

October 2010
Executive Summary

Physician Workforce Study



MASSACHUSETTS
MEDICAL SOCIETY

Every physician matters, each patient counts.

Introduction

For the past nine years the Massachusetts Medical Society (MMS) has conducted an annual Physician Workforce Study to evaluate labor market conditions and document physician supply trends across the Commonwealth. With the assistance of prominent economists and labor market researchers, James Howell, Ph.D. and Andrew Sum, Ph.D., the MMS's ninth annual Physician Workforce Study builds upon the previous eight years of research to evaluate the status of the current physician workforce. The analysis is based mainly on the following primary research sources:

- A survey of a random sample of practicing physicians throughout Massachusetts
- A survey of medical staff presidents of community hospitals
- A survey of department chiefs in teaching hospitals
- A survey of medical directors of medical groups
- A survey of residency and fellowship program directors
- A telephone survey of physician offices in Massachusetts

Key Findings

Shortages

Physician labor markets in Massachusetts tightened over the past year with family medicine and internal medicine continuing to trend toward critical labor market shortages. Current data from the practicing physician survey demonstrate that 10 of the 18 physician specialties studied met the criteria for critical or severe labor market conditions (See Table 1 below). This is an increase from 2009 when seven specialties were in short supply. Additions to the list of specialties in shortage this year include emergency medicine, general surgery, orthopedics, and psychiatry. OB/GYN was in shortage last year but did not meet the criteria this year.

Table 1
Physician Specialties Categorized as Operating in
Critical or Severe Labor Markets in 2010¹

Specialty	2010
Dermatology	Severe
Emergency Medicine	Severe
Family Medicine	Critical
General Surgery	Severe
Internal Medicine	Critical
Neurology	Severe
Orthopedics	Severe
Psychiatry	Severe
Urology	Severe
Vascular Surgery	Severe

Six specialties have been operating within tight or tightening labor market conditions for the past three to five years: family medicine, internal medicine, dermatology, neurology, urology, and vascular surgery (See Table 2).

¹ The designation of a specialty operating in either severe or critical labor markets is based on the physician responses to six survey questions; specifically: 1) the adequacy of the labor market pool, 2) difficulty to recruit, 3) to retain, 4) to fill vacancies, 5) the need to adjust staffing, and 6) the need to alter services. Specialties that are categorized as operating under severe labor supply conditions are considered to be very tight in terms of physician demand, while those specialties operating under critical conditions are deemed to be facing extraordinarily stressed conditions. The detailed survey data that reflect the specific responses to these six questions are shown in Table 1.3 in the report.

Table 2
Physician Specialties Classified as Facing Critical or Severe Shortages, 2002 to 2010 Survey Years

Specialty	2010	2009	2008	2007	2006	2005	2004	2003	2002
Group 1 – Tight / Tightening Labor Markets									
Family Medicine	Critical	Critical	Critical	Severe	Severe	--	--	--	--
Internal Medicine	Critical	Severe	Critical	Critical	Critical	--	--	--	--
Vascular Surgery	Severe	Severe	Severe	Critical	Severe	--	--	--	--
Urology**	Severe	Severe	Severe	Severe	**	**	**	**	**
Dermatology*	Severe	Severe	Severe	*	*	*	*	*	*
Neurology*	Severe	Severe	Severe	*	*	*	*	*	*
Group 2 – Relatively Tight Labor Markets									
Psychiatry	Severe	--	Severe	Severe	Severe	--	--	--	--
General Surgery	Severe	--	Severe	--	Severe	Severe	Severe	Severe	--
Orthopedics	Severe	--	Severe	--	Severe	Severe	Severe	Severe	--
Emergency Medicine	Severe	--	Severe	--	Severe	--	--	--	--
Neurosurgery	--	--	Severe	Critical	Severe	Severe	Critical	Critical	Severe
Group 3 – Softer Labor Markets									
OB/GYN	--	Severe	--	--	--	--	--	--	--
Oncology*	--	--	Severe	*	*	*	*	*	*
Cardiology	--	--	--	Critical	--	Severe	Severe	Critical	Severe
Anesthesiology	--	--	--	Severe	Severe	Critical	Severe	Critical	Critical
Gastroenterology	--	--	--	Severe	Severe	Severe	--	Critical	Severe
Radiology	--	--	--	--	Critical	--	Severe	Critical	Critical
Pediatrics	--	--	--	--	--	--	--	--	--

