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Mississippi Health Policy Research Center

Mississippi's Physician Labor Force: Current Status and Future Concerns

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Executive Summary

Introduction

Both political and population-level forces are coming to bear on the physician workforce in Mississippi, producing an unfavorable climate for physician recruitment and retention. Consequently, many of Mississippi's doctors are leaving or choosing to retire early. Without action, Mississippi's already overburdened physician labor force may experience further shortages in number, diversity, and level of expertise. Consequently, Mississippi residents may suffer from a lack of access to quality health care.

The current Mississippi medical environment poses many challenges for physicians. One, Mississippi has high rates of Medicaid enrollees and declining Medicaid reimbursement rates. Plus, numerous medical malpractice lawsuits have increased insurance premiums for physicians in the state. In addition, the Mississippi resident population is largely rural, with fewer doctors choosing to locate in rural areas because of less-developed economies, a sense of isolation, and a lack of medical infrastructure. Finally, the Mississippi resident population is chronically ill (ranking high in rates of obesity, cardiovascular disease and infant mortality), medically complicated, and often without any health insurance.

The Current Study

Using a survey of 616 physicians completed in 2002-the Mississippi MD Survey (MSMDS)-and four secondary data sources, the current study compares the characteristics of Mississippi's physician workforce to that of the nation. The four secondary data sources are compiled to form the Mississippi Medical Doctor Secondary Database (MMDSD). They are as follows: (a) the AMA Masterfile for the state of Mississippi, (b) the Mississippi State Board of Medical Licensure database, (c) the Mississippi State Medical Association membership list, and (d) the Mississippi Academy of Family Physicians' database. These data are then compared to two national databases, the American Medical Association's (AMA) Masterfile and the Community Tracking Survey (CTS).

The Findings

- Nationally, there are three doctors to every 1000 residents; however, in Mississippi, there are only two doctors to every 1000 residents.
- Mississippi physicians are not evenly distributed relative to the population, which produces gaps in access to physician care. More than half (56%) of all Mississippi physicians are located in four urban areas, leaving 51 of 82 counties underserved. Only 12% of the state's doctors are located in the Mississippi Delta.
- Mississippi has a much higher percentage (90%) of Caucasian doctors than the nation as a whole (75-80%); yet, Mississippi has a much higher percentage (36.3%) of African-American residents than the nation (13%) as a whole. Therefore, the racial composition of the Mississippi physician population is not reflective of the racial composition of the patient population. This is a concern because patients report that they are most comfortable with a physician of their own race.
- A lack of diversity is also seen in the Mississippi physician workforce in respect to gender. While 25% of the nation's physicians are female, one-half of that percent age (12-13%) is female in Mississippi.
- Another discrepancy between the national physician population and Mississippi's is found in the percentages of specialists. While the nation has 20% of its doctors self-reporting as internists, Mississippi only has 7.5%. In addition, pediatricians occupy 10% of the national physician workforce, while only occupying 4% of Mississippi's physician workforce. Generalists, rather than specialists, probably address much of the need for specialized care in Mississippi. In addition, specialists in Mississippi are more likely to be nearing retirement.

- Older physicians predominantly serve Mississippi residents. There are fewer young doctors (those under the age of 35) in Mississippi (5%) than in the nation (18%) as a whole; this is especially true for young female doctors. Mississippi has a concentration of doctors in the 35-54 year-old age range, which increases the likelihood of relocation (for those 35-44) and retirement (for those 45-54); doctors in rural areas are more likely to be nearing retirement.

- Forty percent of physicians practicing in Mississippi were trained at the University of Mississippi Medical Center, the lone medical school of the state Younger Mississippi doctors, especially, are likely to have been trained out-of-state. Therefore, efforts to retain graduates should be assessed.

- Fewer than half of Mississippi physicians report that they intend to hire a medical school graduate in the next five years. In addition, 70% of doctors aged 35-44 have considered relocating, and 32% of the physicians under age 35 intend to relocate. Of doctors aged 55-64, over 70% have considered retiring early. Given low levels of intended recruitment as well as high levels of intended relocation and possible early retirement, Mississippi's current physician shortages may be headed for worsening, and perhaps devastating, impacts.

Policy Research Recommendations:

- A central database of information on Mississippi's physicians and medical environment should be systematically compiled and analyzed,

- Programs designed to retain currently practicing physicians that have already been implemented around the nation and in limited areas of Mississippi should be assessed for potential statewide use.

- Data concerning recruitment of physicians who have graduated from medical schools outside the state of Mississippi should be gathered and analyzed. Previously implemented Mississippi recruitment programs should be evaluated, in addition to the needs of potential physician recruits. Mississippi residents attending out-of-state medical schools should be tracked.

- The economic feasibility of placing an increased number of UMC graduates in residencies within the state of Mississippi should be researched. The likelihood that such positions could be accredited and filled should also be investigated.

- In order to recruit and retain more female and minority physicians in Mississippi, an examination of policies and programs in use around the nation should be undertaken.

- Assess incentives for part-time work as a transition to retirement for physicians.

Summary

The physician labor force in Mississippi is experiencing some difficulties. However, with the implementation of the proposed policy changes, it is possible that Mississippi can thwart a physician workforce shortage. Without the changes, as more physicians relocate, retire early, or otherwise opt out of practicing in the state, the extant physician shortage will become more severe. Furthermore, more comprehensive data collection and reporting efforts that will allow for assessments of implemented policies and their impact on the physician labor force.

Take Home Points

- The demographic make-up of Mississippi's physicians is neither reflective of the nation's physician workforce nor is it reflective of the state's patient population. Given the racial make-up of the state's population, recruitment efforts should be targeted toward minorities for medical school entrance as well as for physicians moving to the state. The ultimate goal of these efforts is to increase the presence of African-Americans in the Mississippi physician workforce.

- The current legal climate and the lack of strong recruitment and retention programs will exacerbate an already inadequate physician labor force. Continued efforts to improve the medical malpractice climate and the resulting medical malpractice premiums need to be examined. Improving the medical malpractice climate may have the additional benefit of improving the effectiveness of recruitment and retention efforts.

- Early retirement of physicians in one of the state's largest age groups may further exacerbate the physician shortages in Mississippi. Researchers should examine whether inducements for part-time work might improve physician shortages in the state-particularly in rural areas.

- Policies that encourage 1) retention of University of Mississippi Medical Center (UMC) graduates to practice in the state, 2) recruitment of graduates from other medical schools, and 3) the retention of presently practicing medical doctors are needed and should be assessed in conjunction with programs to encourage retired physicians to practice part-time.

- In order to most appropriately assess the physician workforce in Mississippi, a means of data collection and analysis needs to be established. Policy decisions to address supply shortages will depend on having accurate and timely information. The Mississippi State Medical Association, the University of Mississippi Medical Center, the Mississippi Medical Licensure Board, the Mississippi Hospital Association, and other agencies should coordinate data collection and analyses efforts through an unbiased research organization. A uniform process for collecting and analyzing physician workforce data should be instituted.

Abstract

The state of Mississippi will continue to face physician shortages if current trends continue. With the aging and subsequent retirement of the existing physician population, in conjunction with no legislative action to encourage the recruitment and retention of new and younger physicians to practice in the state, the current physician shortages will be exacerbated. Perhaps the greatest obstacle facing legislators, who must develop policies to address these crises, is limited empirical data about physicians in the state of Mississippi. In addition to legislative efforts to improve the future physician workforce in Mississippi, there is immediate need for better tools to evaluate these efforts. This paper describes the basic demographics of physicians in Mississippi and offers specific scenarios for the Mississippi physician workforce in the near future.

Introduction

Recently, Mississippi physicians have faced many challenges. Reimbursement rates from insurance companies, Medicare, and Medicaid have been dropping and the proportion of uninsured patients has been increasing. In addition to lower payments for care received, Mississippi physicians are practicing in one of the worst medical malpractice premium and lawsuit environments. Finally, these doctors are also serving a largely rural, chronically ill, and medically complicated population (e.g., patients frequently facing multiple medical conditions), as Mississippi frequently tops state ratings in the prevalence of major chronic illnesses. Given these, and many other circumstances, fewer doctors are interested in practicing or making their careers in Mississippi.

In the past, anecdotal stories have claimed that physicians are leaving the state, retiring early, or choosing not to practice here. This paper presents the first empirical step in understanding the physician population in Mississippi. Using a survey completed in 2002 and four secondary data sources, this paper shows the demographic characteristics of Mississippi physicians compared to physicians across the country and presents the age distribution of physicians in Mississippi by location and medical specialty. Finally, this paper covers the potential ramifications for the public of an aging physician population without strong efforts at recruitment of new physicians and retention of existing physicians.

Review of the Literature

Changing Reimbursement

Nearly 18% of Mississippians are covered by Medicaid, in a state with the sixth highest average annual growth rate of Medicaid enrollees (Kaiser Family Foundation, 2002). In Mississippi, several factors are converging, creating a challenging situation for patients and physicians alike. First, Medicaid has been in financial crisis and physician fees from Medicaid have been dropping in Mississippi and many other states (American Medical Association, 2002; Joint Council of Allergy, Asthma and Immunology, 2001) and are expected to continue to drop (American Medical Association, 2001). Mississippi's Medicaid predicament became clear in 2002 when the state had to halt payment to physicians because resources were exhausted in March (American Medical Association, 2002). Second, many physicians are choosing to limit their Medicaid enrollment due to increasing malpractice premiums, particularly for obstetricians and neurosurgeons, and limited income from Medicaid patients. Third, there is limited research supporting the conclusion that Mississippi physicians believe that Medicaid patients have more medically complicated conditions and are more likely to sue (Mississippi Department of Insurance, 2002; Cossman, 2003), though existing research indicates that Medicaid patients are no more or less litigious than the general population.

Uninsured in Mississippi

Mississippi also has high rates of uninsured (for health care in particular). According to the United Health Foundation (2002), nearly one in six Mississippians were uninsured in 2001, giving Mississippi the eighth highest rate of uninsured in the nation. Additionally, 15% of patients were enrolled in Medicare in 1998 (19th highest in the nation) and nearly 18% were enrolled in Medicaid (7th highest in the nation). In other words, **half of the population of Mississippi is either medically uninsured or covered by public insurance programs**. Since 50% of Mississippians are under- or uninsured, physicians may find it challenging to make enough money to cover overhead and earn a competitive income when the skyrocketing medical malpractice premiums in the state are also considered.

Recent changes in public (Medicaid & Medicare) and private (insurance companies) payments to physicians are affecting physician supply, as is the legal climate in Mississippi and around the nation. A high rate of uninsured combines with these changes to create a challenging medical climate.

Legal Climate in the State

Recruitment and retention are being further influenced by the legal climate in Mississippi. This is also a nationwide problem. John Dingell, Ranking Member of the House Committee on Energy and Commerce (2002) recently said:

> *These high insurance rates leave doctors with few options. Those who can afford it will pay the increased cost of providing medical services. Those who cannot afford the increase are forced to assume significant personal liability, leave high-risk specialties, or leave the profession altogether. At best, health care will become more expensive for patients. At worst, in addition to higher prices, patients will be denied access to care, and lifesaving treatments will not be provided.*

Thoughout 2002, many national news organizations showed maps of states in “crisis” due to the malpractice climate and Mississippi was always indicated to be a “crisis state.” In fact, the New York TImes, on August 20, 2001 indicated that Mississippi was “gaining as lawsuit mecca.” Though Governor Ronnie Musgrove convened a session of the legislature in the fall of 2002 to address the issue of malpractice, the recommended changes should not be expected to decrease premiums or convince physicians to stay - at least not in the immediate future.

