

# **Recent Studies and Reports on Physician Shortages in the US**

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**Center for Workforce Studies  
Association of American Medical Colleges**

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## Recent Studies and Reports on Physician Shortages in the U.S.

Over the past several years, a growing number of national, state and specialty specific studies have concluded that the US physician workforce is facing current or future shortages. This report presents a summary of these recent studies. The report is divided into three sections: 1) a summary of 33 state reports on physician shortages; 2) a summary of 22 specialty shortage reports; and 3) a summary of 6 national studies on the physician workforce.

### **STATE REPORTS**

Since 2002, at least 33 states have assessed their current or future physician workforce needs. In general, the underserved and elderly populations are most likely to be affected. Additionally, many of the state reports point out shortages in specialties that are featured in the specialty report section, including allergy and immunology, cardiology, child psychiatry, dermatology, endocrinology, neurosurgery, primary care, and psychiatry.

#### **Alaska (2006) - “Competition for Physicians will Intensify”**

According to a report by the Alaska Physician Supply Task Force, Alaska has a severe shortage of physicians and is far behind other states in production capacity. Up to 16% of rural physician positions in Alaska were vacant in 2004. There are currently 205 physicians (MDs and DOs) providing patient care per 100,000 residents compared to the national average of 238 for the same population. According to the Task Force projections, Alaska needs a net gain of 59 new physicians a year to offset the annual loss of 40 per year due to retirement or migration out of the state. Some strategies for securing an adequate physician supply for Alaska’s needs include increasing the number of state-subsidized medical school seats, increasing the number of residency positions in Alaska, and expanding loan repayment assistance programs for physicians practicing in Alaska.<sup>1</sup>

#### **Arizona (2005) – “Still Far Below the National Average”**

The 2005 Arizona Physician Workforce Study, prepared by the Arizona State University and University of Arizona Health Sciences Center, concludes that while the growth in the physician workforce over the past decade outpaced the increase in population, a number of specialties have decreased in numbers, including allergists, cardiovascular surgeons, endocrinologists, gastroenterologists, hematologists, and infectious disease specialists. Arizona’s high projected population growth combined with the limited number of in-state medical education and training opportunities will make Arizona increasingly reliant on recruiting physicians from other states at a time of projected national shortages.<sup>2</sup>

#### **California (2009) – “Likely to Face Physician Shortage in 2015”**

The California HealthCare Foundation, in a 2009 report, states that the overall supply of physicians in the state is lower than earlier estimates. Rural counties have fewer physicians per capita than their urban counterparts and also face the additional burden of an aging physician workforce coupled with difficulty recruiting younger replacements. Moreover, the state has a diminishing supply of primary care physicians but an abundance of specialists. For example, only 34% of active physician reported practicing primary care and only 16 of California’s 58 counties are within the range of 60-80 primary care physicians per 100,000 population and in 8 counties the number is less than half the recommended amount. Of all active physicians in the state 67% reported being non-primary care physicians and the number of specialists per 100,000 is 115 in California, well above the target range of 85-105.

The University of California Office of Health Affairs and University of California Health Sciences Committee commissioned a report on California's physician workforce conducted by the University of Albany's Center for Health Workforce Studies. The population of California is growing rapidly which will place great strains on the healthcare delivery system and the physician workforce. More than one-fourth of the state's practicing physicians were over age 55 in 2000. In addition, the state has a maldistribution of physicians with 60% of the current physicians practicing in only five counties.<sup>3</sup> In partial response to this report, in 2006, the California Board of Regents approved the establishment of a new medical school at the University of California at Riverside.<sup>4</sup>

### **California (2008) – “Minorities Underrepresented in California Physician Workforce”**

A report by the Center for California Health Workforce Studies at the University of California, San Francisco shows that both black and Latino physicians are underrepresented in the workforce. In California, 40% of the population is black or Latino but less than 10% of the physicians in the state are. The state has a population of 35 million people and only 2,000 black physicians and 3,000 Latino physicians are currently practicing. This lack of diversity hurts access to care in underserved areas since minority physicians play a crucial role in serving these areas with 40% of ethnic physicians working in primary care.<sup>5</sup>

### **Colorado (2011) – “Half a Million Newly Insured: Is Colorado Ready?”**

The Colorado Health Institute released a report predicting the need for additional primary care providers in Colorado once 510,000 residents become newly insured when the Affordable Care Act is implemented in 2014. These newly insured residents will make an estimated 256,000 to 432,000 additional visits to primary care providers each year. To meet the expected increase in medical usage, the state will need between 71 and 117 additional physicians and between 12 and 24 nurse practitioners and physician assistants to provide primary care by 2016. Currently, several areas of the state face primary care shortages; the shortages are fueled by an aging population, by an aging health care workforce that nears retirement, and by the difficulty in attracting providers to rural, frontier, and underserved urban sites. Low-income Coloradans who currently have difficulty finding care will likely continue to encounter obstacles in 2014, and disparities in the health care infrastructure will widen during the early phases of implementation of health reform.<sup>6</sup>