* 2008 – 2010 data only

** 2007 – 2010 data only

Regional Analysis of Shortages

A regional analysis of the 18 specialties by region for the five Metropolitan Statistical Areas in Massachusetts (Boston, Worcester, Springfield, New Bedford/Barnstable, and Pittsfield/Western Massachusetts), using the same criteria used for identifying critical and severe shortages among specialties found that, with the exception of Boston, all regional labor markets were operating with shortages. The shortages were severe for all regions except for Pittsfield/Western Massachusetts and Worcester, where shortages were critical.

In order to examine those specialties exhibiting shortages over time by region we examined regional shortages for specialties operating in tight/tightening labor markets over the past three years. For dermatology, family medicine, internal medicine, neurology, urology, and vascular surgery aggregated, shortages were severe in the following regional labor markets:

- Worcester
- Springfield
- New Bedford/Barnstable
- Pittsfield/Western Massachusetts

We also examined shortages for the six specialties experiencing tight/tightening labor markets in aggregate in urban labor markets within Massachusetts (Boston/Suffolk County, Cambridge/Somerville/Arlington/Medford, Lowell/Lawrence, North Shore, South Shore, and Newton/Wellesley/Needham).² This analysis found severe shortages in the following urban labor markets for dermatology, family medicine, internal medicine, neurology, urology, and vascular surgery:

- Lowell/Lawrence
- North Shore
- Newton/Wellesley/Needham

Recruitment

Results from the practicing physicians and medical staff presidents of community hospitals, indicate that there was some improvement in recruitment since last year. However, when compared to the last few years, recruitment has worsened over time. Teaching hospitals, on the other hand, have seen some improvements.

Findings from the survey of resident and fellow program directors indicate that Massachusetts appears to be doing well attracting medical school graduates to its residency and fellowship programs. International medical graduates (IMGs) continue to play an important role in filling open positions for physicians in Massachusetts as well.

² The selection of these disaggregated urban medical markets was on the basis of two criteria. First, each urban market contained a significant urban medical agglomeration around which physicians practice. Second, each of the urban areas contained adequate survey responses to permit disaggregation analysis with a degree of statistical reliability. Survey data limitations meant that additional suburban labor markets could not be included in the analysis.

Practicing Physicians

- Sixty-two percent of physicians responding to the Practicing Physician Survey believe that the current pool of physician applicants is inadequate to fill vacant positions. Although this is a decrease from 74 percent last year, the current ratio is higher than the average ratio of 52 percent for the time period 2002 to 2009.

Community Hospitals

- Community hospitals continue to be most seriously affected by the unfavorable consequences of physician shortages in the Massachusetts labor market.
- In the 2010 survey, 91 percent of the medical staff presidents at community hospitals surveyed reported that the current applicant pool is inadequate to fill existing physician vacancies, a decline from 96 percent last year but an increase over the average ratio of 86 percent for the time period 2003 to 2009.

Teaching Hospitals

- There seems to be an improvement in the physician pool to fill vacancies at teaching hospitals. Only one-third (36%) of the department chiefs at teaching hospitals believe the current applicant pool is inadequate compared to 46 percent last year and an average ratio of 55 percent for the time period 2003 to 2009.
- The reliance on international medical graduates (IMGs) as a source of new hires in teaching hospitals decreased this year, according to department chiefs. This number increased to a high of 26 percent last year only to decline to 18 percent this year. At the top of the distribution in the use of IMGs were anesthesiology (33%), radiology (30%), and internal medicine (36%).

