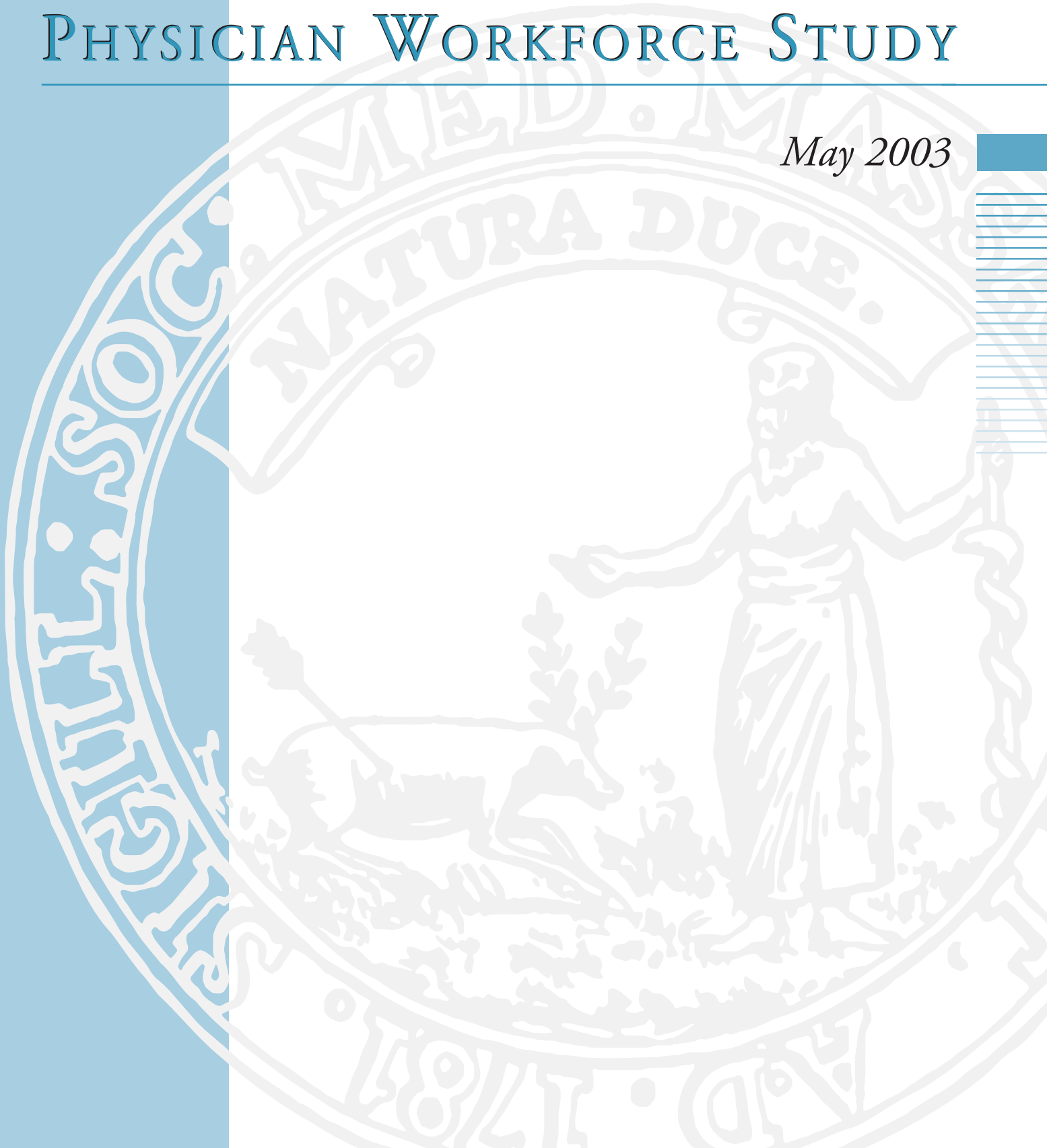

MASSACHUSETTS MEDICAL SOCIETY
PHYSICIAN WORKFORCE STUDY

May 2003



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For more information, contact the MMS Department of Health Policy/Health Systems at (781) 434-7222.

This report is also available online at <http://www.massmed.org/pages/workforce.asp>.

THE MASSACHUSETTS MEDICAL SOCIETY'S PHYSICIAN WORKFORCE STUDY

EXECUTIVE SUMMARY

Introduction

With the help of prominent labor economists, the Committee on Medical Service of the Massachusetts Medical Society completed a study that builds upon the results of the 2002 Physician Workforce Study. The results of the 2003 study indicate the following:

- All fourteen specialties surveyed are currently experiencing extremely tight labor markets. As a result physicians have been forced to react to these labor market shortages by increasing work hours (48%), adjusting professional staffing (37%), and altering the services they provide (31%).
- Five specialties are experiencing a critical physician shortage: anesthesiology, cardiology, gastroenterology, neurosurgery, and radiology. Three additional specialties are experiencing a severe shortage: general surgery, orthopedics, and vascular surgery.
- Community hospitals are experiencing a much tighter labor market than teaching hospitals.
- Professional liability concerns are influencing physicians to contemplate career changes. This is particularly true within high-risk specialties such as obstetrics and gynecology (OB/GYN) and surgical subspecialties.
- Thirty-two percent of practicing physician respondents are either planning on or considering leaving Massachusetts because of the current practice environment.
- The average number of months required to recruit a physician is roughly twelve; by specialty, it ranges from eight months for emergency medicine to twenty-seven months for neurosurgery.
- Regional disparities in the labor market exist. This is particularly evident in the Springfield metropolitan area, where physician labor shortages are more acute.

-
- The MMS Index¹, which tracks the physician practice environment quantitatively, also indicates that physicians are facing a very difficult and challenging environment in which to care for their patients.

The results of this report support the conclusions of the 2002 Physician Workforce Study in terms of recruitment, retention, and staffing concerns. In addition, this report contains additional information on professional liability, physician satisfaction, issues in community hospitals, and other topics that further reinforce the conclusion that the physician workforce in the Commonwealth of Massachusetts is experiencing a shortage.

Report Summary

In the 2002 Physician Workforce Study, the Committee on Medical Service found that the labor market situation among Massachusetts physicians could only be described as in a crisis state.

The Massachusetts Medical Society (MMS), under the direction of the Committee on Medical Service and working with leading labor economists, James Howell, Ph.D., Carol Simon, Ph.D., and Andrew Sum, Ph.D., designed a comprehensive research methodology that included both primary (i.e., surveys) and secondary (i.e., existing databases, literature reviews) data collection.

The 2003 Physician Workforce Study validates our previous conclusions concerning the crisis in the physician community. The extraordinarily negative response to all of the questions relating to the current availability of physicians, as well as the degree of difficulty in recruiting and retaining physicians to fill positions, highlights the problem.

Methodology

The MMS physician workforce study used information from seven primary data sources:

1. Survey of practicing physicians in community and hospital settings throughout Massachusetts;

¹ Massachusetts Medical Society website available at <http://www.massmed.org/pages/mmsindex0302.asp> (accessed 14 April 2003).

2. Survey of medical staff presidents in community hospitals;
3. Survey of department chiefs from teaching hospitals;
4. Survey of residents and fellows in their last year of training;
5. Survey of residency and fellowship program directors;
6. Survey of biotechnology companies; and
7. An opinion poll of patients in Massachusetts.

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

TABLE 1: RESPONSE RATE SUMMARY

SURVEY	RESPONSE RATE
Practicing Physicians	27%
Department Chiefs of Teaching Hospitals	63%
Medical Staff Presidents in Community Hospitals	48%
Residency and Fellowship Program Directors	58%
Residents and Fellows	20%
Biotechnology Companies	25%

Secondary sources of information included articles from peer-reviewed journals, existing databases, the 2002 Physician Workforce Study, and the MMS Index², which tracks the physician practice environment quantitatively.

Results

Survey of Practicing Physicians

Within the survey of practicing physicians were six questions designed to assess the degree of stress in physician labor markets. As we review our results, it is important to note that in similar studies of other professional labor markets responses indicating a shortage almost never exceed 10 percent. Using this rate as a benchmark, results from this study indicate that

- Physician labor markets in Massachusetts are currently under extreme stress; the forces that pushed these markets into this unenviable state are numerous and are not likely to be easily reversed.
- All fourteen specialties surveyed are currently experiencing sufficiently high labor-market vacancy rates that these labor markets are now confronting serious problems. Results from the comparative

² Massachusetts Medical Society website available at <http://www.massmed.org/pages/mmsindex0302.asp> (accessed 14 April 2003).

analysis of specific workforce questions indicate that the following should be designated as

Critical Shortages:

- Anesthesiology
- Cardiology
- Gastroenterology
- Neurosurgery
- Radiology

Severe Shortages:

- General Surgery
 - Orthopedics
 - Vascular Surgery
- Approximately half of physician respondents (49%) felt that the pool of physician applicants is inadequate to fill vacant positions or expand one's practice.
- Moreover, more than two-thirds of all physician respondents (69%) indicated that they are currently experiencing some degree of difficulty filling vacant physician positions. In the following four specialties, which are designated as having critical shortages, over 80% of physician respondents indicated that they were experiencing difficulty:
- Anesthesiology
 - Gastroenterology
 - Neurosurgery
 - Radiology

In nine additional specialties, 40% to 80% of physician respondents indicated that they are having difficulty:

- Cardiology
- Emergency Medicine
- Family Practice
- General Surgery
- Internal Medicine
- OB/GYN
- Orthopedics
- Psychiatry
- Vascular Surgery

-
- Over forty percent of physician respondents (41%) reported a significant increase in the amount of time needed to recruit a new physician over the past three years.³ Relative to other professional occupations, these lengths of time are extraordinarily long and indicate lags in filling physician vacancies that can affect patients' access to and the availability of services.
 - Over thirty percent of all physician respondents (31%) indicated that physician shortages have forced them to alter services. In addition, 37% of all physician respondents have changed their professional staffing patterns due to physician shortages.
 - Overall, 28% of physician respondents indicated that they are contemplating a career change due to the practice environment. The most concerning results are from the specialties of neurosurgery (56%), OB/GYN (40%), vascular surgery (39%), and emergency medicine (36%).
 - Professional liability costs are a significant factor for physicians in their contemplation of a career change. This is particularly evident in the specialties of neurosurgery, OB/GYN, vascular surgery, general surgery, and orthopedics where responses were 10% to 40% higher than the overall question mean. (Note: Since the conclusion of this year's study, there has been an article in the *Boston Globe* on April 17, 2003. Professional liability rates for the largest insurer in Massachusetts will increase by 20 percent on average effective July 1, 2003.⁴)
 - Physicians who are contemplating a career change are considering early retirement (31%), work in a non-health care setting (13%), and developing an entrepreneurial venture (14%).
 - Seventy-nine percent of all physician respondents indicated that they would rate the profession of medicine as either rewarding or very rewarding, but 60% are dissatisfied or very dissatisfied with the current practice environment.
 - Seven percent of physician respondents indicated that they are planning to leave Massachusetts to practice medicine elsewhere because of the current practice environment. This extrapolates to 1,444 physicians of the approximately 20,628 practicing physicians in Massachusetts.⁵ In addition, 25% of respondents indicated that they would consider doing so if the current situation does not

³ A review of the 2003 survey responses indicated only sixteen responses noted a decrease in the time to recruit. Due to the overwhelming response that time to recruit had increased, only those responses were included. In 2002, there were no responses indicating a decrease.

⁴ Kowalczyk L. Premiums to Rise 20% for Mass. Doctors, *Boston Globe*, 17 April 2003, sec. A1.

⁵ The Federation of State Medical Boards of the United States, Inc. Summary of 2001 Board Actions, 9 April 2002, available at <http://www.fsmb.org> (accessed 16 April 2003).

change. If the sample is indicative of the entire population, this extrapolates to 5,157 additional physicians contemplating leaving the state. Potentially, this scenario could result in 6,601 physicians leaving the Commonwealth and would result in a patient to physician ratio of 448 patients per physician in Massachusetts, as compared with a much lower patient to physician ratio of 392 patients per physician in the United States as a whole⁶, leaving us more concerned about access for our patients.

In conclusion, we found that Massachusetts is *experiencing a shortage of all physician specialties*. Further stratification of the results allowed us to designate the following specialties as experiencing

Critical Shortages:

- Anesthesiology
- Cardiology
- Gastroenterology
- Neurosurgery
- Radiology

Severe Shortages:

- General Surgery
- Orthopedics
- Vascular Surgery

Many of the physician respondents expressed their satisfaction with the “noble profession” they chose, but they are very dissatisfied with the current state of the health care environment. The actual comments from several physicians are included below.

- *“Despite the current meltdown of the system, the practice of medicine is the most rewarding calling I can imagine.”*
- *“I have four sons (ages 14, 12, 10, 7). I cannot recommend medicine to them. My father was an M.D.”*
- *“I am only 35 years old, practicing for seven years and ready to stop. I would not encourage others to go into medicine. All of my medical school friends feel the same way. We entered this field for altruistic reasons, and reality erased our idealism.”*

⁶ Kaiser Family Foundation. *State Health Facts Online Demographics and the Economy, Population Distribution by Age, state data 2000–2001, U.S. 2001*, available at <http://www.statehealthfacts.kff.org> (accessed 15 April 2003).

Survey of Medical Staff Presidents in Community Hospitals and the Department Chiefs of Teaching Hospitals

- Community hospitals and teaching hospitals are both feeling the impact of physician shortages. Over half (54%) of the teaching hospital chiefs and 87% of the community hospitals reported that the pool of physician applicants is inadequate to fill their vacancies.
- Two-thirds (67%) of the community hospitals and more than half (55%) of the teaching hospitals indicated that their ability to retain existing staff has changed in the past three years. Of those responding, 100% of the community hospitals and 92% of the teaching hospitals stated that retaining physicians has become more difficult.
- Due to physician supply problems, alterations in patient services were necessary in both the teaching hospitals (38%) and community hospitals (53%). Additionally, adjustments in staffing patterns were reported to be necessary by 49% of the teaching hospitals and by 40% of the community hospitals.
- Medical staff presidents in community hospitals singled out the following specialties as having a particularly severe shortage at their facilities:
 - Anesthesiology
 - General Surgery
 - Gastroenterology
 - Internal Medicine
 - OB/GYN
 - Radiology

Survey of Residents and Fellows

- Only 35% of resident and fellow survey respondents indicated they are planning to pursue their medical career in Massachusetts.
- Overall, the residents and fellows considered the following factors as unfavorable in Massachusetts:
 - Work hours
 - Practice environment
 - Salary
 - Housing costs
 - Cost of living
 - Tax environment
- Most of the physician respondents indicated that the aforementioned factors influenced their decisions to not practice in Massachusetts, despite the excellent clinical and research opportunities

available here. The intensity of these feelings should be fully recognized, specifically 80% to 90% of residents and fellows believe these economic factors are very real and affect their locational decisions.

Survey of Residency and Fellowship Program Directors

- Results from the residency and fellowship program directors in Massachusetts who responded indicate that almost half of the residents (44%) and fellows (49%) left Massachusetts to pursue medical careers elsewhere due to the poor practice environment and high cost of living in Massachusetts.
- Despite the large number of opportunities in Massachusetts, the residents and fellows continue to leave Massachusetts each year due to the “unfavorable” practice environment and personal factors, such as high cost of living.

Survey of Biotechnology Companies

- In sharp contrast to the other survey respondents, approximately 60% of the biotechnology companies stated that they are able to recruit and fill a vacant physician position in less than three months. Primary reasons include high compensation structures, such as salary and stock options, and relief from the day-to-day pressures of the practice environment.

Access to Care Survey

- Seventeen percent of patients surveyed rated their access to medical care as difficult or extremely difficult, which extrapolates to approximately 680,000 adult Massachusetts residents.⁷
- Eighty-nine percent of patients surveyed were either very satisfied or somewhat satisfied with the health care they had received in the past 12 months.
- In this context, there exists a certain amount of “elasticity” in the health care workforce. This elasticity is particularly demonstrated in the physician community through increased work hours, staffing changes, and altered services, which has delayed a complete breakdown in the high-quality health care services for which Massachusetts is renowned. Based on a comparison of the 2002 and 2003 study results and the individual physician comments, one may surmise that the status may be nearing the limit of its elasticity.

⁷ Based on U.S. Census 2001 estimates of the resident population between the ages of 18 and 65 in Massachusetts.

Implications for Patients' Access to Health Care

Utilizing the Physician Workforce Study, the MMS has been monitoring physician supply trends and changes in the practice environment for several years. This comprehensive report demonstrates that Massachusetts has clearly been experiencing a crisis in the number of physicians available to deliver quality patient care for the past several years.

The health care system is being further stressed by the continual exodus of new physicians who complete their training here and leave to practice elsewhere in the country. In addition, the loss of this “learn then leave” group is compounded by the loss of established physicians who leave to practice in another state, make a change in their careers, or retire early.

The MMS is concerned that the declining practice environment and shortages of physicians across all specialties will threaten patients' access to the high-quality health care for which Massachusetts is renowned.

INTRODUCTION

The Committee on Medical Service (Committee) conducted the following primary research: a survey of medical staff presidents in community hospitals, a survey of residents and fellows in their last year of training, a survey of residency and fellowship program directors, a survey of department chiefs from teaching hospitals, a survey of practicing physicians in community and hospital settings throughout Massachusetts, a survey of biotechnology companies, and an opinion poll of health care consumers. The Committee consulted with economists James Howell, Ph.D., Carol Simon, Ph.D., and Andrew Sum, Ph.D., in the development of the survey tools and in the analysis of the results.

BACKGROUND

In 2002, the Massachusetts Medical Society (MMS) conducted a Physician Workforce Study⁸ to evaluate the existing physician workforce and labor markets within the Commonwealth of Massachusetts. Our study provided initial data suggesting that a critical shortage in the Massachusetts physician labor market existed. Based upon the data, we concluded that the Commonwealth was facing a severe crisis in the number of physicians available to deliver patient care. Since these findings were based upon data collection and analysis of only one year, we approached the results with a certain amount of caution and viewed them as the foundation of our longer-term analysis. The findings from the current study corroborate our initial results from last year and will demonstrate that the physician workforce and labor market are in a state of severe crisis.