### **Florida (2008) – “Impending Physician Shortage in the State”**

In 2007 the Florida legislature directed the Florida Department of Health to undertake a comprehensive evaluation of Florida's physician workforce and its impact on accessing quality care in the state. One of the report's recommendations for offsetting the physician shortage is to pursue a policy of creating and expanding medical residency positions in Florida. They also note that the physician workforce in Florida is predominantly white (66.57%) and male (77%) which is not representative of the population. An earlier 2005 report by the Board of Governors of the State University System of Florida, notes, “though data sources are conflicting on the exact number of physicians that will be needed, all agree demand outstrips production.” A quarter of Florida's practicing physicians are over 65 and only 10% are under 35. Florida's population is projected to increase 60% by 2030 and the aged population is projected to grow by 124% in the same span which will dramatically increase demand for physician services.<sup>[i]</sup> In 2006, the Florida Board of Governors approved the establishment of two new medical schools, University of Central Florida (UCF) and the Florida International University (FIU). Both schools opened for their inaugural classes in the fall of 2009 with 41 and 43 students respectively.<sup>7 8</sup>

### **Georgia (2008) – “Georgia’s Drought of Physicians Will Become a Crisis”**

Georgia has fallen far behind in training physicians and is now scrambling to make up for the deficit said a study commissioned by the Medical College of Georgia. Without immediate statewide cooperation in expanding medical education and residency programs, the state may never again have an adequate supply of physicians. For too long Georgia has relied on out of state and international physicians to make up for the lack of Georgia trained doctors. Without changes in the state’s medical education system, Georgia will rank last in the United States in physicians per capita by 2020. The study suggests increasing Medical College of Georgia’s class size from 190 currently to 240 by 2017 making it one of the largest classes in the country. Furthermore, the Medical College of Georgia is advised to open a new campus in Athens in association with the University of Georgia and develop regional campuses for 3<sup>rd</sup> and 4<sup>th</sup> year students across the state.<sup>9</sup> An earlier study, conducted in 2006, showed that only 50% of the graduates with confirmed practice plans are remaining in the state, down from 56% in 2002.<sup>10</sup>

### **Hawaii (2011) - “Hawaii’s Utilization of Physician Services will be Rising Significantly”**

A report prepared by the John A. Burns School of Medicine indicates that the state of Hawaii is facing a shortage of over 600 physicians, a number equivalent to about 20% of the total state physician workforce. With a growing and aging population, the demand for healthcare services will also grow. The 65 and over population in Hawaii is expected to double between 2000 and 2030, the populace that uses physician services the most. Additionally, 41% of Hawaii’s physicians are 55 or older compared with 29% for the US average. The combined effects of general population growth and the aging of both the population and the physician workforce will push the shortfall to a projected 1,600 physicians by 2020. An earlier, 2005, health workforce assessment of Hawaii’s physicians published in the Californian Journal of Health Promotion outlined the complex issues of maldistribution of physicians in Hawaii. The Islands of Maui, Kauai, Lanai, Molokai, and Hawaii are federally designated shortage areas making health care difficult to obtain. However, the state as a whole maintains a higher than average physician to population ratio with 19 more physicians and 15 more primary care physicians than the national average. These statistics mask the fact that the rural areas are suffering from a small workforce as the physician to population ratio does not take location and distribution into account at a sub-state level.<sup>1112</sup>

### **Idaho (2007) - “Need for more Physicians in Idaho”**

In order for Idahoans to have access to physician services the State needs to provide reasonable student access to medical education says a study requested by the Idaho Board of Education. Idaho ranks 49<sup>th</sup> among the 50 states (50<sup>th</sup> if the District of Columbia is considered) on the total number of physicians in the state with 198 per 100,000 population which is 66 percent of the national average. The physician shortage is likely to become more acute due to an aging workforce. Using data from the American Medical Association, it was determined that 40 percent of Idaho’s physicians are age 55 or older and that 21 percent are 65 or older. This shows Idaho has the 6<sup>th</sup> oldest physician workforce in the country. To complicate the shortage further, the reports suggest that the population of Idaho is expected to increase and was ranked 8<sup>th</sup> in growth rate between 1970 and 2000. To resolve the physician shortage, Idaho is looking for ways to expand medical education in the state. Without a medical school in Idaho, the state relies on and subsidizes 18 WWAMI seats and 8 Utah seats. With only 1.82 first-year medical school seats per 100,000 population, Idaho ranks 48<sup>th</sup> in the nation and the state is looking for new ways to open doors to medical education for Idaho students.<sup>13</sup>

### **Illinois (2010) - “One-half of Graduating Illinois Residents and Fellows are Leaving”**

A 2010 Illinois Physician Workforce report by Northwestern University’s Fienberg School of Medicine, the Illinois Hospital Association, and Illinois State Medical Society describes Illinois as “in danger of being unable to meet even the most pressing healthcare needs.” The report describes the many causes of the Illinois physician shortage with one reason being that one-half of residents and fellows who graduate end up leaving the state to practice. The reason for the low retention rate is that Illinois has a reputation for not being physician friendly due to its medical liability procedures and high malpractice insurance rates. Aside from the flight of Illinois graduates, the rural areas of the state are suffering from a lack of physicians and only 1.5% of residents indicated that they planned to practice in a rural setting. In 2010, the Illinois assembly passed legislation to create an Illinois Workforce Institute to collect, analyze, and distribution information of the state’s physician workforce.<sup>14</sup>