Recent research at the national level has shown that rural primary care physicians are likely to sell their private practices to non-local buyers largely due to concerns about managed care, recruitment, and increasing administrative burdens (Stensland, Brasure and Moscovice, 2002). Additional research indicates that many Mississippi physicians are seriously considering relocating outside the state or retiring from practice early due to malpractice pressures in the state (Mississippi Department of Insurance, 2002). Although this appears to be unrelated to Medicaid at first glance, a major concern expressed by physicians is that a vast majority of their payments is in capitated programs (particularly managed care, Medicare and Medicaid). Therefore, the rising costs of malpractice premiums cannot be passed on to the patient and must be absorbed by the physician through reductions in their net income.

Rural physician recruitment is difficult, but the additional complication of the malpractice climate has made it even more difficult. Malpractice premiums for Mississippi doctors have risen 30-90% from 2002 to 2003. Medical malpractice carriers have left the state. Though there used to be 14 medical malpractice carriers, there is now just one private carrier (Wall Street Journal, May 1, 2002). The state is known for "jackpot justice" and has had more than a half dozen awards for more than $100 million (Nossiter, 2002). Mississippi is attracting class-action lawsuits from plaintiffs and lawyers hoping to find juries of rather poor and poorly educated jurors who are amenable to large awards. For example, in Jefferson County Circuit Court, in fact, there are more than twice as many plaintiffs as residents (Nixon, 2003). Though the 2002 legislative special session addressed this, the implementation has not been complete and the problem currently remains.

Rural Population

Ricketts (2000a) estimated that although the rural American population represents 20% of our nation's people, only 11% of our physicians are located in rural areas. Not only does previous research indicate that the physician supply is increasingly low in rural areas relative to national standards, projections show that it will continue to be a problem. Though the physician workforce grew nationally by nearly 25% from 1990 through 1997, in rural areas the physician workforce grew only by 11% (Ricketts, 2000a). Therefore, rural areas started the 1990s at a disadvantage, and this disadvantage grew through most of the decade.

In Mississippi's rural areas, inequalities in access to health care are worsened by a high prevalence of those living in poverty (19.9%) and high proportions of racial and ethnic minorities (39.3%), mostly African-Americans (36.3%) (U.S. Census Bureau, 2003). Poor rural health care access has been closely tied to sociodemographics (e.g., income, education) (Auchincloss and Hadden, 2002). Additionally, rural residents have higher risks of health complications compared to those who live in metropolitan areas (Auchincloss and Hadden, 2002). Solutions to the inequality in access to health care in rural areas have largely been focused on federal subsidies to encourage the development of rural clinics, the placement of international medical graduates (IMGs) in rural areas, the bolstering of the National Health Service Corps, and the increasing number of non-physician providers (see Baer, Ricketts, Konrad, and Mick, 1998; Shi, Samuels, Ricketts and Konrad, 1994; and Ricketts, 1990).

The economic/demographic make-up of Mississippi, with higher rates of rural residence, poverty, chronic illness, and minority status, represent significant challenges in recruiting/retaining an adequate supply of physicians.

Additionally, the increasing growth of managed care in America's health care system and the concentration of managed care resources in metropolitan areas (Ricketts, 2000b) has not lessened the problems associated with inequalities in access to and utilization of care in rural areas. In fact, Mississippi is one of a handful of states with historically low managed care market penetration (Sebelius, 1999).

Finally, given that the vast majority of Mississippi's population lives in rural areas (ERS-USDA, 2002), and that Mississippi has the highest concentration of African-Americans in the nation (U.S. Census Bureau, 2003), inequalities in access to care are a critical component of any analysis concerning the physician workforce. As shown in this paper, Mississippi's physician workforce is not representative-specifically racially-of the general population.

Chronically Ill Population

The United Health Foundation (UHF) releases state rankings on various health indicators each year. The most recent rankings (2002) indicate that Mississippi is in 49th place overall, with only Louisiana ranking lower. Mississippi has ranked as one of the bottom four states since UHF began ranking states in 1990. Mississippi leads the nation in rates of obesity, cardiovascular deaths, and infant mortality. In the past, Mississippi had the highest rate of motor vehicle fatalities as well-in 2002, the state rose to 46th with 2.2 deaths per 100 million miles driven. Many of these health indicators are directly related to lifestyles and a relative lack of access to primary care; however, we must also take into account the general social climate of the state (e.g., high rates of high school dropouts, high unemployment, high rates of teen pregnancy and other lifestyle factors) and its influence on health behaviors. Low levels of education and high unemployment contribute to a lack of insurance (given Mississippi's employer-based health insurance system) and may have contributed to Mississippi's rank of second highest in the nation for premature deaths, as calculated through years of potential life lost.

Mississippi is ranked third highest in limited activity days, which are measured by the number of days in the previous month one was unable to perform his or her normal duties (either occupational or familial) (UHF 2002). Mississippi averaged just over five days of limited activity per month in 2001, while the nation as a whole averaged approximately 3½ days. Only West Virginians and Kentuckians experienced more limited activity days than Mississippians. This is a particularly meaningful indicator because job performance, and thus economic development, suffers when individuals must limit their work activity due to ill health.

The general health of Mississippians has declined as compared to the nation as a whole. The United Health Foundation's rankings indicate that Mississippi was ranked 50th in heart disease prevalence (the highest rate in the nation), 37th in cancer deaths, and 42nd in infectious disease prevalence in 2001. Though today's relative comparisons reflect how Mississippi relates to other states in the nation, an examination of these rankings over time reveals that Mississippi has been falling in the rankings over the last 10 years. In other words, as other states are moving toward reaching the Healthy People 2000/2010 goals of improving preventive health care and lowering disease prevalence, Mississippi is being left behind and dropping consistently in many of the rankings.

Particularly, this consistent drop can be seen in Mississippi's relative mortality rankings. In 1990, Mississippi's mortality rate was 43rd in the nation; currently it is 49th in the nation-only West Virginia has a higher mortality rate. Even when disaggregated by race, white Mississippians have the 49th age-adjusted mortality rate in the nation and black Mississippians are ranked 45th (Centers for Disease Control, 2002). This decline in the ranking must be expected given simultaneous declines in health outcome rankings for heart disease, cancer and infectious diseases. Two additional components to the relative mortality rankings are the infant mortality rate and the health behaviors of children. Despite slight improvements, Mississippi is still ranked 50th in the nation for infant deaths (down from 47th the previous year), the highest rate in the nation. Since 1990, nearly one in 100 infants born in Mississippi can expect to die before their first birthday. Furthermore, children in Mississippi are likely to engage in high-risk behaviors. For example, 25% of young Mississippians

have not worn a seat belt regularly, 35% have ridden in the last month with a driver who had been drinking, 19% have carried a weapon in the last month, 32% have been in a physical fight within the last year, and 6% have attempted suicide in the past year, according to the Centers for Disease Control & Prevention (2002). And, last, Mississippi's homicide rates are among the highest in the nation with nine homicides per 100,000, compared to 5.5 per 100,000 in the nation.

Recruitment and Retention of Physicians

A substantial component of the health care access equation is the recruitment and retention of physicians, particularly in rural areas where access is currently low. In a national study of 330 physicians who had already chosen to relocate, some of the top twenty relocation "decision factors" were: hospital facilities (#1), income potential (#2), spouse's preference (#4), desirable professional partnership (#6), regular contact with other physicians (#7), preference for urban/rural life (#9), cultural advantages (#14), and the prosperity of the community (#15) (Dismuke, 1989). Robinson and Guidry (2001) state that "rural communities have less well-developed economies, lower population density, and a higher percentage of elderly people in the population" (p. 337) - all of which, according to Dismuke, would decrease rural communities' ability to recruit new physicians. It should also be noted that: (a) female primary care physicians are less likely to choose rural practice locations, and (b) the female general practitioner population is increasing, which means that recruitment difficulties among the general practitioner population will likely increase (Ellsbury, Doescher, and Hart, 1999; Doescher, Ellsbury and Hart, 1998).

The supply of active, practicing doctors, especially those providing primary care, affects access to health services and health outcomes. This is especially true for vulnerable, at-risk populations including racial/ethnic minorities, the uninsured, the poor, and the chronically ill - all of which are overrepresented in Mississippi.

Additionally, physicians may find it harder to practice their craft in rural areas due to professional isolation, lack of medical infrastructure, large catchment, or service, areas (resulting in fewer chances to pool resources for expensive medical equipment) and general shortages of trained professionals (Robinson and Guidry, 2001). This is combined with a particularly challenging patient base. For example, rural patients are more likely to self-perceive their health status as being fair or poor compared to their urban counterparts with similar health problems-rural patients are more likely to be self-employed and less likely to have access to employer-based health insurance; and rural residents have a harder time traveling to see physicians, especially due to the general lack of public transportation in rural areas (Robinson and Guidry, 2001).

Though recruitment plans have been developed and implemented, the long-term evaluation of some of these programs is not yet feasible. In an early study, Pathman, Konrad and Ricketts (1992) found, in a nine-year follow up of the National Health Service Corps (NHSC) Scholarship Program, that this program, designed to encourage rural practice location, was effectively working against rural retention. That is, those physicians who freely chose to go to rural areas were more likely to still be in rural communities nine years later than those who were required to go due to their National Health Service Corp (NHSC) Scholarship Program obligations. That is not to say that NHSC is unimportant-communities that cannot recruit physicians otherwise are dependent upon NHSC, as are community health centers and hospitals.

SUMMARY

As a largely rural state, Mississippi has a significant component of its population that finds medical care to be physically distant, with most care being concentrated in urban centers of the state (see Health Map: Spatial Distribution of Physicians in Mississippi, 2003). Additionally, the rural population of Mississippi has overrepresentations of racial/ethnic minorities, those living in poverty, and those with chronic illnesses making access to care all the more critical and all the more unlikely. Given these factors, the legal climate in Mississippi, and the top relocation decision factors, Mississippi will be further challenged in recruiting and retaining the numbers of general practitioners and specialists necessary to provide care to the state's population.

METHODOLOGY

This paper presents results from four different databases. First, there are primary data collected through a survey of physicians in Mississippi, referred to as the Mississippi Medical Doctor Survey (MSMDS). Next, a secondary database was constructed using several resources, referred to as the Mississippi Medical Doctor Secondary Database (MMDSD). Results from both the survey data and the secondary data are compared to national databases. The first national database is the American Medical Association's (AMA) Masterfile, which provides the demographics and location of physicians across the nation. The second national database is the Community Tracking Survey (CTS), which has interviewed physicians in 72 communities across the nation on a biennial basis. Many of the questions from the CTS were included in the MSMDS, providing comparable survey data for approximately 12,000 physicians.

The Mississippi MD Survey (MSMDS, shown in tables as MS Survey Data) was conducted between November 2002 and January 2003. The survey time period followed a period of statewide attention on the medical malpractice issue. President Bush addressed the state concerning medical malpractice in August 2002 and the legislature had a special session focusing on medical malpractice beginning in October 2002. The survey responses may be biased by those most affected by the President's visit and the special session-or the medical malpractice climate in general.

The sampling frame for this study was the MMDSD (discussed below), which included 4,464 physicians who were believed to be actively practicing within the state of Mississippi. Of these doctors, 2,500 were contacted to participate in the survey by phone or the Web. Through November and December, 300 interviews were completed in this fashion, and nearly 700 doctors were determined to be ineligible (i.e., they had moved out of state, contact information was incorrect, they were not in private practice, or they were deceased). Mail versions of the survey instrument were then sent to the remaining 1500 physicians; 316 surveys were returned. Therefore, this database consists of 616 telephone, Web, and mail surveys from active, office-based physicians in the state of Mississippi, resulting in a 34.2% response rate (616 of 1,800 eligible).