In an effort to further the discussions concerning the adequacy of the supply of physicians in the Commonwealth, we continued to examine several of the influencing factors. We found that despite the conflicting information regarding the oversupply/undersupply of the physician labor market put forth by governmental advisory agencies, such as the Council on Graduate Medical Education (COGME)⁹, there is an increasing amount of published literature supporting the argument that the existing methodology to determine adequacy of supply is flawed and that a shortage in the physician labor market exists throughout the country.

While the evaluation of physician labor market supply by Cooper, et al., remains the most important paper¹⁰ on this topic, additional studies are becoming available that scrutinize previous ideas and viewpoints concerning how to evaluate the physician labor market.

Recently, additional studies, such as a paper by Sheldon in 2003, identify several flaws in the COGME workforce recommendations (e.g., using the same assumptions and ratios for the past twenty years, not defining “specialists,” and

⁸ Massachusetts Medical Society, *Physician Workforce Study, May 2002*, available at <http://www.massmed.org/pages/workforce.asp> (accessed 15 April 2003).

⁹ COGME, *Update on the Physician Workforce, August 2000*, available at http://www.cogme.gov/00_8726.pdf (accessed 14 April 2003).

¹⁰ Cooper RA, et al. *Economic and Demographic Trends Signal an Impending Physician Shortage*. Health Affairs, January/February 2002.

basing predictions upon a health care system expected to evolve along the organizational pattern of staff-model health maintenance organizations).¹¹ Additional supporting reports have been published, such as by Schubert, et al.¹², that demonstrate the national shortages of anesthesiologists. These national findings further corroborate the conclusions in our previous study, which referenced a manpower study conducted by the Massachusetts Society of Anesthesiologists.

A bibliography of resources related to the physician workforce question is contained in Appendix D.

¹¹ Sheldon GF. *Great Expectations: The 21st Century Health Workforce*. Am J Surg 2003;185(1):35-41.

¹² Schubert A, Eckhout G, Tremper K. *An Updated View of the National Anesthesia Personnel Shortfall*. Anesth Analg 2003; 96(1): 207-214.

METHODOLOGY

Given the large scope of the project, the Committee felt that primary (i.e., surveys) and secondary data (e.g., a review of existing databases, literature) were needed to properly examine the Massachusetts physician workforce issues. The Committee conducted the following primary research: a survey of practicing physicians in community and hospital settings throughout Massachusetts, a survey of residents and fellows in their final year of training, a survey of residency and fellowship program directors, a survey of teaching hospital department chiefs, survey of medical staff presidents of acute care community hospitals; a survey of biotechnology companies, and a phone-based survey of health care consumers.

Survey of Practicing Physicians

The largest component of this study was a survey mailed to 7,565 physicians in December 2002. The survey was mailed to both MMS members and nonmembers who were randomly selected from 14 specialties (anesthesiology, cardiology, emergency medicine, family practice, gastroenterology, general surgery, internal medicine, neurosurgery, obstetrics and gynecology, orthopedics, pediatrics, psychiatry, radiology, 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 nonresponders that occurred in January 2003. The sample size of this survey is almost twice the sample size surveyed in this portion of the 2002 Physician Workforce Study.

The survey asked physician respondents to provide information regarding physician vacancies, recruitment efforts, alteration of services, or adjustment to staffing due to physician vacancies, shortages in specific specialties, and retention. In addition, questions were asked to measure physician perceptions about the practice environment in Massachusetts.

By tracking responders and nonresponders, it was possible to aggregate the results by metropolitan statistical area (MSA), allowing for statistical analysis by region. The MSA grouping methodology was based on the Dartmouth Atlas on Health Care methodology.

Survey of Community Hospitals

Due to the importance of community hospitals to the provision of health care services, a survey was mailed to the medical staff presidents of 62 acute care community hospitals throughout Massachusetts. This survey asked respondents to provide information regarding physician vacancies, recruitment efforts, alteration of services or adjustments to staffing due to physician vacancies, shortages in specific specialties, and retention at their facility. The questions asked were written to be comparable to questions asked in the surveys of practicing physicians and teaching hospital department chiefs.

Survey of Residents/Fellows and Residency/Fellowship Program Directors

In focusing on the factors affecting the residents' and fellows' locational decisions, two groups were surveyed: residents and fellows in their last year of training and the residency and fellowship program directors. The survey mailings targeted individuals in fourteen specialties at ten teaching hospitals:

Specialties: anesthesiology, cardiology, emergency medicine, family practice, gastroenterology, general surgery, internal medicine, neurosurgery, obstetrics and gynecology, orthopedics, pediatrics, psychiatry, radiology, 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, UMass Medical Center, Caritas St. Elizabeth's Medical Center, Lahey Clinic, and New England Medical Center.

A four-page, six-question survey was developed to ask about post-training employment decisions, whether or not those surveyed were planning to seek employment in Massachusetts, and how respondents rated Massachusetts (favorably/unfavorably) with respect to professional and personal factors that influence locational decisions. This survey was very similar to the resident and fellow

survey used in the 2002 Physician Workforce Study with the inclusion of additional factors that influence locational decisions.

The survey for program directors asked historical questions about program openings and applications over the past year, as well as the number of trainees who have stayed or left Massachusetts between 1997 and 2002. Residency and fellowship program directors were also asked how Massachusetts rated (favorably/unfavorably) with respect to professional and personal factors.

Both surveys were mailed in December 2002. Staff contacted each of the residency and fellowship programs, using the American Medical Association's Graduate Medical Education Directory, to explain the goal of our study and to reemphasize that only graduating residents and fellows were eligible to participate. Working with the program coordinator to determine the number of residents and fellows in their last year of training, a package of surveys was sent to each program containing surveys for residents, fellows, and the program director. Each survey packet included a cover letter, survey, and postage-paid return envelope. In an effort to increase the survey response rate, an additional follow-up mailing was sent to each program.

Survey of Department Chiefs of Teaching Hospitals

This survey asked department chiefs of anesthesiology, cardiology, emergency medicine, primary care, general surgery, gastroenterology, neurosurgery, obstetrics and gynecology, orthopedics, pediatrics, psychiatry, radiology, and vascular surgery at nine teaching hospitals questions regarding physician full-time equivalents (FTE) currently employed, FTE vacancies, new hires, and separations during the last six months. It also asked for the department chiefs' experience with the adequacy of the physician applicant pool, recruiting time to fill a physician vacancy, alteration of services and adjustments to staffing due to unfilled vacancies, and retention of existing staff physicians. The survey expanded upon the 2002 Physician Workforce Study by increasing the number of specialties surveyed from four to thirteen. Surveys were sent with cover letters and postage-paid return envelopes. Additional follow-up mailings were also sent. Results from the surveys were kept in the aggregate to maintain the confidentiality of the respondents.

Survey of Patients — Access to Care

A telephone-based opinion poll of 400 patients was conducted by Opinion Dynamics Corporation in January 2003. The survey gathered information about the accessibility of health care services and respondents' satisfaction with the care provided.

Survey of Biotechnology Companies

In conjunction with the Massachusetts Biotechnology Council (MBC), a survey was sent in December 2002 to 135 MBC members to gather information about the employment of physicians and the use of physician consultants within their organizations. The surveys were sent to the human resources department within each company. Surveys were sent with cover letters and postage-paid return envelopes. Additional follow-up mailings were also sent in January 2003.

Data Entry and Analysis

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

Sample Characteristics

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

Study Methodology

The most significant characteristic of the MMS 2002 and 2003 Physician Workforce Studies was the extraordinarily high frequency of negative responses to all questions relating to the current availability of physicians to fill positions, as well as the degree of difficulty in recruiting and retaining physicians. These results provide strong empirical support to the conclusion that physician labor markets in Massachusetts are currently under extreme stress. In the results of the 2003 study, the mean response ranged from over 25 to 50 percent for each of the relevant survey questions, indicating that there are serious problems with the labor market in which they are operating. Customarily, responses indicating shortages in labor markets rarely exceed 5 to 10 percent. The existence of these significantly

higher-than-expected response rates to questions concerning labor shortage raises questions about how these results should be interpreted.

After considerable discussion, we believe that the best way to interpret these results is to conclude that because all fourteen specialties surveyed are currently experiencing sufficiently high labor-market vacancy rates, these labor markets are now confronted with serious problems.

This represents confirmation of the findings of the 2002 Physician Workforce Study report. We noted the very high physician-vacancy rates in the 2002 survey data but chose to approach their magnitude with a certain amount of caution. With the results of the 2003 Physician Workforce Study survey, the high 2002 vacancy rates are confirmed. Indeed, in some cases, they describe labor market conditions that have actually worsened. Thus, we reiterate our primary conclusion:

- Physician labor markets in Massachusetts are currently under extreme stress; the forces that have pushed these markets into this unenviable state are numerous and they are not likely to be easily reversed.

Having established this primary conclusion, we fully recognize that the adverse impacts of labor market tightness have not been felt in all markets with the same degree of intensity. Thus, we wanted a way to quantify differences in the labor markets for the fourteen physician specialties selected for detailed study.¹³

The most straightforward way to address this issue is to analyze by specialty the variances from the sample means of the responses to each of the six relevant survey questions for the practicing physician survey and compare these results to a fixed level of greater than 20% and greater than 50% to identify a shortage. This analysis satisfies our needs for two reasons. First, data limitations resulting from the availability of only two years of data necessarily meant that a time-series analysis could not be undertaken. Second, an analysis of variances and comparing

¹³ *A transition comment needs to be made about the concept “labor-market shortages” and “vacancy rates.” In most studies of this nature, it is commonplace to estimate statistically the percent of job vacancies that exist across business firms and in the aggregate across an industry. For these rates to be estimated, the industry and firm structure must be easily defined; that is, vacancies are estimated as a percentage of the total firm employment. Given the splintering of the physician practice industry, and the reality that patient services must be met whatever the difficulty, it has been virtually impossible to define vacancy rates in this study. Of necessity, this means that a survey of this nature can only describe conditions in labor markets through a series of questions that tend to describe the various parameters of the market. This statistical problem must be recognized but in no way diminishes the conclusions discussed in this report.*

the results to the fixed shortage levels was the preferred route toward producing a final document that is simultaneously statistically robust and relatively easy to understand.

In order to differentiate the degree of intensity of labor market shortages, 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 all the following criteria:
 - Responses to at least two out of six questions must exceed an absolute rate of 50%.
 - Responses to remaining questions must exceed an absolute rate of 20%.
 - Individual responses to all six questions must be greater than the mean for each question.

- For a physician specialty to be considered “severe” in terms of its labor-market tightness, the responses to the six key questions must meet all the following criteria:
 - Responses to one out of six questions must exceed an absolute rate of 50%.
 - Responses to at least five questions out of six must exceed an absolute rate of 20%.
 - Individual responses to any three out of six questions must be greater than the mean for each question.

The Six Survey Questions

First, we will examine the categories we identified as critical to labor market conditions, the steps taken to determine if shortages existed, and, if so, for which specialties.

- Adequacy of physician applicant pool to fill vacant positions
 - **Question 16:** 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 17:** Are you currently experiencing difficulty in filling physician vacancies?

- Specialties where recruitment time and the average time it takes to recruit a physician have increased

- **Question 22:** Over the past three years, has the amount of time needed to recruit physicians changed? If YES, by how much time? (increased/decreased by # months).
- Specialties where staff retention is more difficult
 - **Question 23:** 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?
- Specialties where supply problems make it necessary to alter services or adjust professional staffing patterns
 - **Question 18:** Have physician supply problems made it necessary for you to alter the services you provide?
 - **Question 19:** Have physician supply problems made it necessary for you to adjust your professional staffing patterns?

Each of these questions is addressed sequentially in the discussion that follows. In addition, when available, examples of verbatim answers will follow appropriate questions and tables.

The next focus will be on the results of the detailed structural analysis. The specific answers for each of the specialties across the six questions are organized into three separate tables, each reflecting the extent that each of the results meet the criteria established above. Shown in Table 2 are the five specialties that are defined as currently experiencing critical physician shortages.

TABLE 2: RESULTS FOR SPECIALTIES EXPERIENCING CRITICAL PHYSICIAN SHORTAGES

2003 SUMMARY OF ACTUAL RATES	Q16: INADEQUATE POOL OF PHYSICIANS	Q22: INCREASE IN TIME TO RECRUIT	Q23: SIGNIFICANT DIFFICULTY TO RETAIN	Q17: SIGNIFICANT DIFFICULTY IN FILLING VACANCIES	Q18: SUPPLY PROBLEMS CAUSE ALTERATION OF SERVICES	Q19: SUPPLY PROBLEMS CAUSE CHANGES IN PROFESSIONAL STAFFING
Anesthesiology	72%	50%	43%	44%	39%	63%
Cardiology	60%	60%	24%	41%	42%	48%
GI	72%	65%	24%	53%	49%	46%
Neurosurgery	72%	33%	33%	57%	53%	63%
Radiology	83%	68%	32%	58%	31%	66%
SAMPLE MEAN	49%	41%	23%	32%	31%	37%

A review of these results reveals a fairly consistent pattern:

- All five specialties have rates in excess of 50% for at least two of six questions.

- In three specialties (gastroenterology, neurosurgery, and radiology), these high vacancy rates are present in more than three cases.
- The responses for all five specialties for all six questions exceed the 20% threshold and are consistently greater than their respective sample means.

Before proceeding with the analysis, it is important to establish what these responses are telling us about the physician labor market in Massachusetts. First, the responses in excess of 50% are to be viewed as rough proxies of the intensity of the shortages in each of the specialty labor markets. Second, the responses that satisfy each of the second and third criteria are indicative of the pervasive nature of physician shortages in labor markets.

The second group of physician shortages are those that are currently experiencing severe labor market shortages. The responses to the six questions are shown in Table 3.

TABLE 3: RESULTS FOR SPECIALTIES EXPERIENCING SEVERE PHYSICIAN SHORTAGES

2003 SUMMARY OF ACTUAL RATES	Q16: INADEQUATE POOL OF PHYSICIANS	Q22: INCREASE IN TIME TO RECRUIT	Q23: SIGNIFICANT DIFFICULTY TO RETAIN	Q17: SIGNIFICANT DIFFICULTY IN FILLING VACANCIES	Q18: SUPPLY PROBLEMS CAUSE ALTERATION OF SERVICES	Q19: SUPPLY PROBLEMS CAUSE CHANGES IN PROFESSIONAL STAFFING
General Surgery	51%	45%	28%	37%	26%	25%
Orthopedics	58%	47%	23%	39%	37%	34%
Vascular Surgery	63%	52%	14%	30%	38%	42%
SAMPLE MEAN	49%	41%	23%	32%	31%	37%

A careful review of these responses shows a somewhat less definitive pattern than in the responses in Table 2, but these results are important in defining physician specialties where severe shortages exist.

- While it is true that there are responses in excess of 50% for at least one of the six questions, six of the responses are below the mean rates for four of the questions. This part alone is consistent with a certain amount of labor-market slack, vis-à-vis the conditions in the critical shortage labor markets outlined above.
- In only one case, vascular surgery, was the response rate below the 20% threshold, and this could be considered to be in the more normal range.

The specific response rates for the remaining six specialties are displayed in Table 4. To reemphasize the general conclusions stated above, shortages exist across all fourteen specialties; it is the differential intensity of the shortage rates that we are discussing here.

TABLE 4: RESULTS FOR SPECIALTIES EXPERIENCING PHYSICIAN SHORTAGES

2003 SUMMARY OF ACTUAL RATES	Q16: INADEQUATE POOL OF PHYSICIANS	Q22: INCREASE IN TIME TO RECRUIT	Q23: SIGNIFICANT DIFFICULTY TO RETAIN	Q17: SIGNIFICANT DIFFICULTY IN FILLING VACANCIES	Q18: SUPPLY PROBLEMS CAUSE ALTERATION OF SERVICES	Q19: SUPPLY PROBLEMS CAUSE CHANGES IN PROFESSIONAL STAFFING
Emergency Medicine	50%	38%	16%	18%	23%	43%
Family Practice	38%	25%	16%	21%	27%	24%
Internal Medicine	50%	39%	20%	29%	36%	34%
OB/GYN	29%	24%	21%	20%	19%	25%
Pediatrics	19%	14%	7%	9%	14%	12%
Psychiatry	39%	35%	24%	31%	36%	32%
SAMPLE MEAN	49%	41%	23%	32%	31%	37%

A review of these responses tells us that while the shortages in these physician labor markets are very real — that is, they are considerably greater than what is to be expected in terms of the normal workings of labor markets — they are certainly less severe than those outlined in Tables 2 and 3. Two specific interpretative comments for this table are as follows:

- Note that only six of the 36 responses to the six questions are greater than their respective survey question means.
- Ten responses are below the 20% threshold; two of these are in the single-digit range.

Structure of the Report

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

- **Section 1:** Determination of Shortage by Specialty
- **Section 2:** Evaluating the Results Among Medical Staff Presidents in Community Hospitals and the Department Chiefs of Teaching Hospitals
- **Section 3:** Survey Results Concerning the Opinions of Residents, Fellows, and Program Directors
- **Section 4:** Analysis of Questions Relating to the Issue of Professional Liability Expenses

-
- [Section 5](#): Patients' Access to Care and Physicians' Attitudes Toward Their Profession
 - [Section 6](#): Regional Disparities Across the Principal Urban Labor Markets in Massachusetts
 - [Section 7](#): Conclusions

SECTION 1: DETERMINATION OF SHORTAGE BY SPECIALTY

1.1 — Adequacy of the Physician Labor Pool

Question 16: Is the current pool of physician applicants adequate to fill your vacant positions or expand your practice?

Question 17: Are you currently experiencing difficulty in filling physician vacancies?

When considered together, these two questions identify those physician specialties where shortages are critical in terms of the perceptions of adequacy of the current labor pool and where day-to-day difficulties in recruiting specialists are most troublesome. The primary conclusion that may be drawn from the data are that there were significant variances by physician specialty in the adequacy of the available labor market pool in 2002, and these variances continue to exist in 2003. The data are shown in Table 5 on page 24.