### **Indiana (2007) – “Projections Indicate that Shortages Will Continue to Worsen”**

In a brief written by the University Of Indiana School Of Medicine’s Department of Family Medicine severe shortages of several health professions, especially primary care physicians, have been documented. Currently the state is lacking at least 5,000 physicians, out of which 1,000 need to be primary care physicians, to appropriately care for the population. This number will grow by 2020 to 2,000 additional primary care physicians. Furthermore, a mere 19% of urban counties and only 2% of rural counties in Indiana are at the target for population to physician ratios when considering the number of primary care physicians. These already severe shortages are going to become even more prevalent when considering that the number of Indiana residents over age 65 will double between 2000 and 2030, the segment of the population that uses health care services the most.<sup>15</sup>

### **Iowa (2007) – “Aging Population will Alter Demand for Physician Services”**

After reviewing physician supply and demand data, a task force established by University of Iowa Health Care leaders developed a set of recommendations for improving the physician supply that focused on modest increases in physician education and training capacity as well as a detailed set of recruitment and retention strategies. The five specialties perceived to be in greatest need were psychiatry, neurosurgery, general internal medicine, orthopedic surgery, and cardiology.<sup>16</sup>

### **Kentucky (2007) – “Demand for Physicians Expected to Increase”**

For decades Kentucky has been plagued by a shortage of physicians, especially in rural areas says a report by the Kentucky Institute of Medicine. Almost half of Kentucky’s counties-55 out of 120, and most of them rural-are officially designated Health Professional Shortage areas (HPSA) for primary care. Aside from the overall shortage of physicians, 400 of all the family physicians in Kentucky, are age 60 or above and are nearing retirement. Kentucky’s physicians are not well distributed which is evidenced by the fact that, “more than 43% of the State’s 4.2 million residents live in rural areas, but only 28% of its physicians do.” Furthermore, high rates of chronic diseases at far greater rates than the national average might necessitate additional physicians beyond those already needed, to serve the State. To address the projected shortage the report recommends increasing the applicant pool, increasing medical school class size, and developing regional clinical medical school campuses, among other strategies.<sup>17</sup> A study conducted in 2005 confirmed many of the same findings in the 2007 study.<sup>18</sup>

### **Maryland (2008) - “Critical Statewide Physician Shortages in Maryland”**

A study commissioned by the Maryland Hospital Association, with the support of MedChi, the Maryland State Medical Society, found that overall Maryland is 16% below the national average for the number of physicians available for clinical practice. The shortage of physicians has most affected

Southern Maryland, Western Maryland, and the Eastern Shore and all three regions fall significantly below national levels in active practicing physicians. One of the reasons for these shortages is an aging workforce with 33.4 percent of physicians over age 55. Some changes that could curtail the imminent crisis are: initiate a state loan forgiveness program that draws physicians to regions in need, increase the number of residency slots, and offer incentives to encourage physicians to practice in the state's rural areas.<sup>19</sup>

### **Massachusetts (2012) – “Seven Physician Specialties are Operating in Strained Labor Markets”**

For eleven years in a row, the Massachusetts Medical Society has conducted a physician workforce study, and each successive report points to a strained health care market. This most recent report has identified seven physician specialties that meet the classification for critical or severe conditions in the labor market, which is down from ten specialties in 2010. Internal medicine, psychiatry, urology, and neurosurgery are considered to be in “critical” shortage, and dermatology, family medicine, and general surgery are in “severe” shortage. While physician labor markets continued to be tight in 2012, there were noticeable signs of improvement compared to previous years' findings. The percentage of physicians having difficulty filling vacant positions in their specialty has declined slightly since 2011 and fewer physicians report seeing an inadequate pool of applicants. The MMS concluded that Massachusetts is a model for health reform for the nation, but a number of changes to the health environment must continue if a strong physician workforce is to be sustained.<sup>20</sup>

### **Michigan (2006) – “Growth in Demand Will Outpace Growth in Supply”**

A study by the Center for Health Workforce Studies at the University of Albany, State University of New York concluded that between 2005 and 2020, growth in the demand for physicians in Michigan will likely outpace growth in the supply of physicians. Michigan is likely to face a physician shortage by 2020. The severity of this shortage is expected to be about 4,400 physicians, or about 12% of the number of physicians required to meet the forecasted demand for medical services in 2020.<sup>21</sup>

### **Minnesota (2008) – “Physician Supply in Minnesota is Diminishing”**

According to a study by the Minnesota Hospital Association Board of Directors, Minnesota's physician workforce is waning. Nearly half (45%) of Minnesota's physicians are over the age of 50 and the 65 and older population is projected to increase by 58% by 2020. Only 5% of all Minnesota physicians practice in rural areas, while 13% of Minnesotans live there. Rural areas also suffer from having too few specialists as physician distribution is becoming a bigger problem in the southern and northern rural areas. Physician recruitment and retention strategies must be developed for and by Minnesota hospitals to ensure the state's ability to provide quality health care.<sup>22</sup>

### **Mississippi (2003) – “Extant Physician Shortage will Become More Severe”**

Even before hurricane Katrina devastated the gulf coast region, Mississippi was facing a shortage of physicians. Findings presented in a 2003 white paper by the Health Policy Research Center at Mississippi State University indicate an “extant physician shortage will become more severe.” Over half (56%) of the states physicians practice in four counties and 2 out of 3 counties are officially designated health professional shortage areas (HPSAs) with high levels of chronic illness and poverty. A survey of practicing physicians indicates that many are considering relocation or early retirement which will likely exacerbate the current shortages.<sup>23</sup>