Resident and Fellow Programs

- In the 2010 Workforce Study, resident and fellow program directors indicated that 40 percent of their graduates left Massachusetts last year. This is an improvement over the results from the 2009 Workforce Study, where program directors reported that 50 percent of residents and fellows had left Massachusetts in the prior year.
- For the residents and fellows who remained in the state, further analysis found that seven out of 10 (71%) in-state and one out of two (55%) out-of-state residents and fellows elected to remain in Massachusetts.
- According to responses from the survey of program directors of Massachusetts resident and fellow programs, IMGs played an important role in filling physician residency slots. Between 2008 and 2009 approximately 25 percent of residency positions were filled by IMGs, half of internal medicine residency positions and more than one in five (22% to 23%) of neurology and anesthesiology residency positions were filled by IMGs.

Trend Data on Recruitment Time

A complementary issue to the degree of difficulty to recruit, and a component of the analysis used to determine critical and severe labor market shortages, is the amount of time it takes to recruit a physician. Table 3 below shows trend data on responses for each of the three main surveys: practicing physicians, medical staff presidents of community hospitals, and department chiefs of teaching hospitals.

Table 3
Over the Past Three Years, Has the Amount of Time to Recruit a Physician Increased?

	2010 Recruitment Has Become More Difficult	2003 – 2009 Recruitment Has Become More Difficult (Mean Share)
Teaching Hospital Department Chiefs	24%	45%
Community Hospital Staff Presidents	82	77
Practicing Physicians	49	51

Survey responses confirmed that community hospitals have been consistently confronted with the greatest difficulty in their recruitment times, and this difficulty has worsened over time. Specifically, between 2003 and 2009, on average, 77 percent of community hospital medical staff presidents reported that the amount of time needed to recruit physicians has increased. In 2010 this percentage had risen to 82 percent. However, results from the Department Chiefs Survey demonstrate that recruitment is improving at teaching hospitals with only one in four department chiefs expressing an increase in difficulty to recruit, down from one in two over the time period 2003-2009.

Job Vacancies

Difficulty in filling job vacancies has improved slightly over the last few years, according to the department chiefs of teaching hospitals. However, vacancy rates still remain well above those for all occupations in Massachusetts. Responses from the practicing physician survey showed a slight improvement in filling vacancies since last year, however, when compared to the last few years (2002-2009), the data indicates that filling vacancies has worsened. Medical staff presidents of community hospitals indicated that filling vacancies has become more difficult since last year and over the last few years (2003-2009).

Practicing Physicians

- Sixty-three percent of practicing physicians surveyed report some level of difficulty in filling vacancies, a decline from 68 percent last year.
- The ratio of practicing physicians who report *significant* difficulty in filling vacancies is one of the six components used to determine critical and severe shortages. An analysis of trend data for this component found that 32 percent of practicing physicians surveyed are having *significant* difficulty filling vacancies, a slight increase from the average ratio of 29 percent for the time period 2002 to 2009.

Community Hospitals

- All of community hospital medical staff presidents surveyed reported that they are experiencing difficulty filling vacancies, an increase from 96 percent in 2009 and the 92 percent average from 2003 to 2009.