Though the response rate is low compared to most surveys, the response rate is fairly typical of physician surveys. Survey data needs to be presented with some caution, as there are often questions of whether the sample is representative of the population. Given the malpractice climate in the state at the time of the survey, physicians who had been more affected by premium increases and lawsuits

may have been more likely to respond. In comparing the spatial distribution of physicians in the state and basic demographics of the sample and the physician workforce (specialization, race, gender, age), it appears that the MSMDS sample is representative; however, the sample size is small (N=616), so estimates may not be stable.

The Community Tracking Survey, (shown in tables as U.S. Survey data) with a six-year history, was used as the basis of the questionnaire design. Questions were designed to address eight areas: (1) physician specialty, certification and satisfaction, (2) utilization of time (e.g., weeks worked and hours worked), (3) practice arrangements and ownership (e.g., type and size of practice), (4) medical care management, including scope of care, (5) medicine in Mississippi (e.g., legal issues of tort reform, malpractice and Medicaid shortfalls, as well as intentions to relocate, retire, hire, downsize), (6) physician-patient interactions (e.g., physicians' ability to provide care or obtain needed services for patients), (7) practice revenue (e.g., payment mix, charity care), and (8) physician compensation and demographics.

The Community Tracking Survey began in 1996 and has been completed in even-numbered years since that time. This survey is a large-scale project involving physician, patient and employer surveys. There are 60 communities included in the larger project and 12 communities being studied in depth. In the CTS physician survey, physicians were interviewed in 60 communities across the nation (both metropolitan and non-metropolitan), as well as being supplemented with a national representative sample of additional physicians. The 1996, 1998, and 2000 CTS physician surveys are currently available for analysis. We used the 2000 CTS physician survey (which was collected largely in 1999) to contrast Mississippi physicians from the MSMDS with U.S. physicians from the CTS.

The Mississippi Medical Doctor Secondary Database (MMDSD) was developed using four databases from July 2002: (1) the AMA Masterfile for the state of Mississippi, (2) the Mississippi State Board of Medical Licensure database, (3) the Mississippi State Medical Association membership list, and (4) the Mississippi Academy of Family Physicians' database. Multiple databases were used to increase the validity of estimates of active, office-based physicians. Using physicians' names, addresses, and dates of birth (when available), these databases were combined to yield more than 9,600 physicians associated with the state of Mississippi (doctors of osteopathy are not included in this database and AMA data indicates that fewer than 5% of physicians are DOs).

Respondents were culled from this MMDSD database (shown in tables as MS Secondary Data) in several fashions. First, any physician in the licensure database with an out-of-state address was removed. Second, any physician who was only represented in one of the four databases was removed. Finally, any physician over the age of 90 was removed, under the assumption that they were no longer actively practicing medicine. Ultimately, this database resulted in a file indicating that there are 4,464 physicians who are actively practicing medicine in the state of Mississippi. However, since roughly 20% of the physicians contacted for the MSMDS indicated that they had left the state, were not in private practice, or had retired from private practice, we believe we are overestimating the active office-based physician population in Mississippi.

The AMA Masterfile includes physician information on specialty, year of graduation, school of graduation, gender, date of birth, and geographic location. Our Masterfile database did not include licensure and certification status. Another shortcoming of this database is that all physicians (living and deceased, residents and physicians) are included in the file; therefore, there was no means of discerning which of the physicians included in our Masterfile were actively practicing medicine.

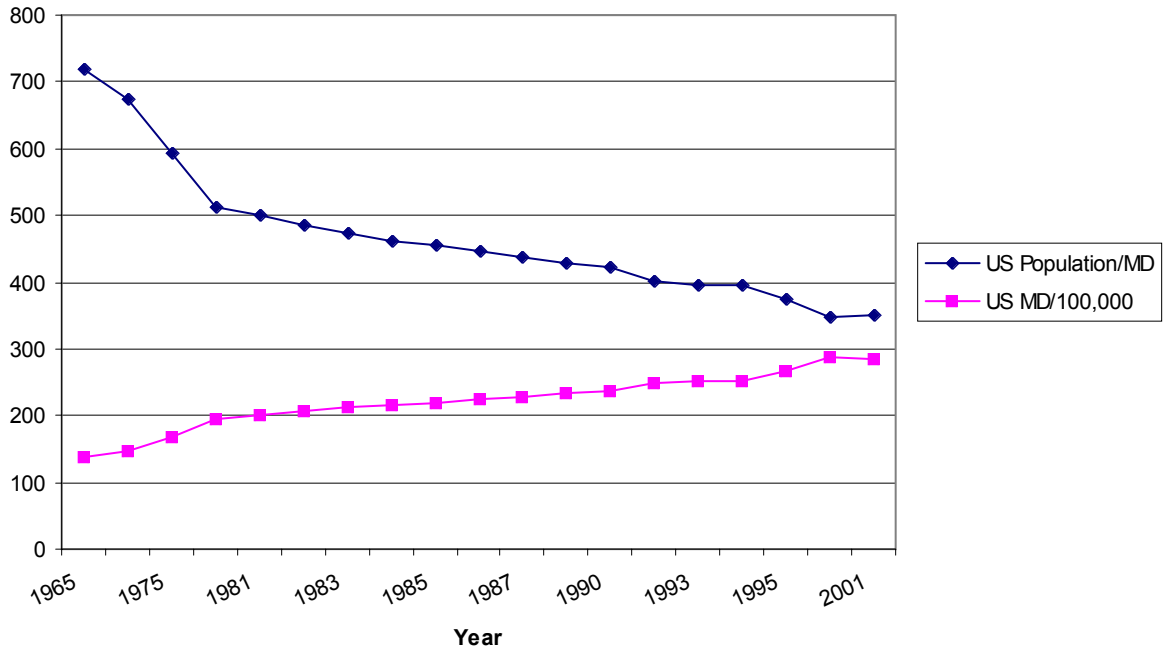
RESULTS

Using the data described above, this paper shows the demographic characteristics of Mississippi physicians compared to physicians across the country and presents the age structures of physicians in Mississippi by location and specialty. Finally, this work covers the potential ramifications of an aging physician population without strong efforts at recruitment of new physicians and retention of existing physicians.

Physician Characteristics and Demographics

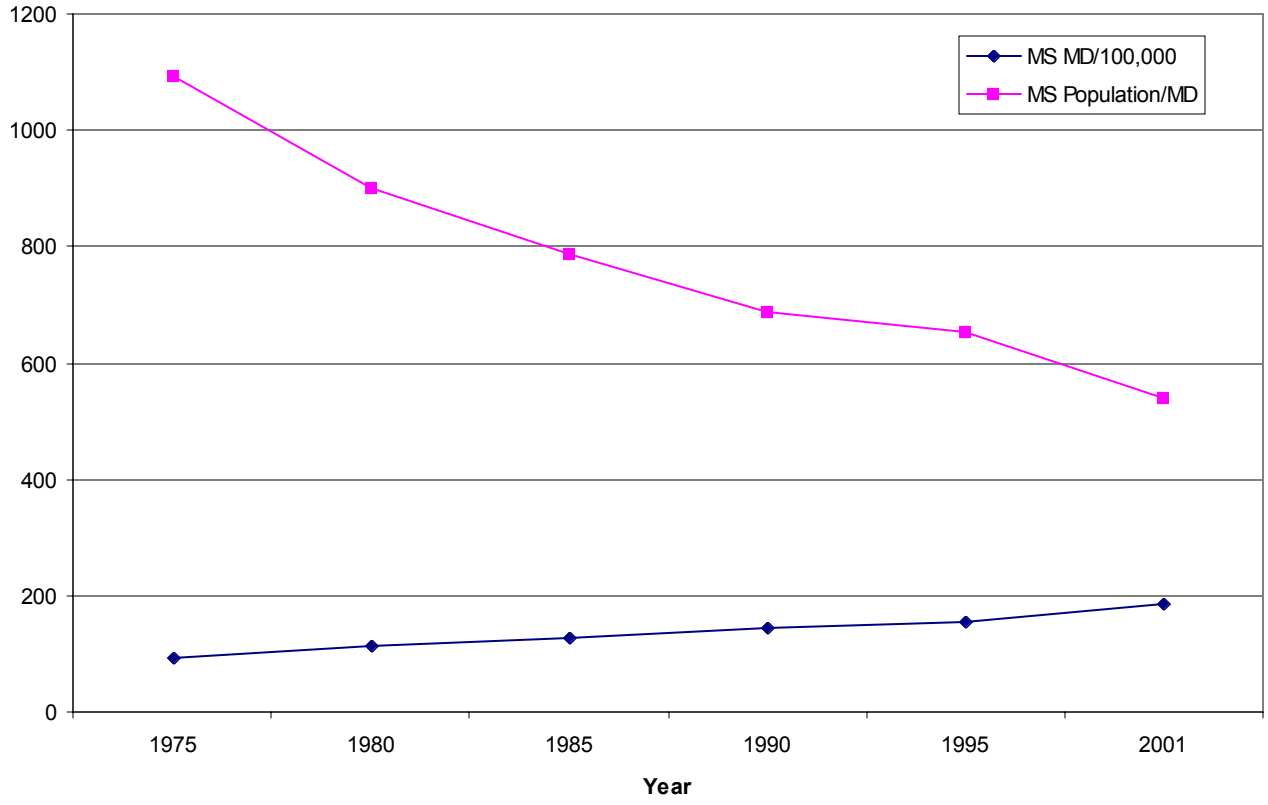
Mississippi in Context. Graphics in this section show how Mississippi fares in comparison to the United States as a whole. A historical examination of the ratio of physicians to the nation's population (Figure One) shows that the number of physicians per 100,000 Americans has been increasing, slightly, since 1965. In 1965, there were 139 physicians per 100,000 Americans. By 2001, there were nearly 300 physicians per 100,000 Americans. This means that the physician population is growing at a faster rate than the general population. Simultaneously, the number of "patients" (measured by the population) per physician has been declining, meaning that, on average, each physician is responsible for fewer patients each year (since 1965). In 1965, each American physician would have seen more than 700 patients on average. This number dropped to 600 patients by 1975, 500 by 1980, 400 by 1992, and is now at 350 patients per physician.

Figure One. Doctors/Patients and Patients/Doctors: United States, 1965-2001



In Mississippi, the number of patients per physician has steadily declined from 1975 (nearly 1,100 patients per physician) to 2001 (539 patients/physician), nearly 200 patients more per physician than the national average. Not only does Mississippi have more of a physician supply problem than the nation, the spatial distribution of physicians in Mississippi (as with American physicians) is not comparable to the population.

Figure Two. Doctors/Patient and Patients/Doctor: Mississippi 1975-2001



Tables in the following sections provide other comparisons of Mississippi's physicians and U.S. physicians; nevertheless, two other points are noteworthy. Nationwide, nearly 25% of physicians are International Medical Graduates (IMGs). In Mississippi, just 11% of physicians are IMGs (AMA, 2003). However, Mississippi is one of three states (MS, SC, & MT) that have "markedly higher percentages of IMGs in rural, underserved areas than in rural areas that do not have a physician shortage" (Baer, Ricketts & Konrad, 1997). Doctors of osteopathy (DOs) are also often providers of care in rural areas. In a study of 84 programs graduating about 1,000 osteopathic family practice residents between 1995 and 1999, 46% of these DOs went to communities of 50,000 or less (Tooke-Rawlins, 2000). The American Osteopathic Association (AOA) estimates that there are 246 active doctors of osteopathy in Mississippi, or roughly 5% (AOA Fact Sheet, 2002). Nationwide, DOs account for roughly 5% of all physicians and there is no indication that this is higher or lower in Mississippi.