### **Missouri (2009) – “Recruitment and Retention of Health Care Providers Very Difficult”**

A 2009 study by the Health Management Associates, Inc. and funded by the Missouri Foundation for Health and the Healthcare Foundation of Greater Kansas City, suggests that Missouri has a shortage of healthcare professionals based on the ratio of the population to the availability of healthcare services. Missouri is experiencing the most acute shortage of physicians in rural areas shown by the fact that 40% of the population resides in rural areas but only 25% of the state’s physicians practice there. The access to healthcare in rural areas is compounded by the fact that the rural population is generally older, requiring more services and includes a rapidly growing Hispanic population which raises cultural and language challenges.<sup>24</sup>

### **Montana (2009) – “We are not Prepared for the Health Workforce Shortage”**

In a report put out by the Montana Office of Rural Health (MORH) a serious shortage of primary care physician services is cited in Montana. The distribution of physicians in Montana is extremely uneven with 37% of all primary care physicians practicing in only three cities and 40 of Montana’s 56 counties are designated HPSAs. Furthermore, there are 9 counties without any physicians, 12 counties with no primary care physicians, and 7 counties without any hospitals. For Montanans living in rural areas, access to primary care is much more limited than that of their counterparts in Montana’s urban centers. Exacerbating the shortage of healthcare services is the fact that there is no medical school in Montana and only 20 students a year are able to receive a publicly sponsored medical education through the WWAMI program at the University of Washington.<sup>25</sup>

### **Nebraska (2008) – “Over 1/3 of all Physicians in Nebraska are Older than 50 Years”**

In a recent study by the Nebraska Center for Rural Health Research it was reported that only 9 of Nebraska’s 93 counties have a physician-to-population ratio above the 2004 national average ratio of 214.09 physicians per 100,000 population. It is expected that in the next 10 to 15 years over a third of all Nebraska’s physicians will retire. Furthermore, Nebraska has not developed an all-inclusive plan to predict the need for health care services or stayed in touch with innovations in training programs to meet future needs for professionals who practice effectively in health care teams. A task force has been established to look at the health workforce issues that are currently facing Nebraska.<sup>26</sup>

### **Nevada (2009) – “Nevada Currently Ranks 48<sup>th</sup> in the Number of Physicians per Capita”**

A 2009 report by The Center for Education and Health Services Outreach (CEHSO) at the University of Nevada School of Medicine describes the changing face of the physician workforce in Nevada. The makeup of practicing physicians in Nevada is characterized by growth in the proportion of female physicians and by growing percentages of older physicians nearing retirement. Furthermore, only 5 out of 39 specialties have practicing physicians at a per capita level higher than other states in the region and only 2 higher than the national average leaving Nevada experiencing shortages for most medical and surgical specialties. Also troubling is the fact that Nevada only has 218 physicians per 100,000 of the population while the national average is 307. A 2006 report by LarsonAllen, a Minnesota consulting firm charged with reviewing Nevada medical education capacity and need, recommends that the state develop a health sciences center in order to dramatically increase medical school and graduate medical education training opportunities. With one of the lowest physician to population ratios and one of the highest population growth rates in the nation, the existing medical education system cannot keep up with the need.<sup>27</sup>

### **New Jersey (2009) – “Facing Significant Future Shortages”**

A report by the New Jersey Council of Teaching Hospitals projects New Jersey will experience a significant shortage of physicians in both primary care and several specialties. In 2020 the state will be lacking over 2,800 physicians, approximately 1,000 in primary care and 1,800 specialists, beyond the existing GME pipeline. This data represents a 12% gap between physician supply and the demand for physician services. The council recommends expanding retention and recruitment initiatives and consistently monitoring the supply and demand for physicians in New Jersey.<sup>28</sup>

### **New Mexico (2006) – “Long History of Being a Physician Shortage State”**

New Mexico’s population is both growing and aging and as the population ages, the health needs, expectations and wealth of baby boomers may motivate and enable them to use more health care services. Only Los Alamos County, with a rate of 2.41 physicians per 1,000 population, came close to the national average of 2.42, and all other counties were far below. The distribution of physicians is still a major concern with more than half of New Mexico’s physicians located in Bernalillo County. Furthermore, New Mexico relies on other states to provide physician supply with three quarters of physicians being trained out of state. In order for New Mexico to have sufficient supply of physicians in the future, ongoing monitoring of the status of the physician workforce is essential.<sup>29</sup>

### **New York (2007) – “Upstate New York Reported Most Difficulty Recruiting”**

A report by the Center for Health Workforce Studies noted that hospitals in upstate New York were experiencing difficulties in recruiting and retaining pharmacists, physical therapists, medical laboratory technicians as well as experienced RNs and PAs. A general regional shortage of health workers as well as low salaries, were cited as the main reasons for the recruiting problems. Around 50% of hospitals in the region reported problems hiring part-time workers and 36% reported difficulty finding bilingual, Spanish-speaking workers.<sup>30</sup>