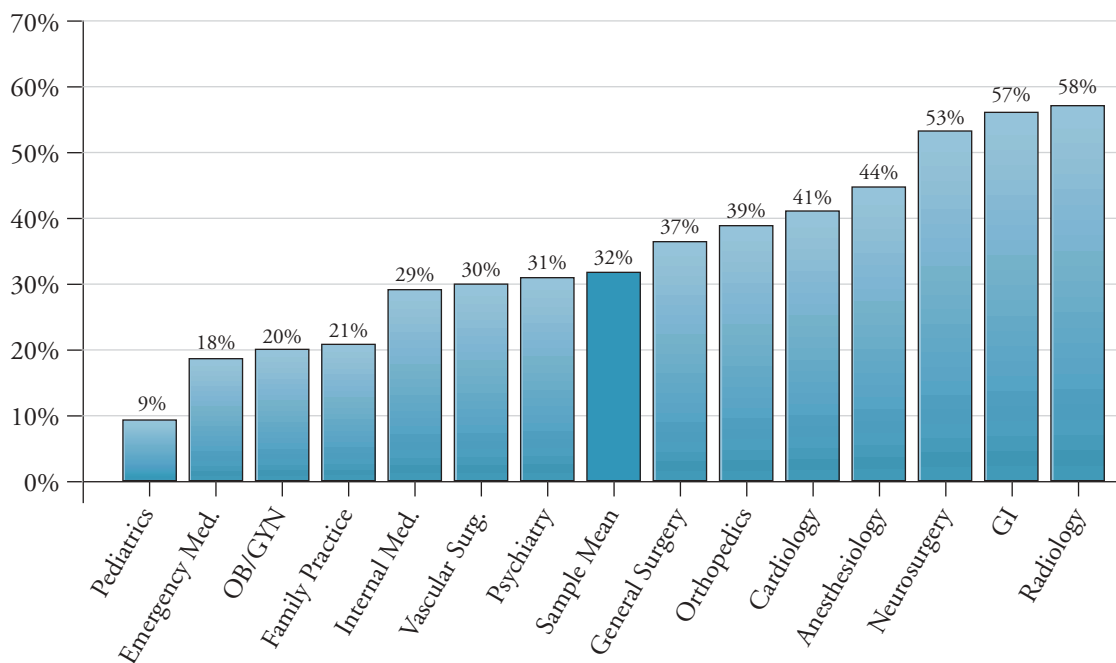
A careful review of the data clearly shows that the eight specialties designated as having either severe or critical shortages have responses that are significantly above the sample means with regard to supply inadequacies in the existing labor pool in both 2002 and 2003. In addition, it is clear that the supply inadequacies of the physician labor pool are increasing, and it is becoming more difficult to recruit physicians.

A review of the data shown in Table 5 also provides additional insight into the performance of physician labor markets in Massachusetts. Of particular interest are the survey responses to Question 17. In addition to the data displayed in Table 5 on page 24, we have also plotted the responses to Question 17 in a chart. Reading from left to right one is able to see those specialties where the practicing physician survey respondents reported significant difficulties in filling existing vacancies. Of interest are the significant dispersions around the aggregate sample

TABLE 5: RESPONSES TO QUESTIONS 16 AND 17 OF THE PRACTICING PHYSICIANS SURVEY

Q16: IS THE CURRENT POOL OF PHYSICIAN APPLICANTS ADEQUATE TO FILL YOUR VACANT POSITIONS OR EXPAND YOUR PRACTICE? Q17: ARE YOU CURRENTLY EXPERIENCING DIFFICULTY IN FILLING PHYSICIAN VACANCIES?	INADEQUATE LABOR POOL		SIGNIFICANT DIFFICULTY TO RECRUIT	
	2003 RESULTS	2002 RESULTS	2003 RESULTS	2002 RESULTS
Anesthesiology	72%	84%	44%	52%
Cardiology	60%	57%	41%	33%
Emergency Medicine	50%	55%	18%	24%
Family Practice	38%	24%	21%	9%
General Surgery	51%	29%	37%	22%
GI	72%	71%	53%	48%
Internal Medicine	50%	34%	29%	20%
Neurosurgery	72%	58%	57%	47%
OB/GYN	29%	27%	20%	11%
Orthopedics	58%	41%	39%	28%
Pediatrics	19%	14%	9%	8%
Psychiatry	39%	26%	31%	18%
Radiology	83%	84%	58%	62%
Vascular Surgery	63%	44%	30%	14%
SAMPLE MEAN	49%	38%	32%	24%

Chart 1 — Question 17: Percentage of physician respondents reporting significant difficulty in filling physician vacancies



means. The means by specialty range from 9% to 58%, with an overall mean of 32%. In Chart 1, we have displayed the data from the 2003 survey.

It is interesting to note that the specialties having critical shortages are the five specialties (anesthesiology, cardiology, gastroenterology, neurosurgery, radiology) that reported the most difficulty in filling physician vacancies.

These two questions were also asked of the department chiefs in nine teaching hospitals for thirteen specialties. Table 6 provides the responses to questions 16 and 17 from the chiefs of selected specialty departments at the nine teaching hospitals. These responses provide additional support for the results in Chart 1.

TABLE 6: SELECTED RESPONSES TO QUESTIONS 16 AND 17 OF THE DEPARTMENT CHIEFS OF TEACHING HOSPITALS SURVEY

Q16: IS THE CURRENT POOL OF PHYSICIAN APPLICANTS ADEQUATE TO FILL YOUR VACANT POSITIONS OR EXPAND YOUR PRACTICE? Q17: ARE YOU CURRENTLY EXPERIENCING DIFFICULTY IN FILLING PHYSICIAN VACANCIES?	2003 SURVEY RESULTS	
	INADEQUATE LABOR POOL	DIFFICULT TO RECRUIT
Anesthesiology	50%	75%
Cardiology	100%	100%
GI	83%	67%
Neurosurgery	100%	100%
OB/GYN	67%	57%
Pediatrics	75%	75%
Primary Care	75%	75%
Radiology	67%	78%
SAMPLE MEAN	55%	62%

In addition to the specialties already identified as having critical shortages, three other specialties have a value significantly greater than the mean: OB/GYN, pediatrics, and primary care. While the shortages in these specialties are not as significant as in the practicing physician survey, these results may point to a future concern.

Two relevant responses to Question 17 are included below.

- “Idealism and zeal are being diminished by a flawed system.”
- “Difficult to attract MDs to Massachusetts due to the poor and unrealistic reimbursement that increasingly leads to patients being denied access to care.”

1.2 — Alterations to Services and Adjustments to Staffing

Question 18: Have physician supply problems made it necessary for you to alter the services you provide?

Question 19: Have physician supply problems made it necessary for you to adjust your professional staffing patterns?

Questions 18 and 19 were designed to determine the impact of physician shortages on the provision of services and/or the need to adjust professional staffing patterns to provide patient care. The responses to these two questions are shown in Table 7.

TABLE 7: RESPONSES TO QUESTIONS 18 AND 19 OF THE PRACTICING PHYSICIAN SURVEY

Q18: HAVE PHYSICIAN SUPPLY PROBLEMS MADE IT NECESSARY FOR YOU TO ALTER THE SERVICES YOU PROVIDE? Q19: HAVE PHYSICIAN SUPPLY PROBLEMS MADE IT NECESSARY FOR YOU TO ADJUST YOUR PROFESSIONAL STAFFING PATTERNS?	YES ALTERED SERVICES		YES, ADJUSTED STAFFING PATTERNS	
	2003 RESULTS	2002 RESULTS	2003 RESULTS	2002 RESULTS
Anesthesiology	39%	53%	63%	72%
Cardiology	42%	29%	48%	40%
Emergency Medicine	23%	30%	43%	50%
Family Practice	27%	17%	24%	17%
General Surgery	26%	23%	25%	35%
GI	49%	56%	46%	44%
Internal Medicine	36%	28%	34%	25%
Neurosurgery	53%	38%	63%	36%
OB/GYN	19%	22%	25%	28%
Orthopedics	37%	34%	34%	31%
Pediatrics	14%	16%	12%	14%
Psychiatry	36%	35%	32%	31%
Radiology	31%	40%	66%	76%
Vascular Surgery	38%	0%	42%	25%
SAMPLE MEAN	31%	30%	37%	32%

Before commenting on the disaggregated details across the fourteen specialties, it is important to recognize that

- 31% of the physicians surveyed are finding it necessary to alter the services they provide and

-
- 37% have been forced to change professional staffing patterns because of the current physician shortage in Massachusetts.

From a managerial and organizational standpoint, these high ratios speak volumes about the disruptive context in which physicians maintain their practices. In addition, the 2003 results are an increase over the results from 2002. Now, we'll turn our attention to the details.

Based on the statistical criteria discussed at the beginning of this section, it should be noted that among seven of the eight specialties identified as experiencing a critical or severe shortage — anesthesiology, cardiology, gastroenterology, neurosurgery, radiology, orthopedics, and vascular surgery — physician shortages have resulted in adjustments in professional staffing patterns to satisfy patient demands and/or altered physician services.

But, in the final analysis, all of the ratios shown in Table 7 are sufficiently large enough to raise the question as to how this trend will affect the future ability of health care organizations to continue providing the quality medical care that Massachusetts physicians want to deliver. Alternatively, physicians are continually challenged with managing staffing and providing services in order to meet growing patient demands.

Relevant verbatim responses to Questions 18 and 19 from the practicing physician survey are below.

- “It is five-week wait to see me (I don't think it should be like this).”
- “We are having to say ‘no’ to even newborn patients at times.”
- “Now, we are in a cross-coverage ‘on call’ schedule with another group. This means that an individual may be delivered by an OB she has never met.”

When the same questions were asked of the department chiefs of teaching hospitals, they responded that

- 38% had altered services and
- 49% had adjusted professional staffing patterns.

These overall rates for the teaching hospital department chiefs are above the rates for the practicing physicians, and they outline the serious situation in hospitals. In Table 8, the responses to Questions 18 and 19 for selected specialties of

the hospital chiefs survey are displayed, which reinforce the result of the practicing physician survey.

TABLE 8: SELECTED RESPONSES TO QUESTIONS 18 AND 19 OF THE DEPARTMENT CHIEFS OF TEACHING HOSPITALS SURVEY

Q16: HAVE PHYSICIAN SUPPLY PROBLEMS MADE IT NECESSARY FOR YOU TO ALTER THE SERVICES YOU PROVIDE? Q17: HAVE PHYSICIAN SUPPLY PROBLEMS MADE IT NECESSARY FOR YOU TO ADJUST YOUR PROFESSIONAL STAFFING PATTERNS?	HOSPITAL DEPARTMENT CHIEFS SURVEY	
	ALTERED SERVICES	ADJUSTED PROFESSIONAL STAFFING PATTERNS
Anesthesiology	50%	75%
Cardiology	33%	100%
Neurosurgery	67%	100%
OB/GYN	43%	29%
Orthopedics	40%	60%
Pediatrics	75%	75%
Primary Care	75%	50%
Radiology	56%	78%
SAMPLE MEAN	38%	49%

Several verbatim responses to Questions 18 and 19 from physicians are included below.

- “We have not been able to increase our coverage to keep pace with the increasing volume and acuity. As a result, patients wait 50 percent longer than they did two to three years ago, and we spend less time with each patient.”
- “Potentially dangerous conditions exist, such as obstetricians having to cover office when patients are in labor, etc. Working harder and always in a rush to get everything done.”
- “Two physicians now cover the same number of patients and night call once covered by six physicians.”

1.3 — Time Required to Recruit Physicians

Question 21: Based on your current experience, how long does it take to recruit a physician to your practice?

Question 22: Over the past three years, has the time needed to recruit physicians changed? If yes, by how much has the time needed to recruit increased or decreased?

These two questions were designed to collect opinions and attitudes on the changing dynamics of physician recruitment. Question 21 collects information on the specific amount of time, measured in months, required to recruit a physician. Question 22 asks whether the amount of time to recruit has changed and by how much time the change either increased or decreased. A review of all responses to this question showed that an overwhelming number indicated the amount of time had increased. Accordingly, the data shown in Table 9 (see page 30) includes only those responses that expressed increases in recruitment time. The survey results must be judged together, but before we examine the details, it will be important to note what is perhaps the most important overall conclusion supported by these survey data:

- The average amount of time required to recruit a physician amounts to over one year, based on the results of the 2003 practicing physician survey.
 - Among the 2003 survey respondents, there were only two specialties (emergency medicine and pediatrics) where the amount of time was significantly less than one year.
 - At the other extreme, there were three specialties (gastroenterology, neurosurgery, and orthopedics) where the recruitment time was eighteen months or longer, all of which are designated as having a severe or critical physician labor shortage.

These ratios tell us a great deal about the difficulty inherent in physician labor markets in Massachusetts. The loss of a single physician from a small practice — particularly when the individual is in a critically short-supply specialty and in a practice with only one or two other physicians — means that the practice will not likely be able to provide the same volume of professional services for

a twelve to eighteen month period. Such events can cause a significant discontinuity in patient care.

Data from a related MMS/Massachusetts Biotechnology Council survey provide results that are in sharp contrast to the data from the MMS Physician Workforce Study. For example, when biotech CEOs were asked: “How long does it take to recruit a physician?” roughly 60 percent indicated that it would take three months or less. There are two obvious reasons for this. First, the higher salary levels and relief from the day-to-day pressures on the practicing physician make recruitment easier. Second, the widespread availability of stock options has also served as an attractive incentive.

We may now turn our attention to the specific responses to Questions 21 and 22. The survey data are summarized below in Table 9.

TABLE 9: RESPONSES TO QUESTIONS 21 AND 22 OF THE PRACTICING PHYSICIANS SURVEY

Q21: BASED ON YOUR CURRENT EXPERIENCE, HOW LONG DOES IT TAKE TO RECRUIT A PHYSICIAN TO YOUR PRACTICE? Q22: OVER THE PAST THREE YEARS, HAS THE AMOUNT OF TIME NEED TO RECRUIT PHYSICIANS CHANGED? (INCREASES ONLY ¹⁴)	AMOUNT OF TIME REQUIRED TO RECRUIT HAS INCREASED SIGNIFICANTLY		MEAN NUMBER OF MONTHS REQUIRED TO RECRUIT	
	2003	2002	2003 (IN MONTHS)	2002 (IN MONTHS)
Anesthesiology	50%	63%	9.6%	10.6%
Cardiology	60%	41%	14.4%	12.7%
Emergency Medicine	38%	23%	8.4%	8.6%
Family Practice	25%	19%	10.1%	11.7%
General Surgery	45%	33%	13.7%	12.8%
GI	65%	69%	19.1%	22.3%
Internal Medicine	39%	30%	12.5%	10.3%
Neurosurgery	33%	44%	26.5%	22.9%
OB/GYN	24%	20%	11.7%	12.8%
Orthopedics	47%	42%	17.4%	14.6%
Pediatrics	14%	18%	8.8%	7.8%
Psychiatry	35%	34%	11.9%	11.1%
Radiology	68%	65%	13.5%	14.9%
Vascular Surgery	52%	13%	11.8%	17.0%
SAMPLE MEAN	41%	35%	12.4%	11.9%

¹⁴ A review of the 2003 survey responses indicated only sixteen responses noted a decrease in the time to recruit. Due to the overwhelming response that time to recruit had increased, only those response were included. In 2002, there were no responses indicating a decrease.

A careful review of the data supports a number of important generalizations about changes in labor markets for physicians and the amount of time required to recruit the physicians:

- First, 41% of the physician respondents indicated that the time needed to recruit a physician has increased significantly. This is a considerable increase from the 2002 result of 35%.
- Second, there are two interesting conclusions that may be drawn from the juxtaposition of the 2002 and 2003 responses to Questions 21 and 22. Among the four specialties listed below, there was a consistency between increases in the amount of time required to recruit a physician and an increase in the average number of months required to successfully secure the replacement physician:
 - Cardiology
 - General Surgery
 - Internal Medicine
 - Orthopedics
- At the same time, it should be noted that among the fourteen specialties there were also several contradictions across the paired observations. Respondents in the following specialties indicated that the amount of time required to recruit a physician had increased but reported a decrease in the number of months required to accomplish this goal:
 - Family Practice
 - Obstetrics/Gynecology
 - Radiology
 - Vascular Surgery

An additional but opposite contradiction was seen in the neurosurgery responses. The average number of months required to recruit increased, but the percentage of respondents who indicated that the time required to recruit had increased was significantly less than in 2002.

The survey of department chiefs of teaching hospitals also included Question 22 regarding a change in recruiting time and if the change was an increase or decrease. In response to this question:

- 66% of hospital department chiefs indicated that the amount of time needed to recruit physicians has changed. Of those who said recruiting time changed, 94% indicated that recruiting time increased.

-
- The specialties with considerably higher responses that indicated an increased recruiting time were as follows:
 - Anesthesiology (75%)
 - Cardiology (100%)
 - Gastroenterology (83%)
 - OB/GYN (71%)
 - Primary Care (75%)
 - Radiology (89%)
 - With the exception of OB/GYN and primary care, all of the specialties above have been determined to be a critical shortage specialty. The results for OB/GYN and primary care illustrate that they may be approaching a crisis situation.

1.4 — Retention of Physicians

Question 23: 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 easier or more difficult?

These two questions were designed to gain insight into the important issue of physician retention and the efficient functioning of a practice. The responses to the first part of the question — namely, how has the retention of physicians in your practice changed over the past three years — was designed to collect information about the most recent local labor market adjustments to physician demand. The results for the fourteen specialties collected on those two questions are shown in Table 10.

These questions are important to the Physician Workforce Study for at least two reasons. First, answers to the question concerning experiences over the past three years tell us a great deal about the physicians' perceptions about the stability or instability of their labor markets. Second, responses indicate whether conditions are making it easier or more difficult to retain physicians.

