THE INTERNET AND IN HEALTH PLAN DIRECTORIES. WERE YOU AWARE THAT THIS INFORMATION IS AVAILABLE?

ANSWER	APRIL 2007
Yes, aware	32%
No, not aware	67
(Not sure)	2

42. NOW THAT YOU KNOW THAT YOU CAN GET THIS TYPE OF INFORMATION ABOUT MEDICAL GROUPS AND PHYSICIANS, HOW LIKELY ARE YOU TO USE IT THE NEXT TIME YOU HAVE TO CHOOSE A DOCTOR?

ANSWER	APRIL 2007
Very likely	24%
Somewhat likely	30
Not very likely	20
Not likely at all	23
(Not sure)	3

Now I'd like to ask you some final questions for statistical purposes only.

45. DO YOU HAVE HEALTH INSURANCE THROUGH EITHER A GOVERNMENT OR A PRIVATE HEALTH CARE PLAN?

ANSWER	APRIL 2007	APRIL 2006	APRIL 2005
Government plan	25%	18%	18%
Private plan	58	63	67
No health insurance	6	5	6
(Both private and government)	8	11	6
(Don't know)	3	2	2
(Refused)	1	1	1

46. [IF HEALTH INSURANCE] IS YOUR HEALTH INSURANCE THROUGH A MANAGED CARE PLAN SUCH AS AN HMO LIKE HARVARD, TUFTS, FALLON, BLUE CARE, OR THE NEIGHBORHOOD HEALTH PLAN?

ANSWER	APRIL 2007	APRIL 2006	APRIL 2005
Yes	58%	62%	68%
No	39	34	29
(Don't Know/Refused)	3	4	3

47. WHAT WAS THE LAST GRADE YOU COMPLETED IN SCHOOL?

LEVEL OF EDUCATION	APRIL 2007	APRIL 2006	APRIL 2005
Less than high school (1–11)	4%	4%	4%
Graduated high school	24	29	22
Some college/tech./voc.	17	16	18
Graduated college	35	33	34
Graduate/professional school	20	16	22
(Don't know)	--	1	--
(Refused)	1	2	1

48. IN WHICH OF THE FOLLOWING CATEGORIES IS YOUR AGE?

AGE	APRIL 2007
21–34	10%
35–40	9
41–50	23
Over 60	32
(Don't know/Refused)	1

49. GENDER [OBSERVATION]

GENDER	APRIL 2007	APRIL 2006	APRIL 2005
Female	55%	53%	55%
Male	46	47	46

50. HOW MANY INDIVIDUALS, INCLUDING YOU, LIVE IN YOUR HOUSEHOLD?

NUMBER IN HOUSEHOLD	APRIL 2007	APRIL 2006	APRIL 2005
One	24%	27%	21%
Two	36	32	37
Three	16	15	16
Four	14	12	17
More than Four	10	11	9
(Don't know)	--	--	--
(Refused)	1	3	1

51. WOULD YOU PLEASE TELL ME IN WHICH OF THE FOLLOWING CATEGORIES I READ IS YOUR TOTAL HOUSEHOLD INCOME — THAT IS, OF EVERYONE LIVING IN YOUR HOUSEHOLD?

HOUSEHOLD INCOME	APRIL 2007	APRIL 2006	APRIL 2005
\$0–11,999	3%	4%	3%
\$12–14,999	3	5	3
\$15–19,999	4	2	2
\$20–24,999	5	4	4
\$25–34,999	5	6	5
\$35–49,999	8	8	10
\$50–74,999	14	17	17
\$75–99,999	10	9	13
\$100–124,999	10	6	8
Over \$125,000	16	6	8
(Don't know)	5	4	8
(Refused)	18	29	22

APPENDIX C: SURVEY OF PHYSICIAN OFFICES — SUMMARY OF FINDINGS

AVERAGE WAIT TIMES (IN NUMBER OF DAYS) BY COUNTY

COUNTY	CARDIOLOGY	GASTROENTEROLOGY	INTERNAL MEDICINE	OB/GYN	ORTHOPEDIC SURGERY	FAMILY PRACTICE/ GENERAL PRACTITIONER
Barnstable	24	15	N/A	65	22	33
Berkshire	13	22	39	119	27	12
Bristol	37	24	109	79	23	66
Dukes	N/A	N/A	N/A	N/A	N/A	1
Essex	23	34	51	37	14	41
Franklin	N/A	N/A	N/A	N/A	11	22
Hampden	33	45	94	47	22	19
Hampshire	22	12	21	33	14	27
Middlesex	17	53	66	39	18	30
Norfolk	22	22	40	52	15	25
Plymouth	28	17	64	36	15	28
Suffolk	31	31	44	54	47	25
Worcester	54	43	28	36	17	53

The following tables contain a tabulation of the complete data collected for each specialty, segmented by county.