Teaching Hospitals

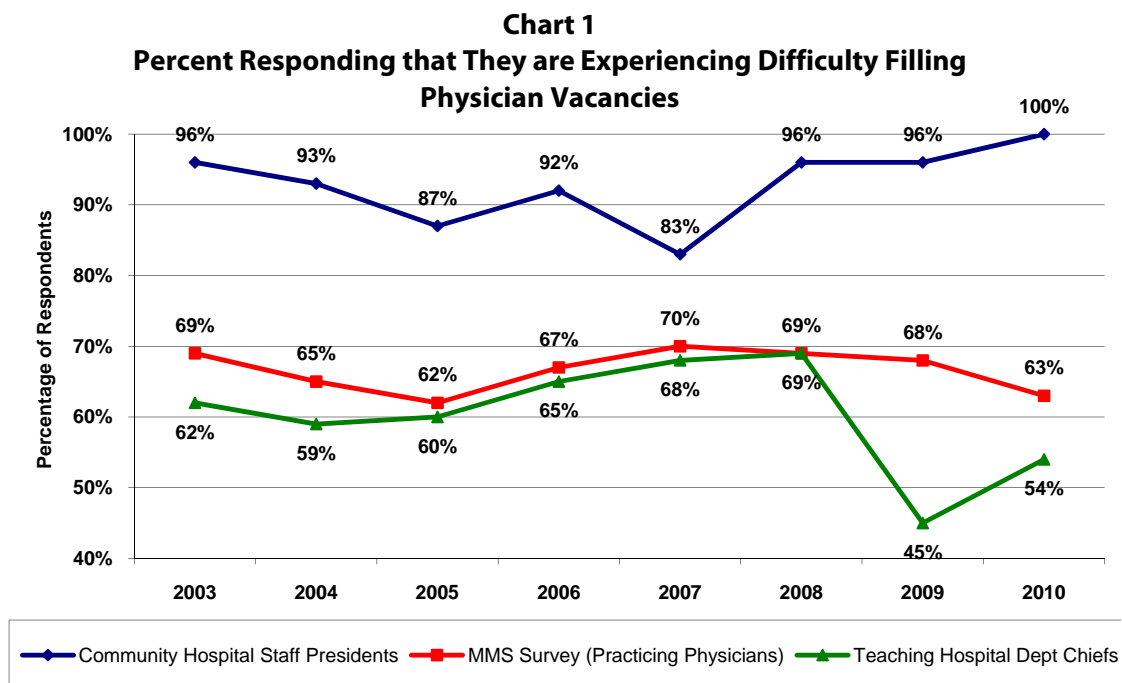
- Slightly over half (54%) of department chiefs at teaching hospitals are experiencing difficulty filling vacancies, an increase from 45 percent last year, but still trending below the average ratio of 61 percent for the time period 2003 to 2009.
- The job vacancy rate for physicians in teaching hospitals in 2009 was 4.9 percent, which is 2.6 times higher than for all occupations in the state (1.9%). The specialties reported by department chiefs in teaching hospitals as having the highest job vacancy rates were:
 - Neurosurgery (21.4%)
 - Vascular surgery (19.6%)
 - Dermatology (19.4%)
 - Anesthesiology (9.7%)
 - Gastroenterology (9.4%)
 - Orthopedics (8.5%)
 - Pediatrics (8.4%)
 - Internal medicine (8.1%)

Medical Groups

- Over 70 percent of the medical directors of medical groups are experiencing difficulties filling physician vacancies and reported an average of five vacant slots per medical group.

Trend Data on Job Vacancies

Chart 1 below compares trend data from the Practicing Physician Survey, the Department Chiefs of Teaching Hospitals Survey, and the Medical Staff Presidents of Community Hospitals Survey. The analysis provides a comparative view of the difficulty physicians are having in filling job vacancies over time.



The survey data indicate that there are labor market problems in community hospitals. We will continue to monitor the recruitment in teaching hospitals where current data shows a modest increase in difficulty filling vacancies after a dramatic improvement last year.

To track changes in overall physician vacancy rates in teaching hospitals over time, we compared the job vacancy rate from the 2009 data with those from the previous three years. Results are displayed in Table 4. The 4.9 percent job vacancy rate for 2009 was modestly above that for 2008. The 2009 vacancy rate, however, was several percentage points below those for 2007 and 2006. The 2007 survey rate was 7.3 percent and the 2006 rate was 8.1 percent. The 2009 vacancy rate was 3.2 percentage points below that of 2006, implying a greater ability of the departments in teaching hospitals to fill their available job openings over time.