For nine of the fourteen specialties surveyed, approximately two-thirds to three-fourths of the respondents indicated that their ability to retain physicians had changed over the past three years. For five specialties, these ratios were somewhat less. The sample responses were equally scattered around the means of 57

TABLE 10: RESPONSES TO QUESTION 23 OF THE PRACTICING PHYSICIANS SURVEY

Q23: 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 EASIER OR MORE DIFFICULT?	RETENTION IN LABOR MARKET HAS CHANGED		RETENTION OF PHYSICIANS HAS BECOME MORE DIFFICULT	
	2003	2002	2003	2002
Anesthesiology	75%	77%	96%	100%
Cardiology	58%	61%	100%	100%
Emergency Medicine	55%	68%	84%	96%
Family Practice	47%	50%	93%	96%
General Surgery	61%	58%	100%	100%
GI	50%	44%	100%	92%
Internal Medicine	63%	62%	94%	96%
Neurosurgery	67%	69%	100%	100%
OB/GYN	53%	47%	99%	86%
Orthopedics	56%	50%	97%	96%
Pediatrics	32%	35%	92%	88%
Psychiatry	55%	55%	100%	100%
Radiology	71%	89%	100%	97%
Vascular Surgery	43%	14%	100%	100%
SAMPLE MEAN	57%	57%	97%	96%

percent. Thus, for the majority of physicians surveyed, labor markets, in terms of retention, have changed over the past year.

More importantly, the responses to Question 23 make it very clear that these changes are making it more, not less, difficult to retain physicians. When compared with other labor market reports, it is extremely rare to see responses that were so overwhelmingly consistent; it indicates that the cumulative impact of changes in physician labor markets over the past three years has made it more difficult to retain physicians in all specialties.

This conclusion alone captures the very essence of a hard reality that physician labor markets in Massachusetts are in a crisis stage.

The verbatim responses as to why the ability to retain existing staff has changed have been grouped into the following categories along with the percentages of responses each category was of the total verbatim responses to Question 23:

- Low salary compared to other states and/or for hours worked (40%)

-
- Increased workload (12%)
 - Increased hours (9%)
 - Cost of living in Massachusetts too high (8%)
 - Practice environment in Massachusetts too bad (7%)
 - Miscellaneous (24%)

Specific verbatim responses for Question 23 are included below.

- “They cannot make enough money to sustain reasonable living especially for candidates who are fresh out of training, have loans to pay, and have had poor salaries throughout their residency (which can last five to seven years).”
- “Noncompetitive environment for physicians in Massachusetts. Why beat your head against a wall when you can work for 50 percent more in another state and have more help with call?”
- “Because of difficulty recruiting, we are working more hours per week and seeing more patients per hour than the national average.”
- “I think many people are positioning themselves to leave. The work load is too heavy, especially off hours.”
- “Mobility — move to other states with ‘friendlier’ environment toward physicians.”
- “Competitive income from other practices/career changes (e.g., pharmaceutical careers).”
- “Noncompetitive salaries, increasing work volume, aging staff.”

When the department chiefs of teaching hospitals were asked these same questions, 55% responded that retention rates in the labor market have changed, and an overwhelming majority of 92% responded that retention of physicians has become more difficult. These results correspond to the responses of the practicing physicians. Table 11 displays the results of the hospital department chiefs survey for selected specialties.

TABLE 11: SELECTED RESPONSES TO QUESTION 23 OF THE DEPARTMENT CHIEFS OF TEACHING HOSPITALS SURVEY

Q23: 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?	HOSPITAL DEPARTMENT CHIEFS SURVEY	
	RETENTION IN LABOR MARKET HAS CHANGED	RETENTION OF PHYSICIANS HAS BECOME MORE DIFFICULT
Anesthesiology	75%	67%
Cardiology	67%	100%
GI	100%	83%
Neurosurgery	67%	100%
Pediatrics	100%	100%
Radiology	67%	100%
SAMPLE MEAN	55%	92%

1.5 — Determination of Shortage by Specialty Conclusion

In conclusion, having identified the eight physician specialties that are currently most stressed in Massachusetts labor markets and discussing specific question results, we will elaborate on the analysis by examining additional survey details in terms of the comparing the results of the practicing physician survey to the results from the community hospital medical staff presidents and teaching hospital department chiefs surveys, the impact of professional liability costs, physicians’ attitudes toward their practices, and finally regional disparities in shortages.

SECTION 2: EVALUATING THE RESULTS AMONG MEDICAL STAFF PRESIDENTS IN COMMUNITY HOSPITALS AND THE DEPARTMENT CHIEFS OF TEACHING HOSPITALS

2.1 — Introduction

There are two additional surveys that are integral components of the larger MMS 2003 Physician Workforce Study. One was a carryover from the 2002 survey and included a series of questions sent directly to teaching hospital department chiefs. The second was a new component of the 2003 survey; it was a separate mail-out, mail-back survey to the medical staff presidents in community hospitals.

Before we analyze the survey data, a brief comment about the functions and institutional structures of community hospitals and teaching hospitals.

Community Hospitals

Community hospitals are not only the front line for primary and emergency care services, they also provide all but the most sophisticated services, such as transplant operations that are found only at teaching hospitals. The pervasive nature of the system of community hospitals means that all areas of the Commonwealth benefit from their economic impact. The survey was sent to the medical staff presidents of the sixty-two acute care community hospitals, which are scattered throughout the Commonwealth among centers of populations and economic activity.

Teaching Hospitals

Massachusetts teaching hospitals or academic health centers are also critically important to our economy. An academic health center (AHC) is an institution

organized around patient care, sophisticated research, and teaching medical students. At the heart of each AHC are the area's medical schools. The Boston–Worcester Corridor includes four medical schools: Boston University, Harvard University, Tufts University, and the University of Massachusetts. The Baystate Medical Center is also a major AHC with a significant teaching role in the western region.

2.2 — Comparing the Results from Surveys of Community Hospitals, Teaching Hospital Departments, and Practicing Physicians

In the 2003 MMS Physician Workforce Study, surveys were mailed to sixty-two community hospitals and thirteen departments at nine teaching hospitals. The key characteristics of these two samples are shown in Table 12.

TABLE 12: SAMPLE CHARACTERISTICS

	NUMBER OF SURVEYS	
	MAILED	RETURNED
Medical Staff Presidents in Community Hospitals	62	30
Department Chiefs of Teaching Hospitals	108	68

There was one change in the distribution of this year's survey to teaching hospital department chiefs. The survey was sent to only thirteen of the fourteen physician specialties contained in the broader practicing physicians survey discussed above; the specialties of internal medicine and family practice were combined into a survey of primary care. This represents a much more intensive survey from last year, where information was collected on only four physician specialties: anesthesiology, cardiology, orthopedics, and radiology.

The medical staff presidents of community hospitals survey was the first time the MMS had sought their participation in the Physicians Workforce Study. Detailed information concerning the existence of shortages was collected on all specialties.

Without doubt, the real statistical strength of these two additional surveys is that Questions 16 through 24 in the physicians survey were replicated in order to be able to match the responses of these two separate samples to the much

larger practicing physicians survey. In the analysis that follows, we will make specific comments about the questions that overlapped across the three surveys.

TABLE 13: SUMMARY OF QUESTION 16 RESPONSES

IS THE POOL OF PHYSICIAN APPLICANTS ADEQUATE TO FILL YOUR VACANT POSITIONS?	2003 SURVEY RESULTS		
	PRACTICING PHYSICIANS ¹⁵	TEACHING HOSPITAL DEPARTMENTS	COMMUNITY HOSPITALS
Adequate	34%	45%	13%
Inadequate	66%	55%	87%

Looking beyond the fact that between 55% and 87% of respondents in all three surveys felt that that pool of physicians was inadequate, the most obvious conclusion that these results support is the significantly greater percentage of respondents in community hospitals who characterized the current physician applicant pool as “inadequate.” The concluding statements at the end of this section will discuss the key factors that cause community hospitals to have a more serious recruitment situation than the other groups surveyed.

A question series regarding the ability to retain physicians was also asked in all three surveys. Below is a summary of the results of each survey.

TABLE 14: SUMMARY OF QUESTION 23 RESPONSES

OVER THE PAST THREE YEARS, HAS YOUR ABILITY TO RETAIN YOUR EXISTING STAFF OF PHYSICIANS CHANGED?	2003 SURVEY RESULTS		
	PRACTICING PHYSICIANS	TEACHING HOSPITAL DEPARTMENTS	COMMUNITY HOSPITALS
Yes	57%	55%	67%
No	43%	45%	33%

TABLE 15: SUMMARY OF QUESTION 23 RESPONSES

AND IF YES, HAS RETAINING PHYSICIANS BECOME	2003 SURVEY RESULTS		
	PRACTICING PHYSICIANS	TEACHING HOSPITAL DEPARTMENTS	COMMUNITY HOSPITALS
Easier?	3%	8%	0%
More difficult?	97%	92%	100%

¹⁵ Results from practicing physicians survey exclude responses of “not applicable.”

This pair of questions was structured to collect specific information about opinions and attitudes among physicians across different institutional settings and in segmented labor markets in Massachusetts.

Unlike the comparative responses to most of the other questions in this section across the three different surveys, there is a high level of uniformity in the answers. For all three organizational types, the sample results are very clear and as follows:

- Of those surveyed, 55% to 67% indicated that the ability to retain one’s existing staff of physicians is changing
- Nearly all (91% to 100%) agree that the impacts of the changes have made it more difficult to retain physicians.

In the final analysis, none of these entities are having an easy time retaining physicians.

TABLE 16: SUMMARY OF QUESTION 17 RESPONSES

ARE YOU CURRENTLY EXPERIENCING DIFFICULTY IN FILLING PHYSICIAN VACANCIES?	2003 SURVEY RESULTS		
	PRACTICING PHYSICIANS	TEACHING HOSPITAL DEPARTMENTS	COMMUNITY HOSPITALS
Yes	69%	62%	96%
No	31%	38%	4%

Between 62% and 96% of those surveyed indicated difficulty in filling physician vacancies. Again, the strong disparity in the response pattern among the medical staff presidents at community hospitals shows through very clearly.

- The medical staff presidents of all but one of the community hospitals who responded to this question indicated that they are experiencing difficulty in filling physician vacancies.

The disaggregated responses provide even more insight as to the relative tightness of physician labor markets at community hospitals: specifically, the six specialties that follow were singled out as having particularly severe shortages among community hospitals:

- Anesthesiology
- General Surgery
- Gastroenterology

- Internal Medicine
- OB/GYN
- Radiology

It is interesting to note that among these six specialties, three of them (anesthesiology, gastroenterology, and radiology) are classified as being in the “critical” labor shortage category, while general surgery is in the “severe” labor shortage category in terms of the labor shortage classification model discussed in the Study Methodology section. The remaining two, internal medicine and OB/GYN, are not considered severe but are still experiencing significant shortages.

The next two survey questions were structured to determine the extent that physician shortages are making it necessary to alter patient services and/or adjust professional staffing patterns. The relevant data from the three surveys are outlined in Tables 17 and 18.

TABLE 17: SUMMARY OF QUESTION 18 RESPONSES

HAVE PHYSICIAN SUPPLY PROBLEMS MADE IT NECESSARY FOR YOU TO ALTER THE SERVICES YOU PROVIDE?	2003 SURVEY RESULTS		
	PRACTICING PHYSICIANS	TEACHING HOSPITAL DEPARTMENTS	COMMUNITY HOSPITALS
Yes	31%	38%	53%
No	69%	62%	47%

TABLE 18: SUMMARY OF QUESTION 19 RESPONSES

HAVE PHYSICIAN SUPPLY PROBLEMS CAUSED YOU TO ADJUST PROFESSIONAL STAFFING PATTERNS?	2003 SURVEY RESULTS		
	PRACTICING PHYSICIANS	TEACHING HOSPITAL DEPARTMENTS	COMMUNITY HOSPITALS
Yes	37%	49%	40%
No	63%	51%	60%

Here, the responses are unlike the comparative responses discussed above, where there were significant disparities among the results of the practicing physicians, teaching hospital chiefs, and the community hospitals medical staff presidents.

-
- It is quite significant that between 31% and 53% of respondents have been forced to alter the services they provide due to the physician shortage. The impacts of these service alterations could be very detrimental to the ability to receive certain health care services in a timely fashion in the near future.
 - One other notable point is that 37% to 49% of all respondents indicated that they have adjusted professional staffing patterns. This may represent the ability of “organizational elasticity” to absorb the impact of the altering of services by shifting the staffing patterns of physicians.

At this point, it will be worthwhile to comment on the most probable reasons why the responses for community hospitals are so fundamentally at variance with the data collected in the other two surveys. While a number of different reasons may be at work here, we believe that this most likely results from the structural characteristics of community hospitals vis-à-vis teaching hospitals and physician practices. For the most part, community hospitals conduct only modest amounts of medical research when compared to teaching hospitals. As a result, there are limited grant funds available to augment physician salaries. Further, most community hospitals operate under much tighter financial constraints, and this means they are often unable to compete in labor markets dominated by the relatively close location of teaching hospitals. In an overall labor-market environment of significant shortages, these factors necessarily shrink the available pool of specialists down even more.

In comparing the responses of medical staff presidents in community hospitals to physicians in practice, the medical staff presidents must actively work to fill any gaps in services from closures in their service area. This results in greater involvement with recruiting and retention issues. Due to their more global view of physician practice needs and shortages, the pattern of responses of medical staff presidents in community hospitals is entirely consistent with our a prior expectations.

SECTION 3: SURVEY RESULTS CONCERNING THE OPINIONS OF RESIDENTS, FELLOWS, AND PROGRAM DIRECTORS

An integral component of the Physician Workforce Study survey was a series of questions concerning the opinions and attitudes of the residents and fellows in their final year of training. Of special interest were their attitudes and perceptions about the pursuit of their careers in the Commonwealth. Shown in Table 19 are the responses of the program directors to this question of how many of their residents or fellows left Massachusetts for a series of years.

TABLE 19: GEOGRAPHIC PREFERENCES OF RESIDENTS AND FELLOWS UPON COMPLETION OF THEIR TRAINING

	% OF RESIDENTS WHO LEFT MA	% OF FELLOWS WHO LEFT MA
1997–98	45%	66%
1998–99	53%	54%
1999–2000	47%	61%
2000–01	45%	58%
2001–02	44%	49%

One of the root causes of the physician shortage in Massachusetts derives from the relatively large ratio of residents and fellows who leave upon completion of their training. The data shown in Table 19 provide support for this generalization. Slightly less than one-half of the residents and fellows pursued the next step in their medical career outside Massachusetts. While the aggregate ratios show very little variation over time, it should be noted the number of residents and fellows actually participating in these Massachusetts-based programs has increased, which translates into more residents and fellows who leave each year.

The Physician Workforce Study survey in 2002 and 2003 also included a detailed set of questions to determine the professional and personal factors that play a role in the locational decision-making process of residents and fellows. The results are shown in more detail in Table 20.

TABLE 20: 2003 RESULTS RELATING TO FACTORS THAT AFFECT LOCATIONAL SELECTION*

		RESIDENTS AND FELLOWS								
		YES, I PLAN ON SEEKING EMPLOYMENT IN MA (35%)			NO, I DON'T PLAN ON SEEKING EMPLOYMENT IN MA (41%)			I AM UNDECIDED ABOUT SEEKING EMPLOYMENT IN MA (24%)		
		FAVORABLE	NEUTRAL	UNFAVORABLE	FAVORABLE	NEUTRAL	UNFAVORABLE	FAVORABLE	NEUTRAL	UNFAVORABLE
P R O F E S S I O N A L F A C T O R S	Research Opportunities	82%	16%	2%	87%	11%	1%	93%	7%	0%
	Clinical Opportunities	62%	29%	10%	46%	35%	19%	55%	25%	21%
	Intellectual Stimulation	94%	6%	0%	90%	10%	0%	93%	7%	0%
	On-Call Schedule/ Work Hours	21%	64%	16%	19%	47%	33%	19%	56%	26%
	Diverse Patient Demographics	56%	41%	3%	44%	47%	9%	46%	50%	5%
	Practice Environment	29%	42%	29%	18%	37%	45%	16%	63%	21%
	Strength of Peer Group	87%	13%	0%	65%	29%	6%	67%	30%	2%
	Salary Level	3%	21%	76%	8%	21%	71%	7%	18%	75%
P E R S O N A L F A C T O R S	Salary Arrangement	6%	40%	54%	7%	43%	51%	7%	30%	64%
	Cost of Living	6%	11%	83%	3%	8%	89%	0%	14%	86%
	Housing Costs	5%	11%	84%	1%	4%	95%	0%	12%	88%
	Tax Environment in MA	3%	35%	62%	3%	34%	63%	2%	43%	55%
	Proximity to Extended Family	67%	13%	21%	15%	22%	63%	34%	27%	39%
	Local Amenities	87%	11%	2%	60%	32%	8%	84%	16%	0%
	Geographic Location	81%	15%	5%	53%	36%	11%	73%	23%	5%
Community Issues	76%	22%	2%	35%	50%	15%	52%	41%	7%	

* PERCENTAGES MAY NOT ADD UP TO 100% DUE TO ROUNDING.

In the comments that follow, we have limited our remarks to the most relevant differentiating points. There are also several interesting findings that are highlighted in the following analysis. Research opportunities and intellectual stimulation are acknowledged to be very high in the Commonwealth and the results of the survey reflect this observation; however, it should be noted that these two factors are singled out as important regardless of locational preference. Given the sheer concentration of the medical complex in Massachusetts, these answers, to say the very least, are expected.

Table 20 also identifies the following several factors that are considered unfavorable in Massachusetts regardless of locational preference:

- Salary level
- Cost of living
- Housing costs
- Tax environment in Massachusetts

Of these four factors, salary level is the only factor that can be relatively easy to adjust to address the issue. What is most troublesome about the other three factors (cost of living, housing costs, and tax environment in Massachusetts) is that, in reality, there is very little that can be done to mitigate the negative impact.

Additionally, there are significant differences in the responses between residents and fellows who plan to stay in Massachusetts and those who prefer to leave the state to practice medicine. These variations are evident in the following factors:

- Practice environment
- On-call schedule/work hours
- Proximity to extended family

These variations in responses are to be expected, but it is interesting to note that the proximity to extended family had the highest variation in unfavorable responses.

The responses to the same questions of residents and fellows in 2002 mirrored the responses in 2003, indicating that in the opinion of residents and fellows regarding this situation has not improved.

A final component in this analysis was the collection of the opinions of residency and fellowship program directors about the factors that are important to their residents and/or fellows when making a decision to pursue a medical career in Massachusetts. These results correspond very closely to the residents and fellows responses and are displayed in Table 21.