R*ace.* As shown in Table One, physicians in Mississippi are far more likely to be Caucasian/white than physicians in the nation as a whole. Ninety percent of physicians participating in the MSMDS indicated that their racial background was Caucasian/white, while just over 3% indicated African-American; nearly 4% specified Asian American, and another 3% were either marked "other" as their racial category or chose not answer the question. In the other survey database, the Community Tracking Survey, 80% have responded to the Caucasian/white category and nearly one in five doctors have reported some other racial category. Of those self-reporting a racial category in the AMA data (shown in parentheses in column two), 75% are Caucasian and 25% indicate some other racial category. In sum, the Mississippi data indicate a higher proportion of medical doctors who are Caucasian than other comparable datasets. This might not be considered problematic; however, as noted above, Mississippi has one of the highest minority concentrations in the nation-in fact, Mississippi has the highest concentration of African-Americans. Therefore, Mississippi has a largely white physician population serving a nearly 40% minority population. Also, as noted above, this is of concern because patients are most comfortable with a physician of their own race (Ferguson and Candib, 2002). The racial composition of Mississippi's physician population does not even come close to matching the racial composition of the patient population.

Table One: Physicians By Race

	MS Survey Percent	US Survey Percent	MS Secondary Percent	US Secondary Percent
White/Caucasian	91.9	80.2	NA	52.0 (75)*
African-American/Black	3.3		NA	2.5 (4)
Asian/Pacific Islander	3.8		NA	8.9 (13)
Other	1.0	18.7	NA	5.9 (8)
Unknown	1.8	1.1	NA	31.0
	100.00	100.00	NA	100.3
	N=616	N=12,920	N=4,464	N=836,156

*Percentages in parentheses are those values that were calculated without including the unknown category as a part of this percentage

Gender. A skewness that is similar to that existing in the racial composition of the physician population is also present in the gender composition. In particular, female physicians are sorely underrepresented in Mississippi's physician workforce. Whereas the national data from the AMA and the Community Tracking Survey both indicate that nearly one-quarter of physicians are female, the MSMDS and the MMDSD data concur in that 12-13% of the physician labor force in Mississippi is female. That the secondary data and survey data are similar in the proportion of females in the Mississippi labor force suggests that female physicians were no more likely to respond to our survey than male physicians. The underrepresentation of women within the medical profession in Mississippi means that women in the state might find it particularly challenging to locate a female physician, especially in rural areas where access to physicians is more limited in the first place.

Table Two: Physicians By Gender

	MS Survey Percent	US Survey Percent	MS Secondary Percent	US Secondary Percent
Male	86.0	76.9	68.5	75.4
Female	13.3	23.0	12.2	24.6
Unknown	0.7	0.1	19.3	----
Total	100.00	99.9	100	100.0
	N=616	N=12,920	N=4,464	N=836,156

Race and Gender. Since minorities and women are both underrepresented in the Mississippi physician labor force, it is interesting to examine the race-gender composition as well. Table Three shows the racial composition for male physicians in the state and the nation, while Table Four shows the racial composition for female physicians in Mississippi and the United States as a whole.

Table Three shows that of *male physicians who have self-reported a racial categorization* to the American Medical Association (shown in parentheses in the AMA data column), 79% are white, whereas 93% of those responding to the MSMDS and 84% of those responding to the CTS self-reported as Caucasian. Finally, 3% of those who reported a self-identified race to the AMA indicated that they were African-American, whereas 1.3% of those completing the MSMDS indicated that they were African-American. What makes this particularly surprising is that 36.3% of Mississippi's population is African-American (compared to 1.3% of the physicians) and only 13% of the United States' population is African-American (compared to 3% of the physicians).

Table Three: Male Physicians by Race/Ethnicity

	MS Survey Percent	US Survey Percent	MS Secondary Percent	US Secondary Percent
White/Caucasian	93.2	83.6	NA	55.0 (79)*
African-American/Black	1.3	---	NA	2.0 (3)
Asian/Pacific Islander	3.2	---	NA	8.0 (11)
Other	0.9	16.4	NA	5.8 (8)
Unknown	1.3	1.1	NA	30.0
Total	99.9	100.00	NA	100.8
	N=530	N=9,940	N=3,029	N=630,253

*Percentages in parentheses are those values that were calculated without including the unknown category as a part of this percentage.

The picture of racial concentration of female physicians is much different than for male physicians-in the United States as a whole, as well as for Mississippi. In Mississippi, 75% of female physicians are Caucasian, a slightly higher representation than Caucasians among female doctors across the nation (67% of women who self-report race to the AMA are Caucasian). Additionally, 16% of females who are practicing medicine in Mississippi are African-American, while for the nation as a whole, 6% of women self-reporting race self-identify as African-American. This means that among female physicians in the state of Mississippi African-Americans have higher representations than in the nation as a whole. In fact, 40% of African-American physicians across the nation are females, implying that minority female physicians have nearly reached numerical parity with minority male physicians. In Mississippi, 20 African-American physicians reported both race and gender on the

MSMDS, two-thirds of which were females. In Mississippi, if you see an African-American doctor, that doctor is twice as likely to be a female as to be a male.

Table Four: Female Physicians by Race/Ethnicity

	MS Survey Percent	US Survey Percent	MS Secondary Data Percent	US Secondary Percent
White/Caucasian	75.6	72.6	NA	44.0 (67)*
African-American/Black	15.9		NA	4.0 (6)
Asian/Pacific Islander	7.3		NA	11.0 (17)
Other	1.2	27.4	NA	6.5 (10)
Unknown	0		NA	34.0
Total	100	100.0	NA	99.5
	N=82	N=2,976	N=539	N=205,903

*Percentages in parentheses are those values that were calculated without including the unknown category as a part of this percentage

Gender and Age. In Mississippi, more than three in five physicians are between the ages of 36 and 55 (as shown in Table Five). This holds true for male doctors, as well. However, 75% of female physicians are between the ages of 36 and 55, with only 13% in the older age groups and 12% under the age of 36. For male physicians in Mississippi, 35% are over the age of 55, and just 5% are under the age of 36. Female physicians are younger than male physicians, though they only represent 13% of the state's physicians. Male physicians are older and represent the vast majority of Mississippi's doctors (see Table Two). The basic age distribution in Mississippi (Table Five) can be compared to AMA's percentages for the nation as a whole (Table Six) in order to examine the unique nature of this distribution for Mississippi's physicians.

Table Five: Physicians By Age and Gender (MS Secondary Data)

	All MDs Percent	Unreported Gender Percent	Female Percent	Male Percent
28-35	7.7	16.0	11.9	4.6
36-45	31.0	32.8	39.4	29.1
46-55	29.9	23.0	35.3	30.9
56-65	17.0	11.1	9.3	20.0
66-75	9.7	9.2	3.2	11.0
76+	4.6	7.8	0.9	4.4
	100.0	100.0	100.0	100.00

For physicians in the United States, the age distribution (and the age distribution by gender) is substantially different from those presented for Mississippi. First, note that half of all physicians and 48% of male physicians are between the ages of 35 and 54 and 57% of female physicians are in these prime working years. Additionally, nationwide, 17% of doctors are under the age of 35; however, there are substantial gender differences in that only 13% of male doctors are under the age of 35, and more than 1 in 4 female doctors are under the age of 35. This is likely an artifact of increasing enrollments of women in medical school. Since there are very few women over the age of 55 practicing medicine, the proportion of young women is higher.

Table Six: Physicians By Age and Gender (US Secondary)

	All MDs Percent	Male Percent	Female Percent
Under 35	16.6	13.0	27.8
35-44	25.3	22.7	33.3
45-54	24.9	25.4	23.7
55-64	15.1	17.2	8.8
65+	18.1	21.9	6.5
Total #	836,156	630,253	205,903

Specialty Distribution. The distribution of specialists within the state of Mississippi is also of concern. Forty-one percent of respondent physicians in the state of Mississippi identify themselves as primary care physicians (family practice, general practice, internal medicine, pediatrics, or obstetrics/gynecology) (Table Seven). In the Community Tracking Survey, 63% of physicians self-identify as primary care physicians, which is reflective of an oversampling of primary care physicians within the sampling design. In the nation as a whole, 46% of doctors are primary care doctors.

However, not all primary care physicians are comparable. Therefore, an examination of the differences within the primary care fields of family practice, internal medicine, general practice, pediatrics, or obstetrics/gynecology is also in order.* One in five physicians in the United States self-identifies as an internist, while Mississippi only has 7.5% of the physician labor force practicing as internists. Only 4% of Mississippi physicians identify themselves as pediatricians, whereas, for the nation, nearly 10% of doctors are pediatricians. Mississippi may compensate for the lack of internists and pediatricians through the use of family physicians and generalists. Family doctors and generalists represent more than 20% of the physicians in Mississippi, while they only account for 12.5% of physicians in the nation. Additionally, compared to the nation as a whole (6%), Mississippi has an overrepresentation (9%) of obstetricians/gynecologists.

Table Seven: Physicians by Specialty

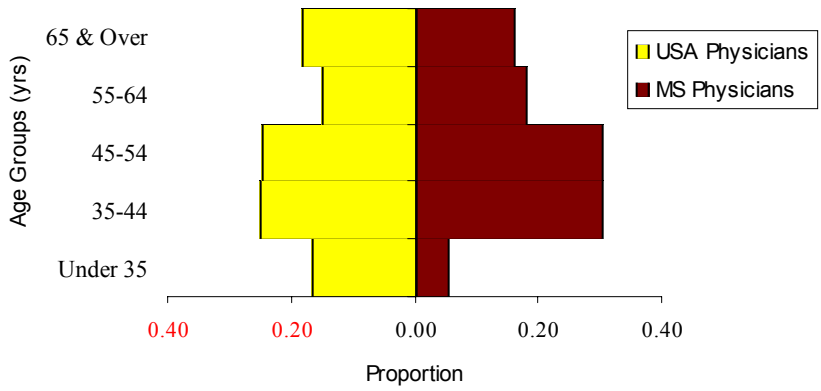
	MS Survey Specialty Data		US Survey Specialty Data		US Secondary Data	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Family/General Practice	128	20.8	3064	24.9	89229	12.6
Internal Medicine	46	7.5	2426	19.7	140794	19.9
Pediatrics	26	4.2	1727	14.0	65000	9.2
ObGyn	56	9.1	466	3.8	41042	5.8
Medical Specialties	264	42.9	2477	20.1	251680	35.7
Surgical Specialties	74	12.0	1578	12.8	78157	11.1
Psychiatry	22	3.6	566	4.6	40016	5.7
Total	616	100.0	12304	100.0	705918	100.0

**Since the Community Tracking Survey consists of a sample, and the MMDSD and the AMA data are based on the population of the physician workforce, comparisons are only made between the MMDSD and the AMA.*

Spatial Distribution of Physicians. The distribution of physicians across specialties does not tell the entire story. There is also an uneven spatial distribution of physicians across the state of Mississippi. Using the secondary data on all physicians in Mississippi, it is shown that 56% of Mississippi's physicians are in four urban areas. More than one-quarter of the state's physicians are in the Jackson metro area alone. Additionally, only 12% of Mississippi's doctors are practicing in the Delta, where there continues to be high rates of chronic illness and poverty. A spatial analysis of physicians by county (not shown here) indicates that 51 (out of 82) counties are medically under-served, including one county without any physician at all. The spatial picture is even bleaker when limited to primary care physicians (family practice, general practice, internal medicine, pediatrics, or obstetrics/gynecology). Sixty-nine counties have inadequate access to primary care physicians and an additional two counties have no primary care physician in the county (analyses not shown here).