CARDIOLOGY

COUNTY	TOTAL RESPONSES	SHORTEST TIME TO APPOINTMENT (DAYS)	LONGEST TIME TO APPOINTMENT (DAYS)	AVERAGE TIME TO APPOINTMENT (DAYS)	ACCEPT MEDICAID? (%)	ACCEPTING NEW PATIENTS? (%)
Barnstable	2	9	38	24	50	100
Berkshire	2	13	13	13	100	100
Bristol	4	17	58	37	75	75
Essex	8	7	64	23	88	88
Hampden	6	2	101	33	100	83
Hampshire	1	22	22	22	100	100
Middlesex	24	6	39	17	75	62
Norfolk	14	2	126	22	57	71
Plymouth	4	1	47	28	100	100
Suffolk	25	1	96	31	88	84
Worcester	10	13	223	54	90	90
Overall 2007	100	8	75	29	81	79
Overall 2006	100	8	57	28	85	81
Overall 2005	100	14	74	34	90	92

GASTROENTEROLOGY

COUNTY	TOTAL RESPONSES	SHORTEST TIME TO APPOINTMENT (DAYS)	LONGEST TIME TO APPOINTMENT (DAYS)	AVERAGE TIME TO APPOINTMENT (DAYS)	ACCEPT MEDICAID (%)	ACCEPTING NEW PATIENTS? (%)
Barnstable	2	15	15	15	50	50
Berkshire	2	21	23	22	100	100
Bristol	5	4	41	24	100	100
Essex	9	15	50	34	89	78
Hampden	5	1	105	45	80	60
Hampshire	1	12	12	12	100	100
Middlesex	28	7	198	53	82	89
Norfolk	13	1	75	22	100	92
Plymouth	5	4	38	17	100	100
Suffolk	21	2	76	31	90	81
Worcester	9	3	94	43	100	100
Overall 2007	100	8	66	36	90	87
Overall 2006	100	15	88	41	96	91
Overall 2005	100	20	78	42	91	94

INTERNAL MEDICINE

COUNTY	TOTAL RESPONSES	SHORTEST TIME TO APPOINTMENT (DAYS)	LONGEST TIME TO APPOINTMENT (DAYS)	AVERAGE TIME TO APPOINTMENT (DAYS)	ACCEPT MEDICAID? (%)	ACCEPTING NEW PATIENTS? (%)
Barnstable	3	--	--	--	0	0
Berkshire	2	39	39	39	100	50
Bristol	4	109	109	109	25	25
Essex	8	1	77	51	50	38
Hampden	5	18	170	94	80	40
Hampshire	3	21	21	21	0	33
Middlesex	27	1	231	66	59	56
Norfolk	15	6	81	40	60	40
Plymouth	4	4	183	64	50	75
Suffolk	18	1	108	44	89	72
Worcester	11	9	43	28	46	54
Overall 2007	100	21	106	52	59	51
Overall 2006	100	8	81	33	73	64
Overall 2005	100	5	87	47	79	66

OB/GYN

COUNTY	TOTAL RESPONSES	SHORTEST TIME TO APPOINTMENT (DAYS)	LONGEST TIME TO APPOINTMENT (DAYS)	AVERAGE TIME TO APPOINTMENT (DAYS)	ACCEPT MEDICAID? (%)	ACCEPTING NEW PATIENTS? (%)
Barnstable	2	65	65	65	100	50
Berkshire	1	119	119	119	100	100
Bristol	5	6	214	79	100	100
Essex	7	1	160	37	71	100
Hampden	5	14	84	47	100	100
Hampshire	3	17	47	33	100	100
Middlesex	29	1	217	39	66	93
Norfolk	16	6	168	52	100	94
Plymouth	6	14	70	36	83	100
Suffolk	15	7	119	54	100	73
Worcester	11	5	82	36	100	100
Overall 2007	100	23	122	46	87	92
Overall 2006	100	9	99	34	93	89
Overall 2005	100	13	85	35	89	71

ORTHOPEDIC SURGERY

COUNTY	TOTAL RESPONSES	SHORTEST TIME TO APPOINTMENT (DAYS)	LONGEST TIME TO APPOINTMENT (DAYS)	AVERAGE TIME TO APPOINTMENT (DAYS)	ACCEPT MEDICAID? (%)	ACCEPTING NEW PATIENTS? (%)
Barnstable	3	5	34	22	67	100
Berkshire	3	6	69	27	100	100
Bristol	6	1	74	23	100	100
Essex	11	1	39	14	73	64
Franklin	1	11	11	11	100	100
Hampden	8	3	46	22	62	88
Hampshire	1	14	14	14	100	100
Middlesex	19	6	53	18	79	90
Norfolk	16	6	46	15	88	81
Plymouth	5	5	28	15	80	80
Suffolk	17	5	198	47	88	94
Worcester	10	5	34	17	100	100
Overall 2007	100	6	54	23	84	88
Overall 2006	100	6	49	18	81	95
Overall 2005	100	5	47	23	85	100

FAMILY PRACTICE/GENERAL PRACTITIONER

COUNTY	TOTAL RESPONSES	SHORTEST TIME TO APPOINTMENT (DAYS)	LONGEST TIME TO APPOINTMENT (DAYS)	AVERAGE TIME TO APPOINTMENT (DAYS)	ACCEPT MEDICAID? (%)	ACCEPTING NEW PATIENTS? (%)
Barnstable	5	15	57	33	60	80
Berkshire	2	6	18	12	50	100
Bristol	7	11	120	66	71	57
Dukes	1	1	1	1	100	0
Essex	13	1	149	41	77	77
Franklin	2	9	36	22	100	100
Hampden	3	2	36	19	100	100
Hampshire	5	4	71	27	60	80
Middlesex	20	1	104	30	85	70
Norfolk	10	1	104	25	80	90
Plymouth	6	4	74	28	33	50
Suffolk	7	1	55	25	71	86
Worcester	19	6	160	53	79	47
Overall 2007	100	5	76	34	75	70

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