TABLE 21: 2003 AND 2002 RESULTS FROM PROGRAM DIRECTORS SURVEY REGARDING FACTORS THAT ARE IMPORTANT TO THEIR RESIDENTS' AND FELLOWS' LOCATIONAL DECISIONS*

	2003 SURVEY RESULTS			2002 SURVEY RESULTS			
	FAVORABLE	NEUTRAL	UNFAVORABLE	FAVORABLE	NEUTRAL	UNFAVORABLE	
PROFESSIONAL FACTORS	Research Opportunities	85%	15%	0%	79%	20%	2%
	Clinical Opportunities	35%	40%	25%	37%	31%	32%
	Intellectual Stimulation	86%	14%	0%	93%	7%	0%
	On-Call Schedule/ Work Hours	12%	66%	22%	13%	67%	20%
	Diverse Patient Demographics	21%	74%	5%	24%	73%	3%
	Practice Environment	14%	28%	58%	20%	27%	53%
	Strength of Peer Group	72%	26%	2%	80%	16%	4%
	Salary Level	3%	14%	83%	5%	18%	77%
	Salary Arrangement	2%	29%	69%	2%	27%	71%
	Cost of Living	2%	5%	93%	4%	5%	91%
PERSONAL FACTORS	Housing Costs	2%	5%	93%	Not asked in 2002		
	Tax Environment in MA	0%	28%	72%			
	Proximity to Extended Family	35%	58%	7%	41%	54%	5%
	Local Amenities	79%	21%	0%	72%	26%	2%
	Geographic Location	81%	17%	2%	81%	18%	2%
Community Issues	62%	38%	0%	68%	30%	2%	

*PERCENTAGES IN 2002 RESULTS ADJUSTED TO EQUAL 100% TO BE CONSISTENT WITH 2003 RESULTS.

In conclusion, even with the very high concentration of excellent medical centers and world-renowned health care providers, the residents and fellows continue to leave Massachusetts to practice medicine. The reasons for this are numerous, but the primary reasons are as follows:

- Unfavorable practice environment
- Uncompetitive levels of compensation when compared to other states
- High cost of living in Massachusetts

SECTION 4: ANALYSIS OF QUESTIONS RELATING TO THE ISSUE OF PROFESSIONAL LIABILITY EXPENSES

Without doubt, one of the most contentious issues currently being discussed regarding health care is the cost of professional liability insurance. In an effort to determine the impact of these rapidly rising costs on the profession, two specific questions were included in the 2003 MMS Practicing Physician Survey. Since the conclusion of this year's study, there has been an article in the *Boston Globe* (on April 17, 2003) reporting that professional liability rates for the largest insurer will increase on average by 20 percent effective July 1, 2003.¹⁶ We firmly believe that future responses to this question will further illustrate the negative impact of professional liability insurance rates on the practice environment. In this section, the results of these questions are summarized; the detailed response data are included at the end of the discussion.

4.1 — Have professional liability costs influenced your decision to make a change in your professional career?

In Table 22 are displayed the array of responses from the physicians in the fourteen specialties surveyed.

To say the least, the results are most startling: Roughly one out of three physicians sampled indicated that higher professional liability costs may play a role in their decision to contemplate a career change is staggering. With these rates continuing to increase, this issue can only worsen. These responses suggest that the aggregate impact of higher professional liability costs on the physician workforce as a whole could be truly significant. In addition, 14% of the residents surveyed indicated that the professional liability situation in Massachusetts has affected their decision to practice medicine in Massachusetts.

¹⁶ Kowalczyk L. *Premiums to Rise 20% for Mass. Doctors*. Boston Globe, 17 April 2003, sec. A1.

TABLE 22: SUMMARY OF QUESTION 10B OF THE PRACTICING PHYSICIANS SURVEY

Q10B: HAVE PROFESSIONAL LIABILITY COSTS INFLUENCED YOUR DECISION TO CONTEMPLATE A CAREER CHANGE?	% OF RESPONDENTS WITHIN EACH SPECIALTY THAT RESPONDED YES
Neurosurgery	69%
OB/GYN	66%
Vascular Surgery	45%
General Surgery	44%
Orthopedics	40%
Emergency Medicine	36%
Radiology	33%
Internal Medicine	25%
Gastroenterology	22%
Anesthesiology	16%
Family Practice	16%
Cardiology	15%
Pediatrics	11%
Psychiatry	10%
SAMPLE MEAN	30%

As noted above in Table 22, seven specialties have rates above the mean. This is particularly evident in the following specialties, which have responses 10% to 40% higher than the overall question mean:

- Neurosurgery (69%)
- OB/GYN (66%)
- Vascular Surgery (45%)
- General Surgery (44%)
- Orthopedics (40%)

Further, the physician specialties with the highest percentages in Table 22 are consistent with the highest risks in terms of professional liability. With high response rates for specific specialties, one would have to conclude that this is an area requiring attention immediately.

Specific responses to Question 10 are included below.

- “I see NO END to the emotional and professional slaying of doctors. We are helping people ‘in the field of life’s battle,’ while being shot at [sued] by our patients and lawyers. Who in our society could withstand such treatment? No one.”

TABLE 23: SUMMARY OF QUESTION 11 OF THE PRACTICING PHYSICIANS SURVEY

Q11: WHAT PERCENT OF YOUR TOTAL OPERATING COSTS DO PROFESSIONAL LIABILITY RATES REPRESENT?	% OF RESPONDENTS WITHIN EACH CATEGORY
1–5%	35%
6–10%	30%
11–15%	11%
16–20%	9%
21–25%	4%
26–50%	9%
Greater than 50%	2%

- “I have to do forty deliveries just to pay for malpractice insurance.”
- “My rates have increased 25 percent. My reimbursement has decreased 10%.”

We may now turn our attention to the next question.

4.2 — What percentage of your total operating costs do professional liability rates *represent*?

Displayed in the Table 23 is the frequency distribution for the responses to this question for all fourteen specialties.

These responses need to be judged within the context of each of the physician’s business, but for two-thirds of surveyed physicians, professional liability costs are up to 10 percent of total business costs. These costs include overhead items such as staffing, rent, medical supplies, and equipment. When the data are analyzed by specialty, the following conclusions can be made:

- As expected, high-risk specialties (OB/GYN, general surgery, and neurosurgery) have a much higher percentage of responses greater than 10%.
- Low-risk specialties (internal medicine, psychiatry, and pediatrics) have a large percentage of responses closer to 10%.
- Also important to note, there is a high degree of variance within each specialty for the following: anesthesiology, general surgery, neurosurgery, and orthopedics. For some within these specialties, the ratio of malpractice costs to operating costs is extraordinarily high.
- One in four respondents indicates their professional liability costs represent 16 percent or more of their total operating costs.

The key point is that the survey results support the conclusion that for many physician practices high professional liability costs can mean the difference between operating at a profit or loss.

Several of the physicians responding to this question included comments. The following are a few of the statements made.

- “The increase is frightening. Many of our group [OB/GYN] practices are contemplating no longer providing OB coverage.”
- “OB/GYN: \$50k increase in my premium this year, which is DISGUSTING.”
- “Never before in my wildest dreams have I practiced more defensively than I do now. I’m beyond caring how much it costs to prevent lawsuit abuse. This crisis is destroying OB/GYN.”

SECTION 5: PATIENTS' ACCESS TO CARE AND PHYSICIANS' ATTITUDES TOWARD THEIR PROFESSION

It is important to recognize that the MMS Workforce Study sought the opinions and attitudes of physicians working in Massachusetts labor markets; that is, the supply side of labor markets. In an effort to address the demand side of the market equation, the MMS undertook a special telephone survey of four hundred Massachusetts-based patients to collect their opinions and attitudes about the quality of and access to patient care. This survey was conducted by Opinion Dynamics Corporation, based in Cambridge, Massachusetts, during the winter months of 2003. The responses to the questions, relevant to our discussion follow.

When patients were asked about their satisfaction level in the patient care received, the results indicated that 89% of surveyed patients were either very satisfied or satisfied with the care they received. Unquestionably, this response must be considered a relatively strong endorsement of the quality of physician care.

When asked to rate the ease of access to care, 17% rated access as hard. Overall, this would correlate to about 680,000 adult Massachusetts residents reporting trouble.¹⁷

Two other questions are relevant to our discussion: both relate to attitudes among patients in regard to the lapsed time between when an appointment is sought and received with a physician. The specific survey responses are in Table 24.

Thirteen percent of patients, which extrapolates to approximately 520,000 adult Massachusetts residents¹⁶, rated their access to routine care as not very reasonable or not reasonable at all; for serious but not life-threatening medical problems, the percentage was 11% or approximately 440,000 adult Massachusetts residents.

¹⁶ Kowalczyk L. *Premiums to Rise 20% for Mass. Doctors.* *Boston Globe*, 17 April 2003, sec. A1.

¹⁷ Based on U.S. Census 2001 estimates of the resident population between the ages of 18 and 65 in Massachusetts.

TABLE 24: PATIENTS’ ATTITUDES CONCERNING THE AMOUNT OF LAPSED TIME BETWEEN THE DAY AN APPOINTMENT IS SOUGHT AND ACTUAL APPOINTMENT DATE WITH A PHYSICIAN

FOR ROUTINE PATIENT CARE	PERCENT SATISFIED
Very reasonable	63%
Somewhat reasonable	22%
Not very reasonable/not reasonable at all	13%
Don’t know	2%
FOR SERIOUS BUT NOT LIFE-THREATENING MEDICAL PROBLEM	PERCENT SATISFIED
Very reasonable	66%
Somewhat reasonable	21%
Not very reasonable/not reasonable at all	11%
Don’t know	2%

On the surface, these positive responses may seem surprising, especially when juxtaposed with the magnitude of professional staffing shortages outlined throughout this paper. Thoughtful reflection offers what we believe may be a meaningful explanation.

The Massachusetts health care system — reflecting the pivotal role of the physician — has many different functional components, each playing a critical role in facilitating quality and access to patient care. Unquestionably, some parts are unique, but others may be rearranged in different patterns or combinations. This observation makes the argument that there is a certain amount of organizational and administrative elasticity in the system. As physician shortages have become more acute, physicians have had to seek out ways to maximize the elasticity to satisfy growing patient demands. In many instances, this has meant working longer hours; in others, it has meant combining service functions and stretching resources.

An additional question in the practicing physicians survey asked physicians to rate their satisfaction with the current practice environment. In response to this question, 62% of respondents reported that they are either dissatisfied or very dissatisfied with the current practice environment. In light of the demands being placed upon physicians, how much longer can and will physicians continue to be overwhelmed by the current service level demanded from them when practicing in such a unsatisfying practice environment?

A series of questions in the practicing physicians survey dealt with the number of hours worked and the increasing troublesome trade off between

patient care and administrative tasks. The specific responses for the change in hours worked are shown below in Table 25.

Within the context of the pivotal role of the physician as the key factor in making the patient care system work, it will be worthwhile to examine these responses.

TABLE 25: RESPONSES TO QUESTION 9 OF THE PRACTICING PHYSICIANS SURVEY

Q9: IN THE CONTEXT OF YOUR PRACTICE OVER THAT LAST YEAR, HAVE YOU INCREASED, DECREASED, OR KEPT THE SAME WORK HOURS?	INCREASED WORK HOURS	DECREASED WORK HOURS	KEPT THE SAME HOURS
Anesthesiology	55%	15%	30%
Cardiology	57%	9%	34%
Emergency Medicine	30%	25%	45%
Family Practice	48%	10%	42%
General Surgery	59%	11%	30%
GI	52%	11%	37%
Internal Medicine	51%	12%	37%
Neurosurgery	53%	18%	29%
OB/GYN	40%	14%	46%
Orthopedics	56%	15%	29%
Pediatrics	36%	13%	51%
Psychiatry	40%	15%	45%
Radiology	57%	13%	30%
Vascular Surgery	40%	20%	40%
SAMPLE MEAN	48%	13%	39%

Several conclusions may be drawn from the data shown in Table 25:

- First, nearly one-half (48%) of all physicians surveyed responded that over the past year they increased the number of hours worked in order to satisfy patient demand.
- Second, in seven of the eight specialties (see list below) designated as having a severe or critical shortage, more than 50% indicated longer work hours.
 - Anesthesiology
 - Cardiology
 - Gastroenterology
 - General Surgery
 - Neurosurgery
 - Orthopedics
 - Radiology

In addition, over 50% of internal medicine physicians indicated longer work hours, which indicates a potential problem in the future.

Two physicians responded to the question regarding changes in hours worked with the following comments.

- “Physicians are continually being forced to work more hours, see more patients per hour, fight harder for reimbursement, and are getting compensated less in the face of tremendous increases in cost of living.”
- “Balancing the time spent with patients versus the time needed with patients.”

While these responses are interesting, we can only speculate at this point about how many hours per day the physician’s work schedule increased in previous years, or alternatively were they more-or-less stable over time? Given the tightness of labor markets, we suspect that the answer is more likely the former.

If nearly one out of two physicians is working longer hours, it was logical to include a second question in this sequence dealing with the tradeoff between the number of hours worked in patient care vis-à-vis administrative tasks. Accordingly, the following question was included in the physician satisfaction survey:

- How satisfied are you with the number of hours that you are able to spend on patient care versus administrative tasks?

The specific statistical details for the total sample, as well as across the fourteen specialties, are shown on the next page in Table 26.

Specific responses from physicians are included below.

- “I have taken a ‘day off’ but usually use it for administrative and paperwork tasks.”
- “It is the hours over forty that bring you income; otherwise, you are lucky to keep up with overhead.”
- “Work hours up 20%, income up 2%.”

These responses underscore one of the most important dimensions in the practice of medicine in today’s world. Specifically, over one half (51%) of the practicing physicians are dissatisfied or very dissatisfied with what they believe is the excessive amount of time required to accomplish the administrative demands placed on their practices.

TABLE 26: RESPONSES TO QUESTION 3 OF THE PRACTICING PHYSICIANS SURVEY

Q3: HOW SATISFIED ARE YOU WITH THE NUMBER OF HOURS THAT YOU ARE ABLE TO SPEND ON PATIENT CARE VERSUS ADMINISTRATIVE TASKS?	VERY SATISFIED/ SATISFIED	NEUTRAL	DISSATISFIED/ VERY DISSATISFIED
Anesthesiology	31%	32%	37%
Cardiology	29%	26%	45%
Emergency Medicine	40%	15%	45%
Family Practice	25%	16%	59%
General Surgery	28%	25%	47%
GI	36%	14%	50%
Internal Medicine	23%	19%	58%
Neurosurgery	12%	17%	71%
OB/GYN	26%	21%	53%
Orthopedics	13%	18%	69%
Pediatrics	37%	19%	44%
Psychiatry	36%	10%	54%
Radiology	40%	23%	37%
Vascular Surgery	15%	35%	50%
SAMPLE MEAN	29%	20%	51%

While the Opinion Dynamics Corporation survey data indicate general patient satisfaction with quality of and access to care, some of the measures to provide quality patient care, such as increased hours and staffing adjustments under difficult practice circumstances, are holding the system together. But note that there is only so much elasticity in the system. Until the physician workforce situation is brought back into a more stable equilibrium, the ability to meet growing patient demands will remain on the cusp of crisis.

Four additional questions relating to physician satisfaction are especially relevant to completing our understanding of the contemporary role of the physician in Massachusetts labor markets. All impact some aspects of the physicians' labor market. These four questions are as follows:

- How would you rate the profession of medicine?
- Are you contemplating a career change because of the current practice environment in Massachusetts? If yes, please indicate what you are contemplating?
- How satisfied are you with the current practice environment?
- Are you planning to move out of Massachusetts to practice medicine because of the current practice environment?

TABLE 27: RESPONSES TO QUESTION 1 OF THE PRACTICING PHYSICIANS SURVEY

Q1: HOW WOULD YOU RATE THE PROFESSION OF MEDICINE?	VERY REWARDING/ REWARDING	NEUTRAL	UNREWARDING/ VERY UNREWARDING
Anesthesiology	76%	13%	11%
Cardiology	81%	13%	6%
Emergency Medicine	82%	11%	7%
Family Practice	86%	9%	5%
General Surgery	75%	17%	8%
GI	79%	9%	12%
Internal Medicine	77%	13%	10%
Neurosurgery	65%	29%	6%
OB/GYN	71%	15%	14%
Orthopedics	70%	22%	8%
Pediatrics	88%	6%	6%
Psychiatry	86%	10%	4%
Radiology	78%	15%	7%
Vascular Surgery	81%	15%	4%
SAMPLE MEAN	79%	13%	8%

The responses to each of these questions are discussed on the pages that follow.

Question 1: How would you rate the profession of medicine?

Seventy-nine percent of those who responded to this question (see Table 27) indicated that they considered the practice of medicine in Massachusetts as “very rewarding” or “rewarding.” Shown below are the ranges by specialty of the responses to this question.

- Family practice was the specialty that had the highest ranking for the profession of medicine as a very rewarding/rewarding profession at 86%.
- Neurosurgery was the specialty that had the lowest ranking of the profession of medicine as a very rewarding/rewarding profession at 65%.

Comments from the physician respondents related to this question are included below.

- “Despite the current meltdown of the system, the practice of medicine is the most rewarding calling I can imagine.”