Age Structure of Physicians Mississippi. Figure Three shows the age structure for the Mississippi physician labor force (in red) juxtaposed with the age structure of the United States' physician labor force (in yellow). Although 18% of the U.S. physician labor force is under the age of 35, and roughly 24% are between the ages of 35 and 44, Mississippi's physician labor force is lacking physicians under the age of 35 and has more than 30% of its physicians between the ages of 35 and 44. Mississippi has a slightly higher proportion of its physicians between the ages of 45 and 64 than the United States as a whole. Unfortunately, that puts a larger proportion of Mississippi's physicians at risk for relocation (those between 45 and 54) or retirement (55 to 64).

Figure Three.
Age Groups for All Nonfederal USA (2001; n=814,776) versus Active Office-Based MS Physicians (2002; n=4464)



Spatial Variation in the Age Structure. Figure Four compares the Mississippi physician age structure with the distribution of physicians based on their office location, whether their office is in the Delta or outside of the Delta. This figure indicates whether the age structure of Delta physicians is significantly different from physicians whose offices are based elsewhere in the State. In fact, physicians in the Delta are slightly less likely than non-Delta physicians to be young and they are slightly more likely to be nearing retirement. This would indicate that future shortages could be hardest felt in the Delta, with many doctors approaching retirement and few doctors in position to replace them.

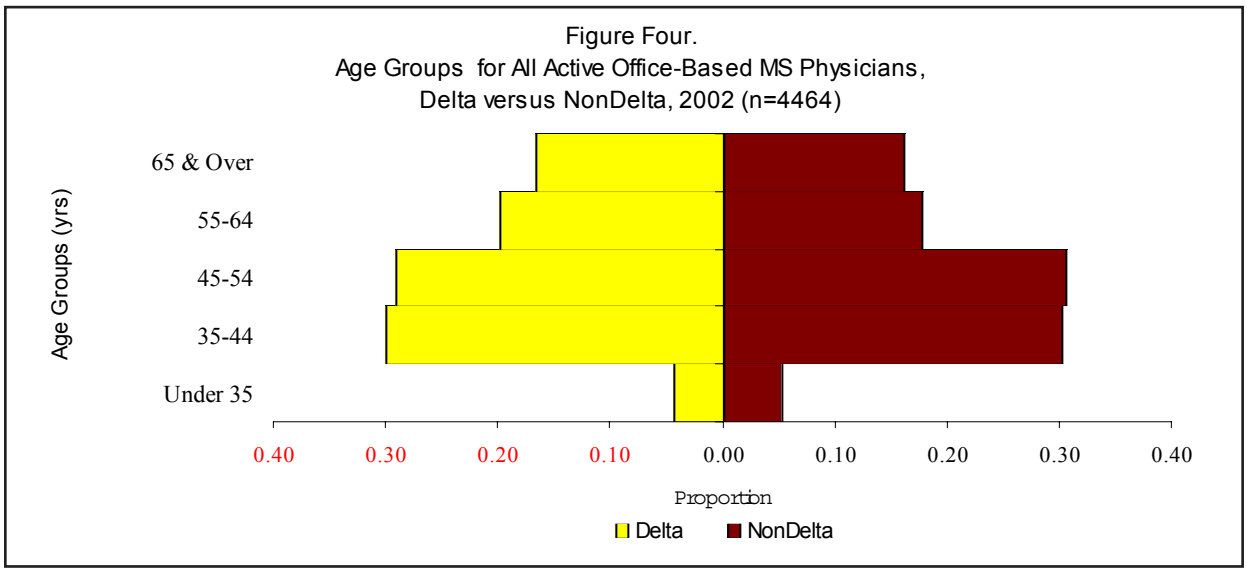
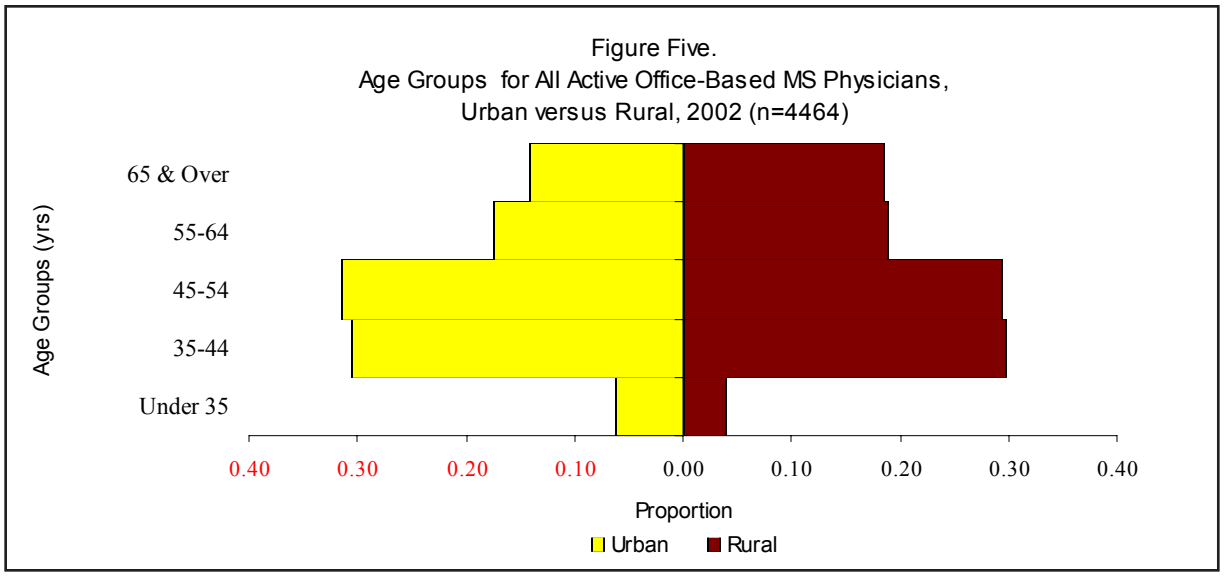
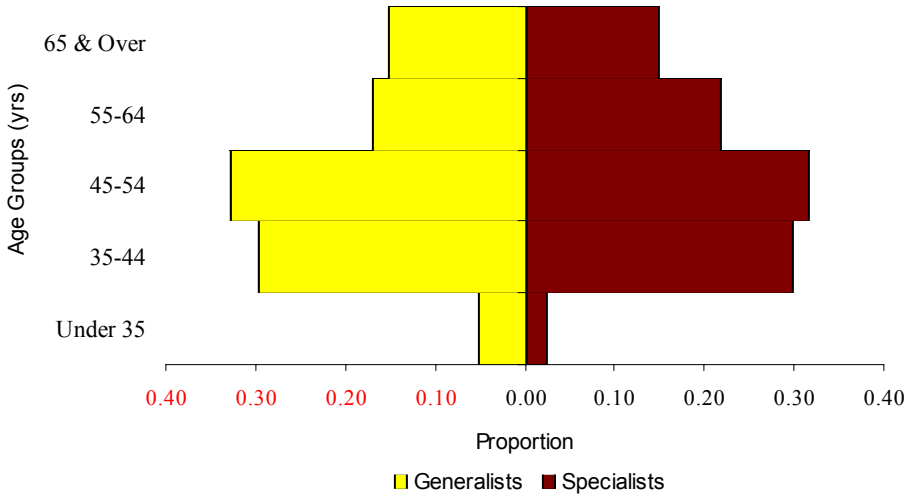


Figure Five is similar to Figure Four, though here the comparison is between physicians in Mississippi practicing in rural versus those practicing in urban areas. Figure Five indicates that physicians practicing in rural areas are less likely than the Mississippi physician labor force to be under the age of 35 and more likely to be over the age of 65. This implies that any potential impending physician shortages in the state would be felt hardest in rural areas where physicians are more likely to be of retirement age and less likely to be beginning their careers.



Age Structure Variation by Specialty. Another important means of examining the age structure of the physician labor force is to compare generalists and specialists. If generalists and specialists do not have the same (or fairly comparable) age structures, then potential impending physician shortages could be felt more in one area or the other. These differences are presented in Figure Six, where generalists (on the left side of the pyramid's spine in yellow) and specialists (on the right side of the pyramid's spine in red) are compared. According to Figure Four, physicians in the youngest age group are more likely to be generalists than specialists, which is a function of the nature of medical training. Specialists under the age of 35 are less likely to have begun their practice than generalists under the age of 35, as the specialists are likely still in internships and residencies. Generalists are also slightly more likely to be between the ages of 45 and 54 than specialists are, while specialists are more likely to be nearing retirement (ages 55 to 64). A higher percentage of specialists that are nearing retirement could be of concern if the state of Mississippi does not recruit new, young specialists to "replace" those who are nearing retirement.

Figure Six.
Age Groups for All Active Office-Based MS Physicians, Generalists versus Specialists, 2002 (n=3567)



Summary. Comparing physicians within the state, Delta physicians are more likely to be nearing the age of retirement than those living outside the Delta (who are also more likely to be young). Physicians in urban areas are overrepresented in the youngest age group and rural physicians are overrepresented in the oldest age group. Specialists and generalists have a similar distribution in that young physicians are more likely to be generalists than specialists, and specialists are more likely to be nearing retirement than generalists. Compared to the United States, Mississippi's physician labor force is concentrated between the ages of 35 and 54, meaning that the state as a whole has a young physician labor force. However, given the differences noted (particularly between urban and rural physicians and generalists and specialists), health services research in the future needs to determine the intentions of physicians in these areas concerning retirement and relocation.

The Future of the Physician Labor Force

Ideally, current data would allow researchers to project the composition and size of the physician labor force several years out; however, there is a delay between graduation from medical school and the opening of one's practice. Therefore, it is challenging to determine how many physicians are entering the labor force without valid (1) numbers of medical school graduates in Mississippi each year, (2) numbers of medical school graduates who stay in-state, (3) numbers of doctors recruited into the state each year, and (4) estimates of the proportion of graduates who specialize. Future research will include assessment of data currently available in the state as well as the possibility of comparing data over time. These data, collected for several years, would allow for valid projections of the workforce. Even these projections, however, would be dependent upon other estimates of intentions to recruit new physicians, relocate out of state, or retire at an early age.

Though current data do not allow for calculations of statistically sound projections, the nature of Mississippi's future physician labor force can be seen in some statistics presented in this section of the paper. For example, examining the age distribution of physicians in Mississippi who were trained in-state and out-of-state allows for a measure of recruitment of out-of-state physicians and retention of those who were trained in-state. In addition to this example, this section of the paper discusses:

- Variation in specialist/generalist ratios by age and year of graduation (to determine trends in specialization),
- Attitudes toward recruitment, relocation, and retirement by age and duration in practice (indicating physicians' attitudes and intentions that might effect the future physician labor force) and,
- Average intended year of retirement for several groups within the physician work force (which would indicate particular shortages within the state if physicians retire when they claim they intend to retire).