Table 4:
Estimated number of Physician Vacancies and Full-Time Equivalent Employment Levels for Physicians in Responding Massachusetts Teaching Hospitals

	2006	2007	2008	2009
Total Vacancies in Reporting Departments	160	207	175	137
Full-Time Equivalent Employment of Physicians in these Departments	1,823	2,638	3,664	2,814
Vacancy Rate ($V \div V + E$)	8.1%	7.3%	4.6%	4.9%

Retention

Trend data on retention issues indicate that retention has worsened for practicing physicians surveyed. However, according to the findings from the department chiefs at teaching hospitals and medical staff presidents from community hospital surveys, retention issues have improved over time. As with recruitment, community hospitals are having the most difficulty with retention, demonstrating higher ratios of difficulty than practicing physicians and department chiefs surveyed. Findings from the resident and program directors survey indicate that the practice environment, cost of living, cost of housing, and salary levels continue to pose a problem for attracting physicians to stay in Massachusetts to practice medicine after they have completed their training.

Practicing Physicians

- One-third (35%) of practicing physicians reported that their ability to retain physicians has become more difficult over the past three years, similar to last year but slightly worse than for the time period 2002 to 2009 (average ratio of 30%).

Community Hospitals

- Among medical staff presidents at community hospitals, retention remains a problem with 64 percent reporting that retention has become more difficult over the past three years. However, this is an improvement compared to the average ratio of 79 percent for the time period 2003 to 2009.

Teaching Hospitals

- One in four (28%) of the department chiefs of teaching hospitals reported retention problems have become more difficult over the past three years, a significant improvement over the 2003 to 2009 average ratio of 48 percent.

Residency and Fellowship Programs

- Program directors of residency and fellowship programs rank both the practice environment and the salary level for residents and fellows who plan to work in Massachusetts very low. Only 16 percent of program directors reported the practice environment to be favorable, and only 3 percent rated salary levels as favorable.
- Program directors rank housing costs (76%), cost of living (74%), and salary level (71%) as the most unfavorable factors in residents and fellows' choice to practice in Massachusetts.
- Intellectual opportunities (84%), local amenities (74%), strength of peer group (71%), geographic location (84%), and research opportunities (68%), received the highest rankings for most favorable factors regarding the environment in Massachusetts according to the directors of residency and fellowship programs in Massachusetts.

Staffing and Service Provisions

Survey findings demonstrate that physician shortages have increasingly impacted the provision of services and staffing patterns according to practicing physician survey responses and within community hospitals while teaching hospitals and medical groups have seen improvements in these areas over time according to respondents.

Practicing Physicians

- One-third of practicing physicians (34%) indicated that physician supply problems are making it necessary to alter services an increase from 26 percent last year and an increase over the average ratio of 28 percent for the time period 2002 – 2009.
- One in three physicians (34%) have had to adjust staffing levels due to shortages in physician supply, an increase from 29 percent last year and an increase over the average ratio of 32 percent for the time period 2002 to 2009.

Community Hospitals

- Two-thirds (64%) reported that physician shortages required them to alter the services they provide, a substantial increase from 43 percent last year and an increase over the average ratio of 56 percent for the time period 2003 to 2009.

- The majority (82%) of medical staff presidents at community hospitals responded that physician supply problems required adjustments in their staffing patterns, an increase from 64 percent last year and an increase over the average ratio of 56 percent for the time period 2003 to 2009.

Teaching Hospitals

- Only one in four of department chiefs at teaching hospitals reported that physician shortages have necessitated alteration in the provision of their services, a decline from one in three last year (32%) and from an average ratio of one in three (36%) for the time period 2003 to 2009.
- One in four has had to adjust staffing levels, a decline from one-third last year and a decline from the average ratio of 44 percent for the time period 2003 to 2009.

Medical Groups

- The 2010 data reveal that 35 percent of medical directors report altering provision of services and 44 percent of medical directors adjusting staffing patterns due to physician shortages. These ratios are below those of the preceding year.

Physician Satisfaction

Physician satisfaction shows signs of improvement according to the results of the Practicing Physician Survey. However, a high ratio of physicians are dissatisfied for reasons such as uncompetitive income levels, the tradeoff between patient care and administrative tasks, professional liability fees and the fear of being sued.