TABLE 28: RESPONSES TO QUESTION 10 OF THE PRACTICING PHYSICIANS SURVEY

Q10: ARE YOU CONTEMPLATING A CAREER CHANGE BECAUSE OF THE PRACTICE ENVIRONMENT IN MASSACHUSETTS?	YES	NO	NOT SURE
Anesthesiology	30%	54%	16%
Cardiology	27%	48%	25%
Emergency Medicine	36%	45%	19%
Family Practice	20%	66%	14%
General Surgery	30%	60%	10%
GI	27%	53%	20%
Internal Medicine	28%	52%	20%
Neurosurgery	56%	22%	22%
OB/GYN	40%	41%	19%
Orthopedics	31%	52%	17%
Pediatrics	18%	73%	9%
Psychiatry	15%	71%	14%
Radiology	33%	56%	11%
Vascular Surgery	39%	46%	15%
SAMPLE MEAN	28%	55%	17%

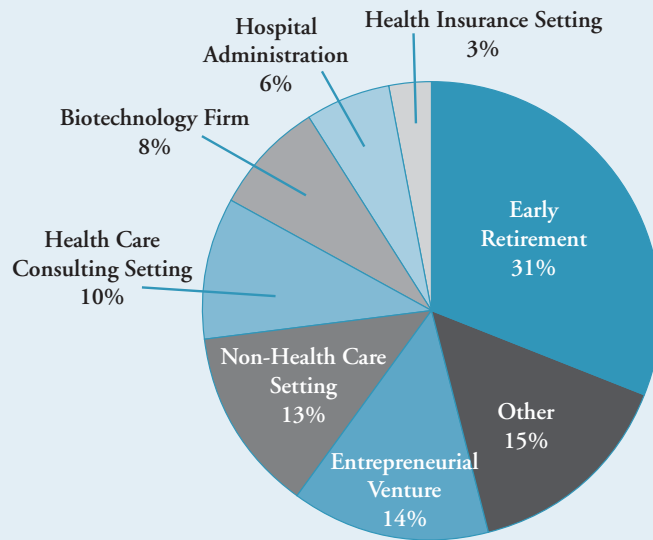
- “Medicine is a calling, and even though current environment is frustrating, the satisfaction one receives from treating patients outweighs the frustrations.”

Question 10: Are you contemplating a career change because of the current practice environment in Massachusetts?

Twenty-eight percent of respondents indicated that they are contemplating a career change because of the current practice environment (see Table 28). Eight specialties have responses greater than the mean. Several of the responses above are important to note due to their significant variation from the mean.

- Over half of neurosurgery respondents (56%) indicated that they are contemplating a career change. Possibly more concerning is that only 22% of neurosurgery respondents indicated that they are not contemplating a career change.
- Other following specialties also had responses significantly greater than the mean:
 - OB/GYN (40%)
 - Vascular Surgery (39%)
 - Emergency Medicine (36%)

Chart 2 — Responses to Question 10b in the Practicing Physicians Survey



The responses to the second part of Question 10 (If you are contemplating a career change, what are you contemplating?) are included in the following chart.

As illustrated in the chart above, early retirement at 31% is the largest response to alternative career options, followed by developing an entrepreneurial venture at 14%, and working in a non-health care setting at 13%.

Question 2: How satisfied are you with the current practice environment?

Sixty percent of those who responded to this question indicated that they are either “very dissatisfied” or “dissatisfied” with the current practice environment in Massachusetts (see Table 29 on the next page).

- Neurosurgery and vascular surgery had much higher response rates of dissatisfied/very dissatisfied than the mean at 82% and 77% respectively. Anesthesiology, gastroenterology, OB/GYN, and orthopedics all had response rates of approximately two-thirds.
- Pediatrics had the lowest rate of dissatisfaction at 41%, which is still a significant rate of dissatisfaction.

Physicians responded to this question with the following comments:

- “I am only 35 years old, practicing for seven years and ready to stop. I would not encourage others to go into medicine. All of my medical school friends feel the same way. We entered this field for altruistic reasons, and reality erased our idealism.”

TABLE 29: RESPONSES TO QUESTION 2 OF THE PRACTICING PHYSICIANS SURVEY

Q2: HOW SATISFIED ARE YOU WITH THE CURRENT PRACTICE ENVIRONMENT?	VERY SATISFIED/ SATISFIED	NEUTRAL	DISSATISFIED/ VERY DISSATISFIED
Anesthesiology	19%	15%	66%
Cardiology	28%	15%	57%
Emergency Medicine	23%	16%	61%
Family Practice	28%	15%	57%
General Surgery	29%	17%	54%
GI	20%	14%	66%
Internal Medicine	24%	16%	60%
Neurosurgery	6%	12%	82%
OB/GYN	23%	10%	67%
Orthopedics	14%	19%	67%
Pediatrics	29%	12%	59%
Psychiatry	41%	18%	41%
Radiology	27%	20%	53%
Vascular Surgery	15%	8%	77%
SAMPLE MEAN	25%	15%	60%

- “I would not advise anyone to go into medicine at this time.”
- “I have 4 sons (ages 14, 12, 10, 7). I cannot recommend medicine to them. My father was an MD.”

Question 13: Are you planning to move out of Massachusetts to practice medicine because of the current practice environment?

The responses to this question (see Table 30) are quite disturbing.

- Seven percent of physician respondents indicated that they are planning to move out of Massachusetts to practice medicine because of the current practice environment. While this number may seem small, it would imply that 1,444 physicians of the 20,628 physicians practicing in Massachusetts are planning to leave the Commonwealth to practice medicine elsewhere.
- In addition, 25% (which extrapolates to 5,157 of the total number of practicing physicians in Massachusetts) are not currently planning on moving but indicate that they will if the situation does not change. Potentially, this may result in 6,601 physicians leaving the Commonwealth. This would result in a patient to physician ratio of 448 patients per physician in Massachusetts, as compared with

TABLE 30: RESPONSES TO QUESTION 13 OF THE PRACTICING PHYSICIANS SURVEY

Q13: ARE YOU PLANNING TO MOVE OUT OF MASSACHUSETTS TO PRACTICE MEDICINE BECAUSE OF THE CURRENT PRACTICE ENVIRONMENT?	YES	NO	NO, BUT WILL IF THE SITUATION DOES NOT CHANGE
Anesthesiology	11%	53%	36%
Cardiology	8%	62%	30%
Emergency Medicine	10%	67%	23%
Family Practice	2%	78%	20%
General Surgery	5%	76%	19%
GI	9%	68%	23%
Internal Medicine	7%	70%	23%
Neurosurgery	12%	44%	44%
OB/GYN	5%	55%	40%
Orthopedics	9%	61%	30%
Pediatrics	3%	83%	14%
Psychiatry	3%	84%	13%
Radiology	7%	60%	33%
Vascular Surgery	8%	80%	12%
SAMPLE MEAN	7%	68%	25%

392 patients per physician in the United States as a whole¹⁸, leaving us more concerned about access for our patients.

- Even more alarming is that specialties already experiencing critical shortages have high rates of “yes” and “no, but will if the situation does not change”:
- Anesthesiology — 11% plan on leaving, and 36% will if the situation does not change.
- Neurosurgery — 12% plan on leaving, and 44% will if the situation does not change.
- Orthopedics — 9% plan on leaving, and 30% will if the situation does not change.

Based on the already demonstrated physician labor market shortages, these responses reveal the urgent need to improve the practice environment to ensure that the shortage situation does not grow any more critical.

Table 31 (on page 60) illustrates the correlation of the responses between satisfaction with the practice environment and planning to leave Massachusetts to practice medicine due to the current practice environment.

¹⁸ Kaiser Family Foundation, *State Health Facts Online, Demographics and the Economy, Population Distribution by Age, state data 2000–2001, U.S. 2001*, available at <http://www.statehealthfacts.kff.org> (accessed 15 April 2003).

TABLE 31: COMBINED RESPONSES TO QUESTION 2 REGARDING SATISFACTION WITH THE CURRENT PRACTICE ENVIRONMENT AND QUESTION 13 REGARDING PLANS TO MOVE OUT OF MASSACHUSETTS TO PRACTICE MEDICINE

ARE YOU PLANNING TO LEAVE MASSACHUSETTS TO PRACTICE MEDICINE BECAUSE OF THE CURRENT PRACTICE ENVIRONMENT?	SATISFACTION WITH THE CURRENT PRACTICE ENVIRONMENT			
	VERY SATISFIED/ SATISFIED	NEUTRAL	DISSATISFIED/ VERY DISSATISFIED	TOTAL FOR ALL RESPONDENTS
Yes	2%	4%	9%	7%
No	86%	74%	59%	68%
No, but will if the situation does not change	12%	22%	32%	25%
TOTAL	100%	100%	100%	100%

The most efficient way to interpret data displayed in this table is to read across as well as up and down. Based on a careful analysis of the percentage information contained in the twelve cells, we may make the following points:

- Nine percent of the physicians surveyed who indicated that they are dissatisfied/very dissatisfied with the practice environment indicated that they are planning to leave Massachusetts.
- In the aggregate, three out of ten physicians indicated that they are sufficiently dissatisfied, and they are either planning on or may leave Massachusetts if the physician practice environment does not improve.
- The very interesting, and perhaps disturbing, responses are contained in the third row: specifically those physicians who may leave Massachusetts if the situation does not change. These responses tell a slightly different story; namely, that 12% of the physicians who responded that they were satisfied/very satisfied with their professional careers in Massachusetts would consider leaving if the current situation does not change. In terms of physicians who are dissatisfied/very dissatisfied, this figure rises to nearly one out of three (32%).

Relevant responses by the physicians related to the above satisfaction questions are included below.

- “Still the greatest profession — I would definitely choose it again.”
- “It is just harder being a physician today.”
- “Physicians are continually being forced to work more hours, see more patients per hour, fight harder for reimbursement, and are getting compensated less in the face of tremendous increases in cost of living.”
- “I truly enjoy being a practicing physician. Sometimes I think, ‘Do they really pay me to do this?’”

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

Economic activity is not dispersed evenly throughout the Commonwealth. Recognizing this reality, it is a good rule of the thumb to consider that nearly two-thirds of all the state's economic activity is concentrated in the Boston metropolitan area. Other urban growth poles within the state would include the New Bedford/Fall River/Barnstable County concentration and the Worcester and Springfield urban areas. While not a significant urban concentration, Pittsfield is usually included in all disaggregate state analyses because of the pivotal role it plays in Berkshire County.

Because of these urban economic disparities, it will be worthwhile to disaggregate the 2003 survey responses into these geographic areas in order to determine the existence of regional variations within the state. Before we discuss the responses to the core questions in the survey (that is, the responses to Questions 16 through 23), it will be worthwhile to summarize the principal conclusions.

6.1 — Regional Analysis of Physician Labor Markets in Massachusetts: the Conclusions Summarized

A careful review of the results contained in the responses to the core questions may be summarized in the following three points:

- The labor market conditions in the Springfield metropolitan area seem to be consistently out of line with the other four areas; that is, the current conditions described in the responses to these questions describe a labor market that seems to be facing more stress than other areas.
- Special consequences can and most certainly will affect the performance of the state's urban labor markets. An excellent example is the influence of the so-called "Cape effect" in this market's ability to retain physicians once they have become a part of the local environment.

- Finally, the positive attributes that are found in highly concentrated urban areas — most certainly Boston — show through clearly in the somewhat lower response rates to the need to alter service and/or adjust staffing because of physician shortages. In the final analysis, there are clear advantages to operating in an urban area with industry concentrations where close proximity facilitates operational tradeoffs.

We may turn our attention to the responses to the important core questions in the MMS Physician Workforce Study.

6.2 — Adequacy of Physician Pool by Region

Question 16: Is the current pool of physician applicants adequate to fill your vacant positions or expand your practice?

The specific data for physicians responding negatively to this question are summarized in Table 32.

TABLE 32: RESPONSES TO QUESTION 16 OF THE PRACTICING PHYSICIANS SURVEY BY REGION

Q16: IS THE CURRENT POOL OF PHYSICIAN APPLICANTS ADEQUATE TO FILL YOUR VACANT POSITIONS OR EXPAND YOUR PRACTICE?	YES, POOL IS ADEQUATE	NO, POOL IS INADEQUATE
Boston	39%	61%
New Bedford/Fall River/Barnstable County	32%	68%
Pittsfield	31%	69%
Springfield	24%	76%
Worcester	30%	70%
SAMPLE MEAN	35%	65%

As has been discussed in other sections of this report that roughly two-thirds (65%) of the respondents indicated that the current pool of physicians is inadequate to fill existing vacancies and/or to expand one’s practice is a conclusion of great significance.

These disaggregated responses by urban area show that the most obvious statistical outlier is the Springfield metropolitan area; all other areas show only modest deviations from the total sample mean.

6.3 — Difficulty in Filling Physician Vacancies by Region

Question 17: Are you currently experiencing difficulty in filling physician vacancies?

Again, in order to simplify the interpretation of these regional responses, we outline in Table 33 the percentages of those physicians who indicated that they were experiencing difficulty in filling physician vacancies.

TABLE 33: RESPONSES TO QUESTION 17 OF THE PRACTICING PHYSICIANS SURVEY BY REGION

Q17: ARE YOU CURRENTLY EXPERIENCING DIFFICULTY IN FILLING PHYSICIAN VACANCIES?	YES
Boston	66%
New Bedford/Fall River/Barnstable County	70%
Pittsfield	68%
Springfield	77%
Worcester	76%
SAMPLE MEAN	69%

The responses to Question 17 confirm a much greater urban disparity than that observed in Question 16. Not surprisingly, Boston seems to be having the least amount of difficulty. The responses for Springfield and Worcester place these two urban areas in the category of an outlier from the other areas and the state as a whole.

6.4 — Alterations to Services and Adjustments to Staffing by Region

Questions 18 and 19: Have physician supply problems made it necessary to alter the services you provide and/or to adjust your professional staffing patterns?

The range of these responses follows very closely to our expectations:

- In the Boston metropolitan area, there appears to be a certain amount of elasticity in labor markets; that is, the percentage of responses for making professional staffing and service alternations is lower. This reflects the significant concentration of medical institutions in close proximity to each other, thereby permitting relatively easy tradeoffs among institutions to satisfy their patient care goals.

TABLE 34: RESPONSES TO QUESTIONS 18 AND 19 OF THE PRACTICING PHYSICIANS SURVEY BY REGION

Q18: HAVE PHYSICIAN SUPPLY PROBLEMS MADE IT NECESSARY FOR YOU TO ALTER THE SERVICES YOU PROVIDE? Q19: HAVE PHYSICIAN SUPPLY PROBLEMS MADE IT NECESSARY FOR YOU TO ADJUST YOUR PROFESSIONAL STAFFING SERVICES?	YES, ALTERED SERVICES	YES, ADJUSTED STAFFING
Boston	27%	35%
New Bedford/Fall River/Barnstable County	31%	39%
Pittsfield	33%	44%
Springfield	45%	40%
Worcester	42%	42%
SAMPLE MEAN	31%	37%

- As expected, the ratios are higher in the remaining peripheral areas. It would be unwise to attempt to read too much into these regional variations because the differences are not that significant, but the special problems in the Springfield metropolitan area (at 45%) for the alteration of services shows through clearly.

6.5 — Change in Recruiting Time or Ability to Retain Current Staff

Questions 22 and 23: Over the past three years, has the amount of time needed to recruit physicians changed and/or has your ability to retain your existing staff of physicians changed?

Taken together, the responses to these two questions provide considerable, additional insight into contemporary dynamics of the physician labor markets in Massachusetts. Regional living and working conditions are believed to play a significant role in the professional’s selection of any particular labor market. A review of the data, displayed in Table 35, provide interesting insights into these forces in Massachusetts.

The patterns revealed in these responses, with one exception, seem to follow somewhat contradictory patterns. The responses suggest that it takes considerably more time to recruit a physician in the Springfield metropolitan area, but once hired, the retention experience does not seem as troublesome as in the other metropolitan areas. In varying degrees, this same pattern seems to exist in the other urban areas: Boston, and Worcester, for instance.

TABLE 35: RESPONSES TO QUESTIONS 22 AND 23 OF THE PRACTICING PHYSICIANS SURVEY BY REGION

Q22: OVER THE PAST THREE YEARS, HAS THE TIME NEEDED TO RECRUIT PHYSICIANS CHANGED? Q23: OVER THE PAST THREE YEARS, HAS YOUR ABILITY TO RETAIN PHYSICIANS CHANGED?	AMOUNT OF TIME TO RECRUIT HAS CHANGED	RESPONSES INDICATING THAT THE CHANGE HAS RESULTED IN AN INCREASE IN TIME TO RECRUIT	ABILITY TO RETAIN PHYSICIANS HAS CHANGED	RESPONSES INDICATING THAT THE CHANGE HAS MADE RETENTION MORE DIFFICULT
Boston	74%	98%	58%	96%
New Bedford/Fall River/Barnstable County	70%	93%	42%	98%
Pittsfield	79%	94%	71%	91%
Springfield	82%	98%	57%	97%
Worcester	73%	98%	63%	99%
SAMPLE MEAN	75%	98%	57%	97%

The most interesting pattern seems to exist in the responses from the New Bedford/Fall River/Barnstable County metropolitan area. The average responses to both questions are below the sample means. Undoubtedly, this reflects the so-called “Cape effect” in terms of a locational preference to practice medicine in what many regard as “highly desirable” living circumstances.

SECTION 7: CONCLUSIONS

The analysis presented in this report suggests that there are four principal root causes of the current shortages of physicians in Massachusetts. Three of these root causes are a result of structural characteristics inherent in the state economy, while the fourth root cause reflects the attitudinal response among physicians to a practice environment that is now perceived as inhospitable to physicians. As a result of these root causes, Massachusetts physician labor markets currently face critical or severe shortages in most physician specialties. While we have labeled these factors as being structural, this does not imply that they are beyond the reach of state governmental policies and programs. The fundamental point is as follows: The state government is committed to protecting and growing its current world-class health care system; steps must be taken to address these issues.

Long-Term Structural Issues and Costs

Without a question, there is a growing perception that Massachusetts is a financially and administratively difficult place to practice. The results of a Physician Practice Environment Index, published by the MMS, supports this perception. This MMS Index is composed of twelve variables that capture changes in cost and operational factors relating to a physician's overall practice cost. Current data for the MMS Index and its statistical counterpart — the U.S. Physician Practice Environment Index — cover the period 1992–2001. Over this nine-year period, the MMS Index declined 22.5%, while the U.S. Index fell only 15.6%.¹⁹

The greater relative deterioration across the variables in the MMS Index vis-à-vis the U.S. Index has been dominated by three variables, which are the following three root causes of the physician workforce shortage due to structural characteristics inherent in Massachusetts:

- The high cost of housing
- Professional liability insurance rates
- Business costs of maintaining a practice

¹⁹ Massachusetts Medical Society website available at <http://www.massmed.org/pages/mmsindex0302.asp> (accessed 14 April 2003).

Over the years, the differential in Massachusetts has taken its toll on the physicians' willingness to operate in a business environment that is noncompetitive with states having lower operating costs. Moreover, looking ahead, the economic dynamics of the markets in Massachusetts mean that these costs will continue to be higher than the country as a whole.