### **North Carolina (2007) – “State Likely to Face a Severe Shortage Over Next 20 Years”**

A Task Force convened by the North Carolina Institute of Medicine concluded that without major changes in the health care delivery system or significant increases in the number of physicians, the state is likely to face a severe shortage of physicians. The projected shortages are not limited to physicians and will also include nurse practitioners, physician assistants and certified nurse midwives. The projected gap is mainly due to population growth, aging of the population and providers, and the increasing prevalence of chronic diseases.<sup>31</sup>

### **Oregon (2004) – “Looming Shortage of Physicians”**

Oregon Health & Science University’s Center for Rural Health has been collecting workforce data since the mid-70’s; 2004 data suggests a “looming shortage of physicians.” Population growth in Oregon exceeds growth in the number of physicians; nearly half of the state’s practicing physicians are over 50 and approaching retirement age. This comes at a time when the state is already experiencing shortages in rural areas and in several specialties, including rheumatology, nephrology, gastroenterology, cardiology, allergy-immunology and pediatrics.<sup>32</sup>

### **Pennsylvania (2008) – “Pennsylvania’s Physician Numbers Have Not Been Growing”**

A report by the Pennsylvania Medical Society presents a number of trends that raise concerns regarding the future supply of physicians. The report points out that the physician workforce in Pennsylvania is old, with 50% of their physicians over the age of 50 and less than 8% of their physicians are under the age of 35. With increasing demand for health services outpacing supply, physicians are needed to work

more hours and this negative trend could make retention and recruitment more problematic. Another problem is the residency retention rate which dropped from 60% in 1992 to only 22% in 2006. Specialty specific physicians have been on the decline since 1997 especially in the areas of family medicine, internal medicine, obstetrics and gynecology, cardiology, pathology, orthopedic surgery, general surgery, and neurosurgery.<sup>33</sup>

### **South Carolina (2011) – “Physician Demand May Grow Rapidly Over Next Two Decades”**

A study released by South Carolina’s Office for Healthcare Workforce Analysis and Planning (OHW) concludes that strong population growth in the state, especially for citizens 65 and older, will lead to a rapid increase in demand for physicians and medical services over the next two decades. The number of physicians practicing in South Carolina per 100,000 people is well below the national average. The physician workforce is expected to lose 200 or more physicians each year to retirement over the next decade. As long as the new medical education programs at the University of South Carolina Greenville and the Edward Via College of Osteopathic Medicine continue to progress as expected in the next five years, the education system should be able to replace the retiring physicians. However, maintaining current numbers will not be enough to care for the state’s rapidly aging population in coming years.<sup>34</sup>

### **Texas (2008) – “Physician to Population Ratios Increasingly Unfavorable”**

The Texas Higher Education Coordinating Board released a report in 2002 stating that, “if the number of physicians does not increase, the [physician to population] ratios will become increasingly unfavorable.” An update of the 2002 report released in 2008 highlights some of the efforts that Texas is implementing to alleviate a shortage of physicians. While the number of Texas medical school applicants has increased by 40% since 2002 and 4 schools have added more than 20 new slots, problems such as an aging population and maldistribution of physicians continue to plague the state. In addition, underserved populations and the under-representation of Hispanics and African-Americans in the workforce are critical issues for the state.<sup>35</sup> The Texas Tech University Health Sciences Center’s El Paso Paul L. Foster School of Medicine is the first new Texas medical school in 30 years becoming a fully operational four-year medical school in 2009 with a class of 40 students.<sup>36</sup>

### **Utah (2012) – “332 Physicians Needed Annually to Meet Increased Demand”**

In 2010, the Utah Medical Education Council (UMEC) conducted a survey of all Utah licensed physicians to understand the characteristics and shortfalls of Utah’s local workforce. Utah has approximately 178 patient care physicians per 100,000 people, which is below the ratio recommended by the Council on Graduate Medical Education of 290 physicians per 100,000. Utah physicians are relatively young compared to the national average. Only 9 percent of the state’s workforce is 65 years or older compared to 20 percent of the national workforce. General surgery, gastroenterology, rheumatology, internal medicine, and cardiology are specialties that currently face a severe need for more physicians. Twenty-three of 29 counties were found to have some form of Primary Care Health Professional Shortage Area (HPSA) designation. The Council concluded that Utah will need 332 physicians each year to replace retiring physicians, to adjust for the growing population, and to meet the increasing needs of an aging population.<sup>37</sup>

### **Vermont (2010) - “Overall Supply of Primary Care Practitioners is Below Adequate Levels”**

The Vermont Area Health Education Centers (AHEC) Network released a report detailing the primary care workforce in the state and found that the number of primary care physicians falls short of the number needed to care for all Vermont residents and is prevalent in all counties. In addition the report states that 34% of all primary care physicians are either not accepting or limiting their acceptance of

new patients increasing from 31% in 2008. Shortages in primary care in Vermont are due to the aging of both the population and the physician workforce, the accompanying increases in chronic illnesses brought on by an elderly population, and the smaller supply of new primary care physicians affecting the nation as a whole. To remedy the shortfall of primary care physicians in the state there have been focused efforts, by AHEC and other collaborators, on pipeline development, recruitment, retention, and continuing education of the primary care workforce.<sup>38</sup>