Mississippi graduates by age and year of graduation

The University of Mississippi Medical Center (UMC) is the only medical school located in the state, and, as a public institution, enrollment is almost exclusively limited to Mississippi residents. Table Eight indicates the number and percentage of physicians in the state of Mississippi who received their MD degrees at UMC or elsewhere by the year of graduation. The purpose of this table is to examine the last 10 years of medical graduates to determine whether we are retaining medical students that the state trains to practice within the state of Mississippi. Thirty-four percent of those who are currently practicing in the state of Mississippi and who finished medical school in 1989 were educated at UMC. The number of Mississippi medical school students receiving their MD degrees at UMC, as a proportion of all doctors in Mississippi who graduated in a particular year, increased from 1989 through 1991 (when it reached nearly 41% of doctors). Though the proportion of practicing MDs in Mississippi who graduated from UMC dropped for the class of 1992 to 37%, it rose to 45% in 1993. Following another dip to 41% for the class of 1995, we reached a high of nearly 47% of doctors for the class of 1995. That is, nearly half of the doctors who are practicing in Mississippi and who finished medical school in 1995 were trained in this state. This figure has dropped since then, and for the class of 1998 (the most recent year with an

adequate number of practicing physicians to examine), only 40% of doctors practicing in Mississippi were educated at UMC.

Table Eight. Mississippi Physicians by Year of Graduation and In-State versus Out-Of-State Graduates.

Year of Graduation	Non-MS (N)	Non-MS (%)	MS (N)	MS (%)	Total (N)
1989	86	65.7	45	34.4	131
1990	74	63.3	43	36.8	117
1991	75	59.1	52	40.9	127
1992	69	62.7	41	37.3	110
1993	60	55.1	49	45.0	109
1994	60	59.4	41	40.6	101
1995	39	53.4	34	46.6	73
1996	38	57.6	28	42.4	66
1997	26	55.3	21	44.7	47
1998	18	60.0	12	40.0	30

Following a graduating class is one way to determine retention of medical students who received their degrees in Mississippi. However, an examination of graduation by age also indicates that younger doctors are more likely to have been educated out-of-state than in-state (Table Nine). For doctors currently in active practice in Mississippi (MMDSD), 45% graduated from UMC; however, this percentage is smallest for physicians over the age of 65. This is logical in that UMC did not begin graduating students until 1957. Therefore, physicians who are older or have been in practice for sometime are not likely to have received their medical degrees in Mississippi.

What is quite concerning is that physicians under the age of 45 are more likely to have graduated from an out-of-state medical school than to have graduated from UMC. This indicates that we are either not retaining our medical school graduates, or we are effectively recruiting out-of-state medical school graduates-or both. For example, UMC graduates 100 students each year. With perfect retention of students, we would have roughly 1000 physicians between the ages of 35 and 44 who received MD degrees in Mississippi; in actuality, we have 439 physicians 35-44 who are currently in active practice and were educated at UMC. For UMC medical graduates in the late 1980s and early 1990s, roughly 4 in 10 have remained in the state to practice medicine. With the data available on physicians under the age of 35, this trend does not appear to be improving. That is, for physicians under the age of 35, just 44% received medical degrees in-state.

Table Nine. Age by In-State and Out-Of-State Graduates.

Age Groups	Non-MS (N)	Non-MS (%)	MS (N)	MS (%)	Total (N)
Under 35	70	55.6	56	44.4	126
35-44	621	58.6	439	41.4	1,060
45-54	558	48.8	586	51.2	1,144
55-64	344	49.0	358	51.0	702
65+	380	71.0	155	29.0	535
Total	1,973	55.3	1,594	44.7	3,567

Though there appears to be poor retention rates of physicians who graduate from UMC, Mississippi is improving in recruiting physicians who received degrees in other states. Of physicians over the age of 65, 7 in 10 received medical degrees from elsewhere (again, because Mississippi's lone medical school was not graduating students then); however, for those between 45 and 64, fewer than half of our physicians were recruited from other graduate programs. On the other hand, for the two youngest age groups, Table Nine indicates that recruitment of physicians from other states has increased to the point that nearly 6 in 10 doctors in the youngest age groups received their degrees out-of-state.

Specialists and generalists by state of training, year of graduation and age.

With increasing concern throughout the 1980s and 1990s that the medical profession was training too many specialists and the resulting national shifts back toward training generalists, another point of examination is the proportion of generalists/specialists who received their medical degrees in-state or out-of-state. This section also looks at physicians' graduation year and the proportion of physicians in several ten-year periods that were trained as specialists versus generalists.

Table Ten shows the number of specialists and generalists and disaggregates them by medical school graduation (in-state versus out-of-state). These data indicate that Mississippi medical school graduates who are practicing in Mississippi are more likely to be generalists (includes physicians in family practice, general practice, internal medicine, obstetrics & gynecology, and pediatrics) than out-of-state medical school graduates who are practicing in Mississippi. In other words, those who are trained elsewhere and choosing to practice in Mississippi are more likely to be specialists (60%) than generalists (40%). Those physicians practicing in the state who were trained in Mississippi are nearly equally as likely to be generalists (47%) as they are to be specialists (53%).

Table Ten. Specialists and Generalists by In -State versus Out -Of-State Graduates.

	Specialists (N)	Specialists (%)	Generalists (N)	Generalists (%)	Total (N)
Out of State Graduates	1200	60.8	773	39.2	1973
Mississippi Graduates	837	52.5	757	47.5	1594
Total	2037	57.1	1530	42.9	3567

There are, however, differences in the proportion of Mississippi physicians who are generalists or specialists when disaggregated by year of graduation (Table Eleven). Of active, office-based physicians practicing in Mississippi, 42% are generalists (defined as family doctors, general practitioners, internists, obstetricians-gynecologists or pediatricians). However, of those who graduated prior to 1957, more than 50% are generalists. For those who graduated between 1958 and 1977, fewer than 40% are generalists. Of those practicing today who graduated since 1977, roughly 45% are generalists (not including those who graduated in the last five years since specialists who graduated in the last five years are likely not yet practicing actively). Overall, this indicates that those approaching retirement are more likely to be generalists. Yet Mississippi does not appear to be recruiting more generalists from recent medical school classes than the state has in the past.

Table Eleven. Mississippi Physicians by Year of Graduation for Generalists and Specialists.

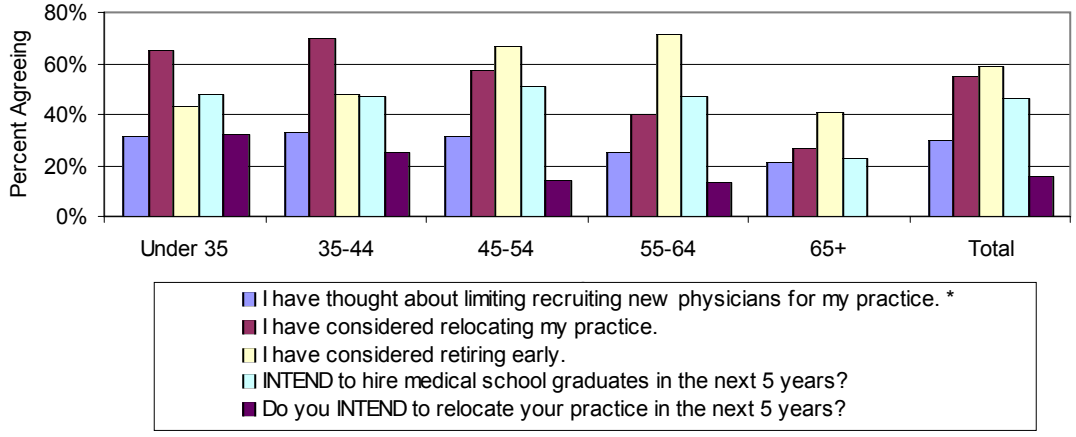
Year of Graduation	Specialists (N)	Specialists (%)	Generalists (N)	Generalists (%)	Total (N)
1938-1947	22	50.0	22	50.0	44
1948-1957	79	47.0	89	53.0	168
1958-1967	299	64.9	162	35.1	461
1968-1977	452	62.0	277	38.0	729
1978-1987	643	57.0	485	43.0	1,128
1988-1997	533	53.2	469	46.8	1,002
1998-2002	9	25.7	26	74.3	35
	2,037	57.1	1,530	42.9	3,567

Given the trends noted here, it is important to consider active physicians' plans for recruitment of new physicians, relocation to other states, or retirement from practice. These are all discussed in the section below.

Attitudes toward recruitment, relocation and retirement by age and duration in practice. As noted in the literature review, the climate for Mississippi physicians is challenging: Medicaid and Medicare reimbursements are low; a high proportion of the patient population depends on these two programs; chronic illness, poverty and inequality (in both health and income) are rampant; and, in addition to all this, the malpractice climate in the state is not conducive to recruitment of new physicians or retention of existing physicians. Data in this section present physicians' survey responses concerning whether they have considered limiting recruitment, retiring early, or relocating their practice. It should be noted that survey responses might be biased in that those who are most concerned or most affected may be more likely to return this survey. This should be kept in mind while reviewing these numbers.

Figure Seven shows the average score for physicians in the MSMDS on questions related to recruitment, retention, and retirement disaggregated by age groups. The first three questions were asked in Likert format and scored as follows: 5=strongly disagree, 4=disagree, 3=neither agree nor disagree, 2=agree and 1=strongly agree. For these questions, the proportions that agree or strongly agree are reported. The next two questions required a yes or no response. For these questions, the proportions that responded "yes" are reported.

Figure Seven. Recruitment, Retention and Retirement Questions: MS MD Survey



*Not all physicians responding to this statement would be in a positionto recruit new physicians given the increasing corporate nature of medicine in the U.S.

Recruitment. There were two questions on recruitment in the MSMDS. First, physicians were asked whether they strongly agreed, agreed, neither agreed nor disagreed, disagreed or strongly disagreed with the statement: "I have thought about limiting recruiting new physicians for my practice" due to the current legal climate in the state of Mississippi. The other question asked physicians: "Do you intend to hire medical school graduates within the next five years?" Overall, MSMDS physicians were less likely to agree (30%) than disagree with the statement concerning limiting recruitment, though there were some age differences in this response. Physicians under the age of 55 are the most likely to agree with this statement, but their levels of support are between 31% and 33%--still not resounding support for limiting recruitment. Physicians 55-64 (25%) and those over the age of 65 (21%) showed few intentions of limiting recruitment in the future.

Though the previously discussed question concerns beliefs about recruiting, the fourth question presented in Figure Seven concerns physicians intentions to hire medical graduates within a five-year time period. Overall, 46% of surveyed physicians plan to hire within the next five years. Nearly half of all physicians under the age of 65 are planning to hire medical school graduates within the next five years, and fewer than one-quarter of physicians over 65 are planning to hire medical school graduates.

Relocation. Questions similar to those asked concerning recruitment were asked for relocation. First, physicians were asked to respond to the following statement: "I have considered relocating my practice" due to the current legal climate in Mississippi. Physicians were also asked: "Do you intend to relocate your practice in the next five years?" In response to the former question, more than half of physicians in the MSMDS (55%) have considered relocating their practice. This agreement is highest among those between the ages of 35 and 44 (65%) and lowest for those over the age of 65 (27%). The highest rate of agreement with having thought about relocating was for physicians age 35-44 (70%). With each increase in the age group category, the proportion agreeing with this statement declines. The lowest level of agreement is among physicians over the age of 65.