- Current findings show clearly, for the first time, a slightly higher percentage of physicians reporting satisfaction with the practice environment than those remaining dissatisfied. Forty-three percent of the physicians surveyed reported satisfaction with the practice environment, while 41 percent reported that they were dissatisfied. Trend data shows the current ratio of physician respondents who are satisfied is higher than the average ratio of 34 percent who were satisfied between 2002 and 2009.
- More than half (57%) of physicians reported that their current income level is uncompetitive compared to their colleagues in other states. Specialists were more likely than primary care physicians to view their salaries as uncompetitive: While 63 percent of specialists rate their income as uncompetitive compared to other states' compensation, 53 percent of internal and family medicine physicians and 39 percent of pediatricians hold this view.
- Eighty-six percent of practicing physicians believe that over the next five years their salary levels will either decline or remain the same. The view that income will be stagnant or decline over the next five years is held by the majority of specialists surveyed (90%), 81 percent of family and internal medicine physicians, and 82 percent of pediatricians.
- Approximately one-half (51%) of all practicing physicians, irrespective of their specialty, are unhappy about the tradeoff between patient care and administrative tasks, this ratio is up from 44 percent last year. More than half (59%) of the physicians in family medicine and internal

medicine are dissatisfied with the tradeoff between patient care and administrative tasks, compared to 46 percent of specialists and 54 percent of pediatricians.

- The 2010 results revealed that 22 percent of the responding physicians reported that they are currently contemplating a career change because of the practice environment. Over the past nine survey years, response rates for this question have been consistently in the 20 to 25 percent range.
- Slightly more than 7 percent of the respondents indicated that they are currently planning to move outside the state, while 17 percent indicated that while they are not currently planning to move out of state, they will do so if the current practice environment does not improve.
- Similar to last year, roughly one-half (46%) of practicing physicians indicated that their practice is being altered or limited because of the fear of being sued. About one-half of primary care physicians (45%) and specialists (50%) indicated that they had limited or altered their practice because of the fear of being sued while only 26 percent of pediatricians indicated that this was an issue.
- Fifteen percent of practicing physician respondents said that professional liability rates have caused them to limit their scope of practice. While 18 percent of specialists indicated that professional liability rates have caused them to limit their scope of practice, 12 percent of primary care physicians and 7 percent of pediatricians indicated that this is an issue.
- A substantial percent of respondents in the following specialties indicated that they have altered or limited their scope of practice for fear of being sued: neurosurgeons (82%), urologists (74%), emergency medicine (70%), orthopedics (70%) and OB/GYN (60%).

Physicians' View of Health Care Reform

A new question was added to the Practicing Physician Survey this year to document how physicians view upcoming changes to the health care reform system. The following question was asked of each of the respondents:

*Which of the following options should be included in U.S. health care reform?
(Please read each of the following options carefully and check only one.)*

One-third of responding physicians prefer a single payer option (34%) and one-third prefer both public and private plans with a public buy-in option (32%). Seventeen percent of respondents would prefer to keep the existing mix of public and private plans, but allow insurers to sell plans with limited benefits and high deductibles. Fourteen percent indicated a preference for modeling health care reform on the Massachusetts health law of 2006. A small percentage of respondents (3%) chose the "Other" option.

Predicting the Likelihood that a Physician will Change Careers or Move Out of State

Each year the MMS Workforce Study findings indicate that there are numerous factors impacting physician career satisfaction. An important outcome to evaluate from a labor market perspective is how these factors, as well as demographic and practice setting characteristics, will impact a physician's decision to make a career change or move outside of Massachusetts. These career decisions have the potential to further exacerbate the physician workforce shortages that currently exist. Therefore, we developed a number of logistic regression models to predict what factors are associated with the likelihood that a physician will plan to change careers or move out of state.³

Changing Careers

Survey results indicate that age and gender were not significant variables in predicting the decision to change careers. However, the probability of changing careers is significantly higher for physicians with the following characteristics:

- Physicians expressing dissatisfaction with the hours tradeoff between patient care and administrative duties
- Physicians who perceive current salaries in Massachusetts to be uncompetitive with those of other states
- Physicians specializing in emergency medicine, orthopedic surgery and OB/GYN

Moving Out of State

Results show that the probability of choosing to move out of Massachusetts is significantly higher for physicians with the following characteristics:

- Physicians expressing dissatisfaction with the hours tradeoff between patient care and administrative duties
- Older physicians (those age 60 and older) compared to younger physicians (those under 40 years of age)
- Physicians who perceive current salaries in Massachusetts to be uncompetitive with those of other states
- Physicians in the specialties of anesthesiology, dermatology, emergency medicine, general surgery, neurology, neurosurgery, and urology

³ For a review of the uses of linear probability models in social science research of logit models and probit models. See: John H. Aldrich and Forrest D. Nelson, *Linear Probability, Logit, and Probit Models*, Sage Publications, Beverly Hills, 1984.

Access to Care

Findings from a telephone survey of physicians' offices found that, as has been the case in past years, internists and family medicine physicians report the least availability for new patient appointments of the seven types of physicians included in our study although wait times for family medicine have decreased. Findings also indicate differences in the percentage of physicians accepting Medicaid patients by specialty.

- The largest changes in access to new patient appointments since 2009 are in family medicine, where the study finds an unfavorable trend. While more family medicine physicians are not accepting new patients (54%, compared to 40% last year) the average wait for an appointment among those that are accepting new patients has decreased (29 days, compared to 44 days last year).
- Nearly half (49%) of Massachusetts internists are not accepting new patients (compared to 56% last year) and those that are report an average wait of 53 days for a new patient appointment, up from 44 days last year.
- Approximately nine in 10 orthopedic surgeons (95%), gastroenterologists (90%), cardiologists (88%) and OB/GYNs (88%) are accepting new patients.
- Among pediatrics offices, which were included in the study for the first time this year, 80 percent are accepting new patients and the average wait time for a new patient appointment is 24 days.
- Internists (66%), family medicine physicians (61%) and orthopedic surgeons (74%) continue to be less likely to accept Medicaid patients than gastroenterologists (95%), cardiologists (89%) and OB/GYNs (88%).

Conclusions and Policy Considerations

For the past nine years, the Massachusetts Medical Society has conducted an annual Physician Workforce Study to evaluate labor market conditions and document physician supply trends across the Commonwealth. Results from the 2010 study confirm that there are still significant shortages across several specialties in Massachusetts, with a continued focus on primary care.

Massachusetts is a model for health reform for the nation. While access to care has improved under Chapter 305, universal health insurance coverage in Massachusetts can only be sustained if there is a strong physician workforce. To accomplish this, a number of changes to the health environment must take place.

- Health care stakeholders must work collaboratively on key issues in order to secure a strong physician workforce that will deliver top and quality cost effective care.
- Health care stakeholders must advocate for physician workforce policies that secure a fair and equitable payment system during payment reform. If physicians believe that practice viability is unsustainable under a new payment system, Massachusetts may experience further recruitment and retention problems.
- Administrative simplification through standardization is essential to ease the burden on physician hours and bend the curve on the rising cost of overhead.
- Medical malpractice remains a concern, and must be addressed before new payment models are introduced. Implementing electronic health records, registries and access to timely accurate data will improve the quality of care physicians deliver and to reduce the rise in cost when delivering care. The payers and the state must work openly and collaboratively with physicians to secure success in these areas.
- Medical student debt is a growing concern and must be addressed by a combined state and private effort, in order to encourage young physicians to remain in Massachusetts, especially in primary care and those specialties with shortages. This may include requiring physicians to practice for a number of years in medical underserved geographic regions, or to practice primary care.
- Massachusetts has a history of providing some of the best care in the world. Among other reasons, this is a direct reflection of its top quality physician community. Stakeholders must work together to ensure a practice environment for physicians that will both encourage retention and recruitment, but will also enable better coordination of care and the ability to do what physician do best – care for their patients.