### **Virginia (2007) - “Virginia Must Begin Acting Now to Increase Physician Workforce”**

In the Report of the Governor’s Health Reform Commission it is estimated that by 2020 there will be a shortage of approximately 1,500 physicians in Virginia. Physician retention is the primary issue in the supply of Virginia’s doctors with only 28% of active physicians in the state who completed a residency or fellowship there. It is also estimated that by 2020 the state will need of 22,600 full-time RNs. By 2030 25% of the state’s population will be over the age of 60 meaning more people will be making more frequent doctor’s visits. If the state could work to increase its current retention rate (36%) as well as increasing medical school class size, there is a greater chance of stemming this shortage. The Report also recommends increasing funds for scholarship and loan repayment programs.<sup>39</sup>

### **Wisconsin (2011) – “100 New Physicians a Year: An Imperative for Wisconsin”**

In a 2011 report, the Wisconsin Hospital Association estimates that 100 additional physicians per year will need to enter the workforce to keep pace with increasing demand. If these demands are not met, the projected shortage by the year 2030 will be over 2,000 physicians, which equates to 20 percent of the current Wisconsin physician workforce. The report predicts primary care physicians will be most in demand, with general surgeons and psychiatrists in short supply as well. If 100 additional physicians are not added each year, the state’s economy will be as much as \$5 billion smaller than it could be. The report outlines various strategies for reaching the goal and gives time and cost estimates for each strategy; these strategies include expanding Wisconsin GME programs, expanding the number of medical school graduates, and focusing on tuition and tuition-related debt as incentives to attract and retain Wisconsin physicians.<sup>40</sup>

### **Wyoming (2008) – “Major Primary Care Provider Shortages”**

The University of Washington’s Center for Health Workforce Studies completed a study of the primary care workforce in Wyoming a rural frontier state, and found a definite shortage of physicians in Wyoming. The report notes that more than two-thirds of Wyoming’s counties (15 out of 23) have fewer primary care providers than the national average and 20 out of 23 Wyoming counties (87%) have fewer than the national average of primary care physicians per 100,000 population. In three rural counties, over a third of all physicians indicated they would retire in the next 5 years (by 2012) and about 15% of primary care physicians statewide plan to retire by the same date. Wyoming has trouble importing physicians since no medical school or physician assistant education programs exist in Wyoming.<sup>41</sup>

## **SPECIALTY SPECIFIC STUDIES**

Recent workforce studies indicate that we face current and future shortages in a wide array of specialties. In addition to potential shortages in primary care specialties, as the population ages, the demand for specialists that provide care for patients over 65 will increase significantly. As indicated by a number of the studies below, the aging of the population is expected to contribute to shortages in many of these specialties.

### **Allergy and Immunology (2006) – “Shortage within Next Ten Years”**

A June 2000 report prepared for the American Academy of Allergy, Asthma, and Immunology by SUNY Albany’s Center for Health Workforce Studies concludes, “there will be a shortage of allergist/immunologists within the next ten years.” Demand is rising and the supply of new physicians will not be able to keep pace with the current retirement rate of practicing allergists and immunologists and unable to meet the projected increase in demand.<sup>42</sup> A follow-up report in June of 2006 also by the Center for Health Workforce Studies notes “The prevalence of asthma and allergy-related disorders in American continues to increase. Allergies affect as many as 40 to 50 million people in the United States, more than 20 percent of the nation’s population.” Despite this large demand for services, a relatively small number of physicians specialize in Allergy and Immunology. In fact, between 1990 and 1998 the number of physicians training in Allergy and Immunology fellowships declined 34%. The rising demand for services coupled with the low rates of new physicians entering into the specialty are some reasons cited for the projected shortfall.<sup>43</sup>

### **Anesthesia (2003) – “Current Shortfall of Anesthesiologists”**

A 2003 assessment of the supply of and demand for anesthesiologists found a current shortage. There was not enough data to determine with confidence how demand for anesthesiologists would change in the coming years. If demand increases above 1.5%, the authors project a continued shortage through 2015.<sup>44</sup>

### **Cardiology (2009) – “Currently a Substantial Shortage of Cardiologists”**

In 2009, the Lewin Group conducted an assessment of the supply and demand for cardiologists for the American College of Cardiology (ACC) and the American College of Cardiology Foundation. The study concluded that there is currently a substantial shortage of cardiologists and that this shortage will increase over the next 20 years. The key drivers of the shortage are a higher demand for cardiology services, as the general population ages, coupled with the fact that 43% of general cardiologists are currently over the age of 55 and will likely retire in the next 20 years. The shortage of general cardiologists is projected to increase from about 1,700 in 2008 to about 16,000 in 2025. An earlier, 2004, study by The American College of Cardiology (ACC) Task Force on Workforce concluded that the U.S. is facing a “serious shortage of cardiologists.” Additionally, report from their 35<sup>th</sup> Bethesda Conference, endorsed by the American Heart Association and a host of other cardiology-related societies, predicts that, by 2020, there will be a 20% decrease in the age-adjusted supply of cardiologists at the same time we will see a substantial increase in the incidence and prevalence of cardiovascular disease due to the aging of population and the epidemic of obesity.<sup>45 46 47</sup>