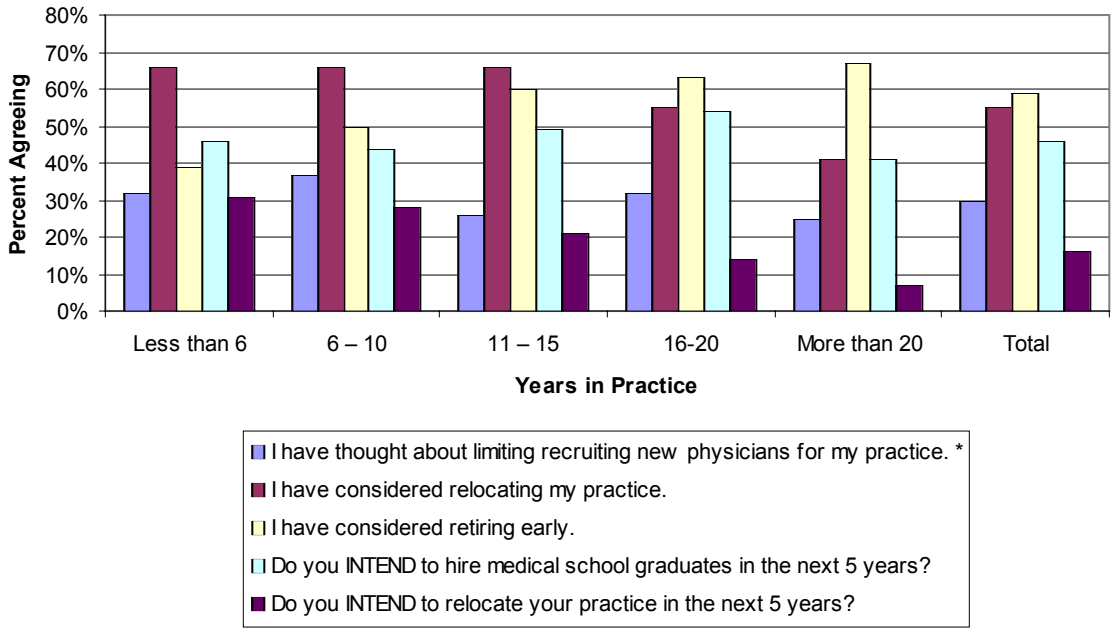
What must be kept in mind is that the question just discussed is based on a consideration. The other question that was posed as whether physicians intended to relocate within the next five years. For physicians participating in the MSMDS, 16% stated that they planned to relocate within the next five years. There are distinct age differences with this intention, with younger doctors being far more likely to consider relocation than older doctors. The relationship between age and intentions to relocate is perfectly linear: the older the age group, the lower the intentions to relocate. Given extant physician shortages within Mississippi, it is disconcerting that 32% of our physicians under the age of 35 and 25% of those between 35 and 44 are intending to relocate within the next five years.

Retirement. Overall, Mississippi physicians participating in the MSMDS are more likely to agree (59%) than to disagree with the statement: "I have considered retiring early." Doctors who are between the ages of 55 and 64 are most likely to consider retiring early (71%), and doctors just beginning (43%) or winding down (41%) their professional career are least likely to consider early retirement. Nearly half of doctors between the ages of 35 and 44 and more than two-thirds of doctors 45-54 are already (at their age) pondering retiring early.

Figure Seven also shows the average year for intended retirement. Overall, physicians participating in the MSMDS intend to retire in 2017 with a direct linear relationship between age and intended year of retirement (as would be expected). Physicians under the age of 35 intend to retire in the late 2020's, whereas those between the ages of 35 and 44 intend to retire five years earlier, on average. Baby Boomer physicians (between the ages of 45 and 54) are intending to retire in another 13-14 years. Those who are above 55 and not yet "legal" retirement ages, as well as those over the age of 65, are planning to retire in just 7 years (in 2010), on average.

Given low levels of intended recruitment as well as high levels of intended relocation and intended early retirement, Mississippi's current levels of physician shortages may worsening, and perhaps result in devastating impacts. However, this cannot be ascertained with the current data. Another means of examining attitudes toward recruitment, relocation, and retirement is by using time in practice, rather than physician's age, which minimizes potential data biases associated with specialists beginning their careers at a later date. If retention, relocation, and retirement are examined by years in practice, the age of the physician is allowed to vary. Figure Eight does just this. It presents the same measures depicted in Figure Seven, disaggregated by time in practice (less than 6 years, 6-10, 11-15, 16-20 or more than 20 years in practice).

Figure Eight. Recruitment, Retention, and Relocation: MS Survey



* Not all physicians responding to this statement would be in a position to recruit new physicians given the increasing corporate nature of medicine in the US.

Recruitment. As for recruiting, only those who have been in practice between 6 and 10 years agree that they have thought about limiting recruitment of new physicians to their practice-of course, those may be the ones who are most likely to want or need to recruit new physicians. When looking at the actual intentions, 41% of those in practice for more than 20 years intend to recruit in the next five

years, followed by those in practice: 6-10 years (44%), less than 6 years (46%), 11-15 years (49%), and 16-20 years (54%). According to the survey data, those who have been in practice between 11 and 15 years are most likely to report intending to recruit new physicians within the next five years. Again, this is logical, as these are the physicians who have had the time to build a clientele too large for them to handle alone.

Relocation. More than half of all physicians in the MSMDS agree with the statement: "I have considered relocating my practice" (55%). Those in practice less than 15 years are most likely to consider relocation, while those in practice more than 20 years are the least likely to consider relocation. When compared to relocation intentions, Figure Eight shows that 17% of doctors intend to relocate within the next five years. However, there is a linear relationship between one's time in practice and intentions to relocate: 31% of those in practice less than 6 years, 28% of those in practice 6-10 years, 21% of those in practice 11-15 years, 14% of those in practice for 16-20 years and just 7% of those in practice for more than 20 years are intending to relocate within the next five years. So, the longer physicians are in practice, the less likely they are to consider relocating. Much like the laws of physics where an object at rest tends to remain at rest (has to overcome inertia), physicians who are settled in their practice are the least likely to move their practice.

Retirement. When looking at average scores for the consideration of early retirement, those who are newest to medical practice are the least likely to consider early retirement (39%), and those who have been in practice the longest (15+ years) are the most likely to have considered early retirement (65%). Again, there is a direct linear relationship between time in practice and having considered early retirement. Time in practice is necessary for physicians in order to be able to garner the resources for retirement. In other words, most physicians would need to practice for at least 10 or 15 years in order to have the financial resources to be able to retire.

Year of intended retirement also (logically) has a direct linear relationship with number of years in practice. Those who have been in practice for twenty or more years are planning, on average, to retire in 2011. Those who have been in practice for 16-20 years are intending to retire in 2017, while those who have been in practice 11-15 are shortly behind them with intentions to retire in 2019, on average. Those who have been in practice between six and ten years are intending to retire in 2023, and those who are newest to practice (less than 6 years) are intending to retire in 2027.

Expected year of retirement (specialists/generalists, urban/rural, Delta/non-Delta)

In addition to the variations in retirement plans for physicians by age and years in practice, it is critical to determine whether there is variation in retirement plans by specialty or physical location. This is depicted in Table Fourteen. On average, physicians in the MSMDS intend to retire in 2017. Primary care physicians are intending to retire a little later (2019) than non-primary care physicians (2017), and when divided into family doctors versus non-family doctors, the difference is similar (within rounding error). Additionally, there are few differences in the intended retirement year for rural, urban, Delta and non-Delta physicians in Mississippi. Therefore, *the focus of concern for variations in retirement intentions should be on age and years in practice rather than on specialty or physical location.*

Table Fourteen. Average year of Intended Retirement for Various Physician Populations.

Non-Primary Care MD	2017
Primary Care MDs	2019
Non Family Doctors	2017
Family Doctors	2019
Rural Doctors	2018
Urban Doctors	2017
Non-Delta Doctors	2017
Delta Doctors	2017
Overall Average	2017

Summary. Variations in intentions to recruit, relocate and retire exist. However, most of the substantively important variation is across age groups and time in practice. There is little relevance of specialty or location within the state when examining variation in recruitment, relocation, or retirement plans.

Implications for Mississippi

Given the findings reported above, legislators in Mississippi may need to consider policy changes that would result in: (1) improving the retention of University Medical Center's (UMC) graduates for practice in the state, (2) improving retention of active physicians, (3) increasing the recruitment of physicians from out of state, and (4) easing difficulties associated with working part-time as a step toward retirement. Within each of these recommendations, it will also be important for Mississippi to attempt to recruit and retain women and minorities to bring our state's demographic profile of physicians closer to that of the nation and the state's population. Additionally, the recruitment of younger physicians will be necessary to balance the age structure of state physicians with that of the national physician age structure. Ultimately, and perhaps most critically, researchers in the state need to develop a long-term means to assess the physician labor force and patients' physical access to care.

Policy Research Recommendation #1: *A data collection and analysis effort of the physician and medical environment needs to be underway as soon as possible.* Without appropriate data, the impact of these policies cannot be addressed. Several state licensure boards already work in conjunction with research units to analyze the physician population on an annual basis. With a more detailed licensure form and data sharing, secondary data analysis can be an inexpensive investment in research. Linking physician databases with Medicare and Medicaid data can also enlighten us as to the level of access within subpopulations of the state. Matching eligibility, claims, and provider data to physician data can answer many burning questions concerning populations at risk and the physicians who serve them (or choose to opt out of those programs).

Specifically, the Mississippi Health Policy Research Center will continue forging relationships with the Mississippi State Board of Medical Licensure and the Mississippi State Medical Association. These two associations have current and historical data on physicians licensed in the state and mem-

bers of the state medical association, respectively. These data can be analyzed in isolation and in tandem to answer questions about changes in the physician workforce over time. Additionally, a partnership with the University of Mississippi Medical Center will be developed to add information on young physicians, residents, interns, and fellows. These data will allow researchers to make more reliable and valid projections of the physician workforce.

Policy Research Recommendation #2: *Develop a research program to assess or evaluate the potential success of retention programs for physicians who are currently practicing in Mississippi.* Hospitals might consider incentives to encourage local physicians to remain in practice; however, these programs should not be attempted without evaluating their potential successes. Recently, a hospital in the Mississippi Delta began a program whereby the local hospital will supplement physicians' payments for malpractice premiums. This approach should be assessed and similar ideas encouraged/discouraged based on the experiences with this nascent program. Programs across the nation, not just in Mississippi, need to be examined so that the context and success of other programs around the country can be noted. Primary and secondary data should be accumulated to inventory and evaluate the programs hospitals are using to recruit and retain physicians across the state.

Policy Research Recommendation #3: *Data concerning recruitment of physicians who have graduated from medical schools outside of Mississippi should be gathered and analyzed.* Recruitment policies cannot be developed appropriately without guidance from empirical evidence concerning the interests of out-of-state medical residents in moving to Mississippi. Currently, the Robert Wood Johnson Foundation is funding the Mississippi Access to Rural Care (MARC), which includes a recruitment committee. However, other rural recruitment programs have not been as successful. For example, one study indicated that, nine years later, those physicians who freely chose to go to rural areas were more likely to still be in rural communities than those who were required to go due to their National Health Service Corp Scholarship Program obligations (Pathman, Konrad and Ricketts, 1992). Efforts to match Mississippi's communities with physicians who are interested in relocating through MARC should be continued and perhaps expanded, but, again, only if empirical data support the need and success of the program.

Working under the assumption that those born in Mississippi would be most interested in returning to Mississippi, an effort should be made to determine where our native students are going to medical school when they do not attend UMC. Upon completion of their MD degree, these doctors should be encouraged to return to their home state. Means of gathering and analyzing data on the home state of all medical graduates should be explored. Tracking Mississippians as they move through medical school and residencies would increase the odds of recruiting physicians back to the state upon completion of their training.