In addition, the overall impact of higher costs has not been limited to business costs alone. Massachusetts has long been considered a high-cost-of-living region, especially in terms of the cost of residential housing. The cost of homes in Massachusetts ranks third highest in the country.²⁰ When one juxtaposes this to the fact that New England regional physicians' income levels are the lowest in the country, Massachusetts and the Boston urban area, in particular, are becoming financially difficult places to pursue a medical career. When asked in the practicing physicians survey the question of how do you rate your income today compared to your specialty in other states, 73% indicated that they would rate their income as uncompetitive or very uncompetitive. These responses illustrate one of the many factors that make Massachusetts an unfavorable environment for physicians.

Further, the escalating professional liability costs have increasingly taken their toll. Nowhere is this impact any greater than among physicians who are now contemplating a change in their careers for whom professional liability costs are a factor. The most severely impacted specialties for which professional liability costs are a factor in their contemplation of a career change are noted below in Table 36.

TABLE 36: PERCENT OF RESPONDENTS BY SPECIALTY FOR WHOM PROFESSIONAL LIABILITY COSTS ARE A FACTOR IN THEIR CONTEMPLATION OF A CAREER CHANGE

SPECIALTY	PERCENT FOR WHOM PROFESSIONAL LIABILITY IS A FACTOR IN THEIR CONTEMPLATING A CAREER CHANGE
Neurosurgery	69%
OB/GYN	66%
Vascular Surgery	45%
General Surgery	44%
SAMPLE MEAN	30%

²⁰ Sum A, et al. *State of the American Dream in Massachusetts*. Boston: MassInc, 2002.

In practice, these pressures have results that echo throughout the system. To the mid-career physician, long hours and relatively lower pay in Massachusetts vis-à-vis other areas contributes to an openness to recruiting offers from other urban areas. To the research physician, a well-funded research chair at a growing medical center outside Massachusetts is a viable option to continuing a career in the Commonwealth. And finally, upon completion of professional training in Massachusetts, younger residents and fellows are finding greater financial opportunities and more flexible work schedules elsewhere. The attitudinal patterns among physicians now practicing in Massachusetts have been directly conditioned by the harsh realities of the high cost of maintaining a practice and the high cost of living.

In an attempt to better understand these issues, a series of questions was included in the practicing physicians survey. First are the practicing physicians survey responses to the existing practice environment impact on the physicians' willingness to practice medicine in the Commonwealth. The key survey data are summarized below.

- Nine percent of physician respondents who indicated that they are dissatisfied or very dissatisfied with the practice environment also indicated that they are planning to leave Massachusetts to practice medicine elsewhere.
- Twenty-five percent of physician respondents indicated that they will likely leave Massachusetts to practice medicine if the practice environment does not change.

The sheer magnitude of these responses is staggering. Their implications for labor markets under a worst-case scenario are that between 1,400 and 6,600 physicians of the total practicing physician population in Massachusetts (20,628) are now planning or contemplating leaving Massachusetts to practice medicine elsewhere.

Second, a wide range of attitudinal questions concerning locational preferences was included in the residents and fellows survey. The response pattern shows clearly just how salary and living costs can negatively impact the young physicians' attitudes toward practice in Massachusetts. The salary level and cost-of-living issues have negatively impacted the thinking of both classes of students,

but for those who plan to stay in Massachusetts, these differential personal costs are accepted as the “price of the personal sacrifice” to practice in Massachusetts.

Over the past decade, there has been a dramatic growth in the number and quality of new academic medical centers throughout the country. These newly emerging medical centers offer attractive opportunities for physicians who might otherwise have stayed in Massachusetts.

In the surveys sent to practicing physicians, teaching hospital department chiefs, and medical staff presidents of community hospitals, a series of questions was asked regarding their experiences in recruiting and retaining physicians. These questions were designed to measure the push that comes from the current Massachusetts practice environment, as well as the competitive pull of emerging national medical center competition. Summarized in Table 37 are the key responses to questions regarding recruitment and retention.

TABLE 37: SUMMARY OF RECRUITMENT AND RETENTION QUESTION RESULTS ACROSS THREE SURVEYS

	2003 SURVEY RESULTS		
	PRACTICING PHYSICIANS	TEACHING HOSPITAL DEPARTMENTS	COMMUNITY HOSPITALS
Q17: PERCENT OF RESPONDENTS WHO ARE EXPERIENCING DIFFICULTY IN FILLING PHYSICIAN VACANCIES	69%	62%	96%
Q23A: PERCENT OF RESPONDENTS WHOSE ABILITY TO RETAIN EXISTING STAFF OF PHYSICIANS HAS CHANGED	57%	55%	67%
Q23B: PERCENT OF RESPONDENTS WHO INDICATED THAT THE CHANGE IN Q23A MADE IT MORE DIFFICULT RETAIN PHYSICIANS	97%	92%	100%

As illustrated in the table above, it is very difficult to recruit physicians, and the ability to retain physicians in Massachusetts is changing for the worse. Approximately two-thirds of respondents to all three surveys are experiencing difficulty in filling physician vacancies. The problems in recruiting are particularly acute for community hospitals. There is a high level of coincidence in the responses to the retention questions for all three surveys. Over half of the respondents to each of the three surveys indicated that the ability to retain physicians has changed, and nearly all indicated that retention has become more difficult.

In conclusion, the four major factors that are impacting the physician workforce in Massachusetts are as follows:

- The high cost of housing
- Professional liability insurance rates
- Business costs of maintaining a practice
- Attitudinal patterns among physicians

The outward manifestation of these causal factors resulted in the following study results:

- Reluctance of established physicians to continue to practice medicine in Massachusetts, particularly due to the practice environment.
- Residents and fellows choosing to forgo the excellent medical opportunities available in Massachusetts in favor of a more hospitable environment for physicians.
- Health care providers (such as community hospitals, teaching hospitals, and practicing physicians) are experiencing immense difficulty in recruiting and retaining physicians.

APPENDIX A: SUMMARY OF VERBATIM RESPONSES

The following tables represent a summary of the verbatim responses to questions 9, 10, 14, 15, 17, 18, 19, 20, 23, and 30. These questions included fields for free text comments or responses. In all, there were slightly fewer than six thousand comments to the ten questions.

Each of the responses was categorized according to similarity and analyzed based upon the number of verbatim responses to that specific question.

TABLE 1 — QUESTION 9: IN THE CONTEXT OF YOUR PRACTICE OVER THE LAST YEAR, HAVE YOU INCREASED, DECREASED, OR KEPT THE SAME WORK HOURS?

	% OF VERBATIM RESPONSES (N=317)
Decrease in salary/increase in hours (e.g., while reimbursements are being reduced, we're spending increased hours in the office.)	29%
Longer days (e.g., need to see more patients to remain financially stable)	15%
Administrative burden increase (e.g., paperwork, managed care, HIPAA)	11%
Move to part time (e.g., semiretirement, stopped accepting new patients)	10%
Curtailing hours (e.g., reduced hours)	7%
Miscellaneous (e.g., changing practice patterns, closed practice, working 10% to 40% more hours per week)	28%

TABLE 2 — QUESTION 10A: ARE YOU CONTEMPLATING A CAREER CHANGE BECAUSE OF THE CURRENT PRACTICE ENVIRONMENT? IF YES, WHAT ARE YOU CONTEMPLATING?

	% OF VERBATIM RESPONSES (N=141)
Moving out of state (e.g., moving to other New England states, states with lower costs of living)	28%
Changing my practice from full time to part time	17%
Education/writing (e.g., going back to school for a business degree)	6%
Government (e.g., working in public health programs)	5%
Academic (e.g., becoming a science teacher)	4%
Miscellaneous [†] (e.g., early retirement, consulting, business ventures, return to school)	40%

[†]Miscellaneous included 19 categories mostly with a low number (<3) of responses

TABLE 3 — QUESTION 10B: HAVE PROFESSIONAL LIABILITY COSTS INFLUENCED YOUR DECISION TO MAKE SUCH A CHANGE? IF YES, WHY?

	% OF VERBATIM RESPONSES (N=155)
Costs absorbed by employer (e.g., premiums paid by medical group, VA, or hospital)	25%
Getting worse — costs rising (e.g., liability rates going up 40 percent next year, costs doubling next year for the same professional activities)	23%
Concerned/very concerned (e.g., high rate increases make it near impossible to stay financially stable)	13%
Changed practice type (e.g., will no longer provide obstetrical services)	11%
Miscellaneous (e.g., rising legal risks, need for a no fault system, changed limits)	28%

TABLE 4 — QUESTION 14: WHAT DO YOU BELIEVE ARE THE THREE MOST SIGNIFICANT PROFESSIONAL CHALLENGES THAT PHYSICIANS WILL FACE OVER THE NEXT FIVE YEARS?

TOP THREE CHALLENGES:	% OF VERBATIM RESPONSES (N=1489)
Reimbursements/professional liability (e.g., payments being lower than costs, malpractice insurance premium increases, yearly decreases from the government and private payers)	48%
Work environment (e.g., increased work hours, more administrative responsibilities, higher stress levels, less ability to provide quality care control over medicine)	28%
Increased oversight of medicine by managed care, the government, and accrediting agencies	21%
Miscellaneous (e.g., professional shortages for both physicians and allied health professionals, not having time with patients, uninsured/underinsured)	3%

TABLE 5 — QUESTION 15: CONSIDERING THE CURRENT PRACTICE ENVIRONMENT, WOULD YOU CHOOSE MEDICINE AS A PROFESSION AGAIN? (YES/NO – PLEASE EXPLAIN)

54% [†] OF THE VERBATIM RESPONSES STATED YES WITH THE FOLLOWING CAVEATS:	46% OF THE VERBATIM RESPONSES STATED NO WITH THE FOLLOWING CAVEATS:
...however, I would have chosen to practice elsewhere, not Massachusetts.	...the stress level is too high.
...I would choose a different specialty.	...the Massachusetts reimbursement levels are too low.
...I would not go into private practice.	...the malpractice rates are skyrocketing.
...I wouldn't have chosen clinical practice.	...there are too many hassles, such as managed care.
...I would have stayed in the military.	...the work hours are too demanding.

[†]Note: n=266

TABLE 6 — QUESTION 17: ARE YOU CURRENTLY EXPERIENCING DIFFICULTY IN FILLING PHYSICIAN VACANCIES? (SIGNIFICANT DIFFICULTY, SOME DIFFICULTY, NO DIFFICULTY)

HAVING PROBLEMS:	% OF VERBATIM RESPONSES (N=628 [†])
...due to Massachusetts practice environment (e.g., high malpractice, low pay, high cost of living, not being competitive with other areas)	68%
...due to lack of available or qualified applicants	22%
...applicants are not willing to go into private practice	1%
...and must use <i>locum tenens</i> to temporarily fill the void	<1%
NOT HAVING PROBLEMS:	% OF VERBATIM RESPONSES (N=628 [†])
...because we're (I'm) not recruiting	5%
...we've been able to fill vacancies	1%

[†]Note: Column does not equal 100% due to rounding off of numbers.

TABLE 7 — QUESTION 18: HAVE PHYSICIAN SUPPLY PROBLEMS MADE IT NECESSARY FOR YOU TO ALTER THE SERVICES YOU PROVIDE? (E.G., VOLUME OR MIX OF SERVICES)

	% OF VERBATIM RESPONSES (N=573)
Working harder and for longer hours (e.g., need to see more patients each day, working 40% more hours per week)	20%
Had to alter services (e.g., refer more patients to Boston hospitals for care)	20%
Increased patient wait times/controlled management of volume (e.g., preventive care or routine care visits are not scheduled as quickly as they should be)	20%
Hasn't affected us yet (e.g., haven't changed the type of services offered)	11%
Had to hire nonphysician practitioners (e.g., physician assistants) to pick up the extra volume	8%
Miscellaneous (e.g., do more "specialty" prep work or "primary work" outside of specialty, spend less time with patients, turning patients away, increasing use of <i>locum tenen</i> for needs)	21%

TABLE 8 — QUESTION 19: HAVE PHYSICIAN SUPPLY PROBLEMS MADE IT NECESSARY TO ADJUST YOUR PROFESSIONAL STAFFING PATTERNS? (IF YES, PLEASE EXPLAIN)

	% OF VERBATIM RESPONSES (N=352)
Working harder and for longer hours (e.g., less physicians to see more patients and do more work)	44%
Had to hire nonphysician practitioners (e.g., physician assistants) to pick the extra volume	24%
Need to hire more <i>locum tenens</i> and moonlighters to fill the void	5%
Miscellaneous (e.g., using retired physicians, turning patients away, not offering some services, requiring payment at the time of service)	27%

TABLE 9 — QUESTION 20: IN YOUR COMMUNITY, ARE THERE SHORTAGES IN SPECIFIC SPECIALTIES OTHER THAN YOUR OWN?

SPECIALTY	% OF VERBATIM RESPONSES (N=985)
Neurology (adult and pediatric) and Gastroenterology (adult and pediatric)	19%
Neurosurgery	16%
Anesthesiology	14%
Psychiatry (adult and pediatric)	13%
Dermatology (adult and pediatric) and Radiology	11%
Primary care physicians	10%
All other specialties	17%

TABLE 10 — QUESTION 23: OVER THE PAST THREE YEARS, HAS YOUR ABILITY TO RETAIN YOUR EXISTING STAFF OF PHYSICIANS CHANGED? WHAT FACTORS DO YOU BELIEVE PLAY A ROLE?

	% OF VERBATIM RESPONSES (N=921)
Reimbursements/professional liability/practice environment (e.g., reimbursements from managed care and Medicare are below national averages compared to other states, increasing malpractice rates)	61%
Increased workload (e.g., seeing more patients in a compressed time frame)	12%
Increased work hours (e.g., more hours in the office and doing paperwork)	9%
Cost of living in Massachusetts too high (e.g., housing costs are outrageous)	8%
Miscellaneous (e.g., increased stress levels/feeling a loss of control)	5%

**TABLE 11 — QUESTION 30: HOW WOULD YOU BEST CHARACTERIZE YOUR (MAIN) PRACTICE?
(OTHER BOX CHECKED WITH THE FOLLOWING.)**

	% OF VERBATIM RESPONSES (N=178)
Hospital	24%
Community Health Center	7%
ER	5%
Group Practice Nonprofit Community Mental Health Administration	Each 4%
Government Neighborhood Group Practice (not MCO) Staff Psychiatric <i>Locum tenens</i> VA Shared Practice State Facility for Mental Retardation	Each 3%
Consultant Early Retirement Private Practice College Health Center Hospital — Community Hospital — General	Each 2%
Hospital — VA Hospital — State Solo/Self-employed Research OPT — Facility Corporation	Each 1%
Hospital — OPT Hospital — Teaching Dept. of VA Urgent Care Solo/Rehab. Hospital Small Branch of MGHPO Resident Precepting Psych. for Incarcerated Youth Office Practice PT Multispecialty Group Clinic Fellow Pain Management	Each <1%

APPENDIX B: SAMPLE CHARACTERISTICS

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

TYPE OF SURVEY	# OF SURVEYS MAILED (EXCLUDING RETURNED MAIL)	# OF SURVEYS RETURNED	RESPONSE RATE
Practicing Physicians	7190	1942	27%
Department Chief of Teaching Hospitals	108	68	63%
Medical Staff Presidents in Community Hospitals	62	30	48%
Residents/Fellowship Program Directors	100	58	58%
Residents/Fellows	935	182	20%
Biotechnology Companies	133	33	25%

Survey of Practicing Physicians

The overall response rate for the practicing physician survey was 27% (n=1942).

The table below shows the response rate by specialty.

MA PHYSICIAN SPECIALTY	# OF SURVEYS MAILED	# OF SURVEYS RETURNED	RESPONSE RATE
Anesthesiology	698	160	23%
Cardiology	407	86	21%
Emergency Medicine	452	99	22%
Family Medicine	332	98	30%
General Surgery	557	144	26%
GI	218	64	29%
Internal Medicine	1704	309	18%
Neurosurgery	86	18	21%
OB/GYN	686	200	29%
Orthopedics	404	135	33%
Pediatrics	658	177	27%
Psychiatry	722	183	25%
Radiology	585	130	22%
Vascular Surgery	56	26	46%
Other Specialty		47	
No Response		66	
TOTAL	7565	1942	26%
EXCLUDING RETURNED MAIL	7190	0	27%

Demographic and practice characteristics are as follows:

- Overall, 73% of respondents are male.
- Fifty percent completed their residency in Massachusetts, and 29% completed their fellowship in Massachusetts.
- Roughly two-thirds of respondents are specialists (70%), and 82% graduated from medical school between 1961 and 1990.
- Regarding practice setting, 39% of respondents belong to a single-specialty group practice, 21% are in solo practice, 12% are in a multispecialty practice, and 14% hold an academic or teaching position.

In addition, we thought it important to ensure that adequate sample representation would come from the five primary hospital service areas in Massachusetts. The geographic representation of the respondent sample is shown in the table below. The majority of respondents are from the Boston area (68%). The remaining respondents are located in southeastern Massachusetts (9% from Fall River-New Bedford/Barnstable/the Cape and the Islands), the Worcester area (9%), the Springfield area (12%), and areas in the western part of the state that did not fall into a defined Metropolitan Statistical Area (MSA). We should note that these five urban areas conform to the U.S. Bureau of the Census definition of MSA.²¹

GEOGRAPHIC GROUPS (MSAs)	# OF SURVEYS MAILED (INCLUDING RETURNED MAIL)	%	# OF SURVEYS RETURNED	%	RESPONSE RATE
Boston	5073	70%	1247	68%	25%
New Bedford/Fall River/Barnstable County	575	8%	162	9%	28%
Pittsfield	120	2%	41	2%	34%
Springfield	735	10%	224	12%	30%
Worcester	729	10%	155	9%	21%
TOTAL	7232	100%	1829	100%	25%

²¹ For the most part, the MSA boundaries roughly coincide with the Dartmouth Health Care Service Areas. The two exceptions are southeastern Massachusetts, where Providence is considered the dominant medical center, and Pittsfield, where Albany is the dominant medical center. These spatial discrepancies notwithstanding, this MMS study of labor markets is limited to economic activity within the Commonwealth of Massachusetts.