### **Child Psychiatry (2003) – “Evident Shortage Will Continue Well into the Future”**

A 2003 Academic Psychiatry article finds that, “despite the decades-long projection of an increasing utilization of child and adolescent psychiatry services and an undersupply of child psychiatrists, the actual growth and supply of child and adolescent psychiatrists has been very slow.” A 1990 report by the Department of Health and Human Services concluded the nation should have over 30,000 child psychiatrists but there are less than 7,000 currently practicing in the nation.<sup>48</sup>

### **Critical Care Workforce (2006) – “Growing Supply of Intensivists will be Insufficient”**

In June 2003, Congress asked HRSA to examine the adequacy of the critical care workforce in response to concerns that the number of pulmonary and critical care physicians would not be able to meet the needs of the aging baby boomer population. HRSA worked with the College of Chest Physicians to update physician workforce models to include critical care physicians and found that “demand for intensivists will continue to exceed available supply through the year 2020 if current supply and demand trends continue.”<sup>49</sup>

### **Dermatology (2008) – “Stable Undersupply of Dermatologic Services”**

In an article published in the Journal of the American Academy of Dermatology, an update from a 2002 article, “a stable undersupply of dermatologic services has been reported in the United States, with a mal-distribution of physicians exacerbating the problem.” This shortage comes at a time when the demand for dermatologists is rising due to the aging population and the increasing occurrence of various skin diseases. In the last five years, dermatologists increased the use of PAs or NPs by 43%. The 2002 study noted that nearly half of practicing dermatologists believe their community could use more dermatologists and one third are recruiting new associates and new graduates are readily able to find jobs.<sup>50</sup>

### **Emergency Medicine (2009) – “Emergency Care System Remains in Serious Condition”**

In 2009, the American College of Emergency Physicians released the National Report Card on the State of Emergency Medicine and “access to emergency care” received a “D”. The reason for this dismal grade is the fact that the nation has too few emergency departments to meet the needs of a growing and aging population. Over the past 10 years, the number of people needing emergency care annually has increased 32%, from 90.3 million to 119.2 million. At the same time, the number of hospital emergency departments in the country has dropped nearly 7%, from 4,109 to 3,833. Another paper on shortages in the Emergency Medicine workforce was published in 2009 in *Annals of Emergency Medicine*. In 2006, the IOM released a series of three reports on the future of emergency medicine concluding that emergency departments and ambulatory services are overburdened, under-funded, and highly fragmented. Patients face long waits in overcrowded emergency rooms and often needed on-call specialists are not available. A significant contributing factor is that more and more patients are turning to emergency departments for care because of lack of insurance, for after-hours care, or due to limited options in rural communities.<sup>51 52</sup>

### **Endocrinology (2003) – “Demand Will Exceed Supply from Now until 2020”**

According to a study published jointly in the May 2003 issues of the journals Endocrine Practice, Diabetes Care, and the Journal of Clinical Endocrinology & Metabolism, the supply of newly trained endocrinologists will not be sufficient to offset retirements and future increases in demand. As it stands, current demand exceeds supply by 15% and the aging of the population compounded with physician

retirements will exacerbate the situation. The authors present multiple models for estimating the future demand for endocrinologists and even the conservative estimates predicate a widening shortage by 2020.<sup>53</sup>

### **Family Physicians (2006)–“Declining Medical Student Selection of Family Medicine”**

A report by the American Academy of Family Physicians states that in order for the country to have enough physicians to meet the demands of the population in 2020, a typical accredited family medicine residency program would need to increase from an average of 21.7 residents to 24 residents. The report suggests recruiting diverse candidates to become family physicians who will most likely serve rural, underserved, and elderly patients.<sup>54</sup>

### **Gastroenterology (2009) – “A Shortfall of Gastroenterologists Projected by 2020”**

In a 2009 report, the Lewin Group found that gastroenterologists are crucial for detecting colorectal cancer (CRC) as they provide the majority of colonoscopies. A shortfall of approximately 1,050 gastroenterologists is expected by 2020 as demand for colonoscopies is expected to rise by 10 percentage points. Both the aging and growth of the population is causing demand to exceed supply and the number of gastroenterologists entering the field are not going to be able to meet the needs of the growing and aging population.<sup>55</sup>

### **General Surgery (2007) – “General Surgeon to Population Ratios Declined Steadily”**

A longitudinal study published in the Archives of Surgery on general surgeons from 1981 to 2005 shows a constant decline. There are 723 fewer general surgeons practicing today than were in 1981. The general surgeon to population ratio decreased steadily across the study period, from 7.68 per 100,000 in 1981 to 5.69 per 100,000 in 2005. The overall number of general surgeons has remained static since 1994, despite an increase in the population of 1% per annum during this period. This coupled with the rise in surgical specialization and the decreased interest among medical student’s in general surgical careers has generated concern over a shortage.<sup>56</sup>

### **Geriatric Medicine (2009) – “The Healthcare Workforce Receives little Geriatric Training”**

The Association of Directors of Geriatric Academic Programs (ADGAP) recently completed a three year study of the newly implemented programs sponsored by foundations, state and federal budgets to address the shortage of Geriatric physicians that was cited in an Institute of Medicine study. The main obstacle cited for training new Geriatricians is that there are only 14 departments of geriatric medicine in the country, many of which have small operating budgets. In the 2007 AAMC graduating medical student survey, only 23% of students strongly agreed that they were exposed to expert geriatric care. Moreover, as the nation’s 78 million baby boomers begin to retire, a report issued by the Institute of Medicine concludes that the healthcare workforce is not prepared to offer the best care to older patients. Only a small percentage of physicians specialize in geriatric medicine because of the high cost associated with extra years of training and the relatively low pay. The study recommends that incentives be provided to increase the number of geriatric specialists such as higher pay, loan repayment, and scholarships.<sup>57 58</sup>