Policy Research Recommendation #4: *Determine the feasibility of placing an increasing number of UMC graduates in residencies within the state of Mississippi.* Research in this area will need to determine the economic feasibility of increasing residency positions, as well as the likelihood that those positions can be accredited and filled. Since physicians are most likely to place their practice near where they complete their residency training (Baer, Gesler, and Konrad, 2000), it is important to encourage students to take resi-

dencies within the state, though that encouragement cannot take place without an appropriate number of positions. The efficacy of residency programs in Jackson and Tupelo can be assessed to determine whether these programs could increase in size, which may ultimately lead to more physicians in the state. These changes should not take place without the background research necessary to facilitate the success of these programs.

Policy Research Recommendation #5: *An assessment of minority recruitment programs across the nation should be undertaken.* The demographic components of Mississippi's physician labor force do not reflect the nation's physician labor force and are also deeply disproportionate to Mississippi's patient population. This concern underlies all previous policy recommendations. If other states are using economic incentives to recruit minority Mississippians to their state, we need to assess what Mississippi would need to offer to maintain their minority residents who train as physicians. Therefore, within each of these policy recommendations it is important to focus specifically on recruiting and retaining female physicians and minority physicians, particularly African-American physicians. To do this effectively, researchers will need to examine policies in place in other states.

Summary and Conclusions

The literature review indicates that changes in Medicaid/Medicare reimbursement, large numbers of uninsured patients, the legal climate, and largely rural and chronically ill populations create a challenging environment for physicians practicing in Mississippi. As a largely rural state, many Mississippians find medical care to be physically distant, with most care being concentrated in a couple areas of the state. Given these factors, the legal climate in Mississippi and the top relocation decision factors, Mississippi will be further challenged in recruiting and retaining the numbers of general practitioners and specialists necessary to provide care to the state's population. The challenges that physicians are facing have led to challenges for health policy makers, in that physicians are difficult to recruit to Mississippi and, once here, difficult to retain as practitioners throughout their career.

Four datasets were used in conjunction to analyze the demographic characteristics of Mississippi's physicians, including the age structure disaggregated by several other variables. Ultimately, the results were extended to impacts of recruitment, relocations, and retirement decisions of physicians who participated in the MSMDS.

Briefly, demographic results indicate that Mississippi has a largely white physician population serving a nearly 40% minority population in Mississippi. The under representation of women within the medical profession in Mississippi means that women in the state might find it unusually challenging to find a female physician, particularly in rural areas where access to physicians is more limited in the first place. Mississippi has a high concentration of African-American patients with a low African-American physician presence. The proportion of physicians who are female is on the rise nationwide and within Mississippi, largely due to increasing enrollments of women in medical schools. Though variations exist within the groups of physicians identified as generalists, Mississippi is only slightly more likely than the nation to have specialists, rather than generalists (see Table Seven). Age structure analysis indicates that Delta physicians are older than physicians elsewhere in the state, that urban physicians

are younger than rural physicians, and that our physician labor force is more highly concentrated between the ages of 35 and 54 than in the nation as a whole.

Analyses concerning the future of the physician labor force indicate that a near majority of Mississippi's practicing physicians received their MD degree at UMC, but younger physicians are more likely to have been educated out-of-state than older physicians. Those who received their degrees elsewhere and chose to practice in Mississippi are more likely to be specialists (60%) than generalists (40%). Those physicians practicing in the state who were educated in-state are nearly equally as likely to be generalists (47%) as they are to be specialists (53%). Additionally, those approaching retirement are more likely to be generalists, yet the state is recruiting more generalists from recent medical school classes than in the past.

Variations in intentions to recruit, relocate, and retire exist. However, most of the substantively important variation is across age groups and time in practice. There is little relevance of specialty or location within the state when examining variation in recruitment, relocation or retirement plans.

Given the findings, policy research recommendations focus on improving the retention of UMC's graduates for practice in the state, improving retention of active physicians, increasing the recruitment of physicians from out of state, and easing difficulties associated with working part-time as a step toward retirement.

With these changes in policy, it is possible that Mississippi can thwart a physician workforce shortage; however, without changes, with more physicians relocating, retiring early, or opting out of practicing in the state, the extant physician shortage will become more severe. Furthermore, without the data collection efforts mentioned here, there will be no means to assess whether policy changes are actually impacting the physician labor force.

Bibliography

American Medical Association. 2002. "Impact of Physician Cuts in Mississippi." Chicago, IL: American Medical Association. Retrieved January 27, 2003 (http://www.ama-assn.org/ama1/pub/upload/mm/399/mississippi.pdf).

American Osteopathic Association. 2002. "Fact Sheet." (Updated November, 2003) Chicago, IL: American Osteopathic Association. Retrieved January 27, 2003 (http://www.aoa-net.org/AOAGeneral/AOAFactsnov02.pdf).

Auchincloss, Amy H. and Wilbur Hadden. 2002. "The Health Effects of Rural-Urban Residence and Concentrated Poverty." *The Journal of Rural Health.18(2):319-36.*

Baer LD, W. M. Gesler and T. R. Konrad. 2000. "The Wineglass Model: Tracking the Locational Histories of Health Professionals." Social Science and Medicine 50(3):317-29.

Baer, Leonard D., Thomas C. Ricketts, Thomas R. Konrad. 1997. "International Medical Graduates in Rural, Underserved Areas." Chapel Hill, NC: Cecil G. Sheps Center for Health Services Research, UNC. Retrieved September 8, 2003 (http://www.shepscenter.unc.edu/research_programs/rural_program/img.html).

Baer, Leonard D., Thomas C. Ricketts, Thomas R. Konrad, and Stephen S. Mick. 1998. "Do International Medical Graduates Reduce Rural Physician Shortages?" *Medical Care* 36(11):1534-44.

Centers for Disease Control. 2002. *Health, United States, 2002 with Chartbook on Trends in the Health of Americans.* 26th edition. Hyattsville, MD: National Center for Health Statistics.

Cossman, Jeralynn. 2003. "The Mississippi MD Survey: Initial Findings." Department of Sociology, Anthropology, and Social Work, Mississippi State University, Mississippi State, MS. Unpublished manuscript.

Dingell, John D. 2002. "Statement Of Congressman John D. Dingell Ranking Member Committee On Energy And Commerce. Subcommittee On Health, Hearing On 'Harming Patient Access To Care: The Impact Of Excessive Litigation.'" Retrieved January 21, 2003 (http://www.house.gov/commerce_democrats/press/107st138.htm).

Dismuke, Bill. 1989. "Physician Relocation Preferences." *Trustee*, August, pp. 20-21.

Doescher, M. P., K. E. Ellsbury, and L. G. Hart. 1998. "The Distribution of Female Generalist Physicians in the United States." Working Paper No. 44, Washington, Wyoming, Alaska, Montana, & Idaho Rural Health Research Center (WWAMI RHRC), Seattle, WA.

Ellsbury, K. E., M. P. Doescher, and L. G. Hart. 1999. "The Production of Rural Female Generalists by U.S. Medical Schools." Working Paper No. 52, Washington, Wyoming, Alaska, Montana, & Idaho Rural Health Research Center (WWAMI RHRC), Seattle, WA.

Economic Research Service, United States Department of Agriculture. 2002. "Mississippi Fact Sheet." Washington, DC: U.S. Dept. of Agriculture. Retrieved June 20, 2003 (http://www.ers.usda.gov/StateFacts/MS.HTM).

Ferguson, W. J. and L. M. Candib. 2002. "Culture, Language and the Doctor-Patient Relationship." *Family Medicine* 34(5):353-61.

Joint Council of Allergy, Asthma and Immunology. 2001. "State by State Impact of the 5.4% Medicare Cut." Palatine, IL: Joint Council of Allergy, Asthma, and Immunology. Retrieved January 27, 2003 (http://www.jcaai.org/issues/medicarestate54.htm#Mississippi).

Kaiser Family Foundation. 2002. "State Health Facts Online: 50 State Comparisons." Menlo Park, CA: Kaiser Family Foundation. Retrieved February 13, 2003 (http://www.statehealthfacts.kff.org/cgibin/healthfacts.cgi).

Mississippi Department of Insurance. 2002. "Report on Affordability and Availability of Medical Malpractice Insurance in the State of Mississippi." (January 3, 2003). Jackson, MS: Mississippi Dept. of Insurance. Retrieved January 27, 2003 (http://www.doi.state.ms.us/medmalavailabilityreport.pdf.).

Nixon Peabody LLP. 2003. "Mississippi Tort Reforms Go Into Effect, but Immediate Relief is Not In Sight." (Insurance Law Alert, March 10, 2003). Washington, DC: Nixon Peabody LLP. Retrieved September 3, 2003 (http://www.nixonpeabody.com/linked_media/publications/ILA_03102003.pdf).

Nossiter, A. 2002. "Miss. Lawmakers Set Limits on Medical Lawsuits." *Washington Post*, September 7, page A2.

Pathman, Donald, Thomas Konrad and Thomas C. Ricketts III. 1992. "The Comparative Retention of National Health Service Corps and Other Rural Physicians." *Journal of the American Medical* Association 268(12):1552-58.

Ricketts, Thomas C. 1990. "Education of Physician Assistants, Nurse Midwives, and Nurse Practitioners for Rural Practice." *Journal of Rural Health* 6(4):537-43.

Ricketts, Thomas C. 2000a. "Health Care in Rural Communities." *Western Journal of Medicine* 173:294-5.

Ricketts, Thomas C. 2000b. "The Changing Nature of Rural Health Care." *Annual Review of Public Health* 21:639-57.

Robinson III, James and Jeffrey J. Guidry. 2001. "Recruiting, Training and Retaining Rural Health Professionals." *In Handbook of Rural Health.* Edited by Sana Loue and Beth E. Quill. New York: Klewer Academic/Plenum Publishers.

Sebelius, K. 1999. "Testimony of the Special Committee on Health Insurance of the National Association of Insurance Commissioners before the Committee on Health, Education, Labor and Pensions of the United States Senate on 'Key Patients' Protections: Lessons from the Field." (Kansas, March 11). Retrieved January 22, 2003 (http://www.naic.org/pressroom/testimonies/99/docs/finaltes.doc).

Shi, Leiyu, Michael E. Samuels, Thomas C. Ricketts, and Thomas R. Konrad. 1994. "A Rural-Urban Comparative Study of Nonphysician Providers in Community and Migrant Health Centers." *Public Health Reports* 109(6):809-15.

Stensland, Jeffrey, Michelle Brasure, and Ira Moscovice. 2002. "Why Do Rural Primary Care Physicians Sell Their Practices?" *The Journal of Rural Health* 18(1):93-108.

Tooke-Rawlins, D. 2000. "Summary Report. Rural Osteopathic Family Physician Supply: Past and Present." *The Journal of Rural Health* 16(3):299-300.

United Health Foundation. 2002. "America's Healthy: United Health Foundation State Health Rankings, 2001." St. Paul, MN: United Health Foundation. Retrieved September 5, 2003 (http://www.unitedhealthfoundation.org/shr2002/).

U. S. Census Bureau. 1995. "Urban and Rural Population: 1900-1990." Washington, DC: U.S. Census Bureau. Retrieved January 27, 2003 (http://www.census.gov/population/censusdata/urpop0090.txt).

U.S. Census Bureau. 2003. "Mississippi Quick Facts." Washington, DC: U.S. Census Bureau. Retrieved January 27, 2003 (http://quickfacts.census.gov/qfd/states/28000.html).

Editorial. 2002. "Lawyers vs. Patients." *Wall Street Journal,* May 1.

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For the executive summary, please visit: http://www.healthpolicy.msstate.edu/publications/laborforcesumm.pdf.

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