The difference between the total response rate (n=1942) and the total response rate from the Massachusetts MSAs (n=1829) can be attributed to respondents who practice outside of these five urban areas.

Test of Response Bias

The “specialty” and “geographic location” (MSA) variables were used to test whether the returned sample was representative of the mailed sample.

For the “specialty” variable, the results in the table below demonstrate that with the exception of “internal medicine” the proportion of respondents closely matches as those of the mailed sample. This indicates that there was not a tendency for specialties to respond or not respond to the survey differentially. The difference between the “internal medicine” category is probably due to differences in the specialty indicated in the MMS mailing database and the specialty listed by the physician on the returned survey.

MA PHYSICIANS: SPECIALTY	MAILED	RETURNED	DIFFERENCE
Anesthesiology	9%	8%	1%
Cardiology	5%	4%	1%
Emergency Medicine	6%	5%	1%
Family Practice	4%	5%	-1%
General Surgery	7%	8%	-1%
GI	3%	3%	0%
Internal Medicine	23%	16%	7%
Neurosurgery	1%	1%	0%
OB/GYN	9%	10%	-1%
Orthopedics	5%	7%	-2%
Pediatrics	9%	9%	0%
Psychiatry	10%	10%	0%
Radiology	8%	7%	1%
Vascular Surgery	1%	2%	-1%
Other Specialty		2%	-2%
No Response		3%	-3%
TOTAL	100%	100%	0%

GEOGRAPHIC GROUPS	# OF SURVEYS MAILED	# OF SURVEYS RETURNED	DIFFERENCE
Boston	70%	68%	2%
New Bedford/Fall River/ Barnstable County	8%	9%	-1%
Pittsfield	2%	2%	0%
Springfield	10%	12%	-2%
Worcester	10%	9%	1%
TOTAL	100%	100%	0%

With respect to the geographic distribution of the mailed sample and the returned sample, the two groups are quite similar and demonstrate again that there was no tendency for physicians from any particular geographical location to respond to the survey.

APPENDIX C: DETAILED RESULTS FOR QUESTIONS DISCUSSED IN REPORT²²

TABLE 1: DETAILED RESPONSES TO QUESTION 16 OF THE PRACTICING PHYSICIAN SURVEY

Q16: IS THE CURRENT POOL OF PHYSICIAN APPLICANTS ADEQUATE TO FILL YOUR VACANT POSITIONS OF EXPAND YOUR PRACTICE?	2003 SURVEY RESULTS*				2002 SURVEY RESULTS*			
	YES	NO	N/A	TOTAL # OF RESPONDENTS	YES	NO	N/A	TOTAL # OF RESPONDENTS
Anesthesiology	21%	72%	8%	15	9%	84%	6%	64
Cardiology	19%	60%	21%	83	30%	57%	14%	44
Emergency Medicine	37%	50%	13%	91	34%	55%	11%	44
Family Practice	32%	38%	30%	94	37%	24%	40%	98
General Surgery	24%	51%	25%	140	40%	29%	31%	65
GI	7%	72%	22%	60	14%	71%	14%	35
Internal Medicine	22%	50%	29%	290	30%	34%	37%	241
Neurosurgery	11%	72%	17%	18	21%	58%	21%	24
OB/GYN	34%	29%	37%	191	48%	27%	25%	81
Orthopedics	25%	58%	17%	130	44%	41%	15%	66
Pediatrics	51%	19%	30%	172	54%	14%	31%	147
Psychiatry	21%	39%	40%	170	21%	26%	53%	140
Radiology	12%	83%	5%	125	8%	84%	8%	38
Vascular Surgery	17%	63%	21%	24	44%	44%	11%	9
SAMPLE MEAN	26%	49%	25%	1839	32%	38%	30%	1163

* PERCENTAGES MAY NOT ADD UP TO 100% DUE TO ROUNDING.

²² Note: 2002 percentages in this study differ from the published 2002 study due to the exclusion of non-respondents.

TABLE 2: DETAILED RESPONSES TO QUESTION 17 OF THE PRACTICING PHYSICIANS SURVEY

Q17: ARE YOU CURRENTLY EXPERIENCING DIFFICULTY IN FILLING PHYSICIAN VACANCIES	2003 SURVEY RESULTS					2002 SURVEY RESULTS				
	YES, SIGNIFICANT DIFFICULTY	YES, SOME DIFFICULTY	TOTAL YES	NO DIFFICULTY	# RESPONDENTS	YES, SIGNIFICANT DIFFICULTY	YES, SOME DIFFICULTY	TOTAL YES	NO DIFFICULTY	# RESPONDENTS
Anesthesiology	44%	40%	84%	16%	152	52%	38%	90%	10%	63
Cardiology	41%	39%	80%	20%	70	33%	36%	69%	31%	39
Emergency Medicine	18%	49%	67%	33%	87	24%	64%	88%	12%	41
Family Practice	21%	31%	52%	48%	72	9%	41%	50%	50%	75
General Surgery	37%	34%	71%	29%	109	22%	43%	66%	34%	49
GI	53%	34%	87%	13%	53	48%	42%	90%	10%	31
Internal Medicine	29%	41%	70%	30%	222	20%	35%	55%	45%	181
Neurosurgery	57%	29%	86%	14%	14	47%	37%	84%	16%	19
OB/GYN	20%	26%	46%	54%	137	11%	33%	44%	56%	63
Orthopedics	39%	41%	80%	20%	117	28%	33%	61%	39%	57
Pediatrics	9%	29%	38%	62%	141	8%	21%	29%	71%	116
Psychiatry	31%	40%	71%	29%	118	18%	46%	64%	36%	80
Radiology	58%	37%	95%	5%	124	62%	30%	92%	8%	37
Vascular Surgery	30%	45%	75%	25%	20	14%	29%	43%	57%	7
SAMPLE MEAN	32%	37%	69%	31%	1502	24%	37%	61%	39%	909

TABLE 3: DETAILED RESPONSES TO QUESTION 18 OF THE PRACTICING PHYSICIANS SURVEY

Q18: HAVE PHYSICIAN SUPPLY PROBLEMS MADE IT NECESSARY FOR YOU TO ALTER THE SERVICES YOU PROVIDE?	2003 SURVEY RESULTS			2002 SURVEY RESULTS		
	YES	NO	# RESPONDENTS	YES	NO	# RESPONDENTS
Anesthesiology	39%	61%	155	53%	47%	64
Cardiology	42%	58%	77	29%	71%	42
Emergency Medicine	23%	77%	92	30%	70%	41
Family Practice	27%	73%	82	17%	83%	84
General Surgery	26%	74%	129	23%	77%	61
GI	49%	51%	59	56%	44%	32
Internal Medicine	36%	64%	253	28%	72%	206
Neurosurgery	53%	47%	17	38%	62%	24
OB/GYN	19%	81%	168	22%	78%	75
Orthopedics	37%	63%	126	34%	66%	61
Pediatrics	14%	86%	154	16%	84%	128
Psychiatry	36%	64%	140	35%	65%	108
Radiology	31%	69%	125	40%	60%	37
Vascular Surgery	38%	63%	24	0%	100%	8
SAMPLE MEAN	31%	69%	1678	30%	70%	970

TABLE 4: DETAILED RESPONSES TO QUESTION 19 OF THE PRACTICING PHYSICIANS SURVEY

Q19: HAVE PHYSICIAN SUPPLY PROBLEMS MADE IT NECESSARY TO ADJUST YOUR PROFESSIONAL STAFFING PATTERNS?	2003 SURVEY RESULTS			2002 SURVEY RESULTS		
	YES	NO	# RESPONDENTS	YES	NO	# RESPONDENTS
Anesthesiology	63%	38%	152	72%	28%	61
Cardiology	48%	52%	77	40%	60%	51
Emergency Medicine	43%	57%	82	50%	50%	42
Family Practice	24%	76%	84	17%	83%	83
General Surgery	25%	75%	121	35%	65%	61
GI	46%	54%	57	44%	56%	34
Internal Medicine	34%	67%	248	25%	75%	203
Neurosurgery	63%	37%	16	36%	64%	22
OB/GYN	25%	75%	163	28%	72%	73
Orthopedics	34%	66%	124	31%	69%	60
Pediatrics	12%	88%	154	14%	86%	132
Psychiatry	32%	68%	122	31%	69%	99
Radiology	66%	34%	126	76%	24%	37
Vascular Surgery	42%	58%	24	25%	75%	8
SAMPLE MEAN	37%	63%	1622	32%	68%	966

TABLE 5: DETAILED RESPONSE TO QUESTION 21 OF THE PRACTICING PHYSICIANS SURVEY

Q21: BASED ON YOUR CURRENT EXPERIENCE, HOW LONG DOES IT TAKE TO RECRUIT A PHYSICIAN TO YOUR PRACTICE?	2003 SURVEY RESULTS			2002 SURVEY RESULTS		
	# RESPONDENTS	MEAN IN MONTHS	STD. DEVIATION	# RESPONDENTS	MEAN IN MONTHS	STD. DEVIATION
Anesthesiology	133	9.6	5.8	57	10.6	6.0
Cardiology	56	14.4	8.6	30	12.7	9.2
Emergency Medicine	76	8.4	5.4	37	8.6	5.6
Family Practice	61	10.1	6.8	47	11.7	10.0
General Surgery	90	13.7	8.5	41	12.8	6.5
GI	49	19.1	12.0	20	22.3	13.2
Internal Medicine	177	12.5	12.1	148	10.3	6.9
Neurosurgery	13	26.5	17.8	14	22.9	16.7
OB/GYN	105	11.7	7.9	53	12.8	9.4
Orthopedics	95	17.4	10.7	44	14.6	9.0
Pediatrics	112	8.8	6.1	85	7.8	4.8
Psychiatry	81	11.9	12.7	39	11.1	7.7
Radiology	107	13.5	8.1	37	14.9	9.3
Vascular Surgery	18	11.8	7.7	6	17.0	15.4
SAMPLE MEAN	1173	24.2	17.3	658	28.9	24.1

TABLE 6: DETAILED RESPONSE TO QUESTION 22 OF THE PRACTICING PHYSICIANS SURVEY

Q22: OVER THE PAST THREE YEARS, HAS THE AMOUNT OF TIME NEEDED TO RECRUIT PHYSICIANS CHANGED?	2003 SURVEY RESULTS					2002 SURVEY RESULTS				
	YES, SIGNIFICANTLY	YES, SOMEWHAT	TOTAL YES	NO CHANGE	# RESPONDENTS	YES, SIGNIFICANTLY	YES, SOMEWHAT	TOTAL YES	NO CHANGE	# RESPONDENTS
Anesthesiology	50%	37%	87%	13%	139	63%	31%	94%	6%	59
Cardiology	60%	22%	82%	18%	63	41%	35%	76%	24%	34
Emergency Medicine	38%	41%	79%	21%	76	23%	59%	82%	18%	39
Family Practice	25%	43%	68%	32%	67	19%	42%	61%	39%	57
General Surgery	45%	29%	74%	26%	101	33%	47%	80%	20%	43
GI	65%	23%	88%	12%	48	69%	27%	96%	4%	26
Internal Medicine	39%	34%	73%	27%	184	30%	35%	65%	35%	147
Neurosurgery	33%	50%	83%	17%	12	44%	33%	78%	22%	18
OB/GYN	24%	39%	63%	37%	115	20%	33%	53%	47%	54
Orthopedics	47%	34%	81%	19%	100	42%	27%	69%	31%	55
Pediatrics	14%	24%	38%	62%	120	18%	27%	45%	55%	95
Psychiatry	35%	41%	76%	24%	100	34%	36%	70%	30%	56
Radiology	68%	30%	98%	2%	117	65%	32%	97%	3%	37
Vascular Surgery	52%	33%	85%	15%	21	13%	38%	51%	49%	8
SAMPLE MEAN	41%	34%	75%	25%	1318	35%	35%	70%	30%	769

TABLE 7: DETAILED RESPONSES TO QUESTION 23 OF THE PRACTICING PHYSICIANS SURVEY

Q23A: OVER THE PAST THREE YEARS, HAS THE YOUR ABILITY TO RETAIN YOUR EXISTING STAFF OF PHYSICIANS CHANGED?	2003 SURVEY RESULTS					2002 SURVEY RESULTS				
	YES, SIGNIFICANTLY	YES, SOMEWHAT	TOTAL YES	NO CHANGE	# RESPONDENTS	YES, SIGNIFICANTLY	YES, SOMEWHAT	TOTAL YES	NO CHANGE	# RESPONDENTS
Anesthesiology	43%	32%	75%	25%	146	39%	39%	78%	22%	62
Cardiology	24%	34%	58%	42%	71	21%	40%	61%	39%	38
Emergency Medicine	16%	39%	55%	45%	87	27%	42%	69%	31%	41
Family Practice	16%	31%	47%	53%	71	18%	32%	50%	50%	60
General Surgery	28%	33%	61%	39%	102	29%	29%	58%	42%	48
GI	24%	26%	50%	50%	54	19%	26%	45%	55%	27
Internal Medicine	20%	43%	63%	37%	203	25%	37%	62%	38%	170
Neurosurgery	33%	33%	66%	34%	12	19%	50%	69%	31%	16
OB/GYN	21%	32%	53%	47%	146	19%	29%	48%	52%	59
Orthopedics	23%	33%	56%	44%	111	23%	27%	50%	50%	56
Pediatrics	7%	25%	32%	68%	136	10%	26%	36%	64%	102
Psychiatry	24%	31%	55%	45%	95	28%	27%	55%	45%	64
Radiology	32%	39%	71%	29%	122	32%	57%	89%	11%	37
Vascular Surgery	14%	29%	43%	57%	21	0%	14%	14%	86%	7
OVERALL	23%	34%	57%	43%	1439	24%	34%	58%	42%	834

TABLE 8: DETAILED RESPONSES TO QUESTION 23 OF THE PRACTICING PHYSICIANS SURVEY

Q23B: IF YES, HAS RETAINING PHYSICIANS IN YOUR PRACTICE BECOME MORE DIFFICULT OR EASIER?	2003 SURVEY RESULTS			2002 SURVEY RESULTS		
	EASIER	MORE DIFFICULT	# RESPONDENTS	EASIER	MORE DIFFICULT	# RESPONDENTS
Anesthesiology	4%	96%	107	0%	100%	44
Cardiology	0%	100%	37	0%	100%	22
Emergency Medicine	16%	84%	45	4%	96%	26
Family Practice	7%	93%	30	4%	96%	25
General Surgery	0%	100%	59	0%	100%	27
GI	0%	100%	23	8%	92%	12
Internal Medicine	6%	94%	120	4%	96%	94
Neurosurgery	0%	100%	7	0%	100%	11
OB/GYN	1%	99%	73	14%	86%	22
Orthopedics	3%	97%	58	4%	96%	26
Pediatrics	8%	92%	37	12%	88%	34
Psychiatry	0%	100%	53	0%	100%	30
Radiology	0%	100%	84	3%	97%	29
Vascular Surgery	0%	100%	9	0%	100%	1
SAMPLE MEAN	3%	97%	764	4%	96%	431

TABLE 9: DETAILED RESPONSES TO QUESTION 17 BY REGION OF THE PRACTICING PHYSICIANS SURVEY

Q17: ARE YOU CURRENTLY EXPERIENCING DIFFICULTY IN FILLING PHYSICIAN VACANCIES?	YES, SIGNIFICANT DIFFICULTY	YES, SOME DIFFICULTY	NO DIFFICULTY
Boston	28%	38%	34%
New Bedford/Fall River/Barnstable County	39%	31%	30%
Pittsfield	39%	29%	32%
Springfield	45%	32%	23%
Worcester	34%	42%	24%
SAMPLE MEAN	32%	37%	31%

TABLE 10: DETAILED RESPONSES TO QUESTION 18 BY REGION OF THE PRACTICING PHYSICIANS SURVEY

Q18: HAVE PHYSICIAN SUPPLY PROBLEMS MADE IT NECESSARY FOR YOU TO ALTER THE SERVICES YOU PROVIDE?	YES, ALTERED SERVICES	NO
Boston	27%	73%
New Bedford/Fall River/Barnstable County	31%	69%
Pittsfield	33%	67%
Springfield	45%	55%
Worcester	42%	58%
SAMPLE MEAN	31%	69%

TABLE 11: DETAILED RESPONSES TO QUESTION 19 BY REGION OF THE PRACTICING PHYSICIANS SURVEY

Q19: HAVE PHYSICIAN SUPPLY PROBLEMS MADE IT NECESSARY FOR YOU TO ADJUST YOUR PROFESSIONAL STAFFING SERVICES?	YES, ADJUSTED STAFFING	NO
Boston	35%	65%
New Bedford/Fall River/Barnstable County	39%	61%
Pittsfield	44%	56%
Springfield	40%	60%
Worcester	42%	58%
SAMPLE MEAN	37%	63%

TABLE 12: DETAILED RESPONSES TO QUESTION 22 BY REGION OF THE PRACTICING PHYSICIANS SURVEY

Q22: OVER THE PAST THREE YEARS, HAS THE TIME NEEDED TO RECRUIT PHYSICIANS CHANGED?	YES, SIGNIFICANTLY	YES, SOMEWHAT	NO, NOT AT ALL
Boston	41%	33%	26%
New Bedford/Fall River/Barnstable County	42%	28%	30%
Pittsfield	39%	40%	21%
Springfield	46%	36%	18%
Worcester	38%	35%	27%
SAMPLE MEAN	41%	34%	25%

TABLE 13: DETAILED RESPONSES TO QUESTION 23 BY REGION OF THE PRACTICING PHYSICIANS SURVEY

Q23: OVER THE PAST THREE YEARS, HAS YOUR ABILITY TO RETAIN PHYSICIANS CHANGED?	YES, SIGNIFICANTLY	YES, SOMEWHAT	NO, NOT AT ALL
Boston	24%	34%	42%
New Bedford/Fall River/Barnstable County	14%	28%	58%
Pittsfield	24%	47%	29%
Springfield	20%	37%	43%
Worcester	30%	33%	37%
SAMPLE MEAN	23%	34%	43%

APPENDIX D: BIBLIOGRAPHY

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