### **Medical Genetics (2004) – “Situation is Critical”**

An October 2004 Report of the Banbury Summit Meeting on Training of Physicians in Medical Genetics states that “the medical genetics workforce situation is critical.” As the scope of practice for geneticists increases beyond rare pediatric disorders and becomes increasingly relevant to common health concerns (including some forms of cancer and a number of neurological and cardiovascular

disorders), declining numbers of physicians are going into the field. 58% of clinical genetics GME slots are unfilled. 17 states currently have shortages and the 5 to 15 year forecast indicates further shortages.<sup>59</sup>

### **Neurosurgery (2005) – “Severe Decline in Number of Active Neurosurgeons”**

According to a study published in the February 2005 issue of the *Journal of Neurosurgery* the nation is encountering a “severe decline in the number of active neurosurgeons and a static supply of residents.” The number of practicing neurosurgeons has declined while at the same time there has been a significant increase in the demand for neurosurgeons. Evidence cited includes a doubling in the average number of journal-advertised academic and private neurosurgery positions per year between 1994 to 1998 and 1999 to 2003.<sup>60</sup>

### **Neurology (2010) – “Shortage of Neurologists Likely to Continue”**

In a study published by *Neurologic Clinics*, the uneven distribution of neurologists, resulting in shortages in rural areas is reported. The maldistribution ranges from 11.02 per 100,000 population in Washington, DC, to 1.78 per 100,000 population in Wyoming. This shortage of neurologists similar to that of other specialists in underserved and rural areas is expected to continue given the high overhead and salary costs necessitating a steady supply of patients. Neurologists have historically been concentrated in urban areas but with an increase in the elderly population, acute stroke care evaluation and management will be challenging for rural populations. Additionally, shortages of neurologists are expected to continue due to an essentially level or declining number of new neurologists and the increased subspecialization of those new neurologists.

### **Oncology (2007) – “Oncology Moving to a State of Acute Shortages in 2020”**

A 2007 report in the *Journal of Oncology Practice* concludes that the nation will face a shortage of oncologists if current cancer rates and practice patterns continue. Demand is projected to increase by 48% by 2020 due to the growth in the aged population and to the increasing number of cancer survivors. Supply is only projected to increase by 14% by 2020 due to physician retirements and limited expected growth in the number of oncology fellowship training slots. The authors note there are opportunities to minimize the gap in supply and demand but that no single remedy alone can fully address the likely shortage.<sup>61</sup>

### **Pediatric Subspecialties (2007) - “Pediatric Subspecialty Care is in a Crisis”**

The Expert Work Group on Pediatric Subspecialties has determined that the main causes for the crisis in pediatric subspecialties are an insufficient number of specialists, an increasing demand for these services, and not enough funding for medical education. The lack of available care harms children and families and produces pricey inefficiencies in the healthcare system as a whole. The report recommends making access to these subspecialties a priority in medical home reform efforts and increasing collaboration among specialists in pediatrics care at the local and regional levels.<sup>62</sup>

### **Primary Care (2006) – “Primary Care on the Verge of Collapse”**

In 2006, the American College of Physicians released a report entitled “The Impending Collapse of Primary Care Medicine and Its Implications for the State of the Nation’s Health Care”. At a time of growing demand for primary care due to growth in the number of people with chronic diseases and long term care needs of an aging population, there has been a decline in the number of medical students entering primary care. The authors cite a number of policy recommendations for averting a crisis,

including implementing the advanced medical home (a care coordination model), reforming reimbursement policies, and creating financial incentives for improving quality and efficiency.<sup>63</sup> The numbers of generalist residency graduates have declined each year since 1998, causing concern about future shortages says a study published in *Health Affairs*. Furthermore, between 2005 and 2025 the population above age 65 will increase 73 percent, the same group who seeks care from generalists at twice the rate of those under the age of 65. Using 2005 levels as a benchmark, a 20-27 percent shortfall, about 35,000 to 44,000 generalists, is anticipated by 2025. The major decline is attributed to more and more graduates in internal medicine sub-specializing. To increase the number of generalists, the authors recommend that reimbursement reform realigning incentives to make the “medical home” financially viable should be at the top of the list.<sup>64</sup>

### **Psychiatry (2003) – “Unclear Rate of Growth will Keep Up with Demand”**

In the Winter 2003 issue of *Academic Psychiatry*, an analysis of the current psychiatric workforce trends makes it doubtful “the rate of growth will be able to keep up with the rate of growth of demand.” The average age of practicing psychiatrists is 55.7 and the percentage under 40 dropped from 24% in 1989 to 8% in 2002. Additionally, analysis of the Professional Activities Survey data reveals reductions in the average number of hours worked per week and in the percent of time psychiatrists spend in direct patient care.<sup>65</sup>

### **Public Health (2008) – “Public Health Workforce Shortages Imperil Nation’s Health”**

A research brief by the Center for Studying Health System Change reports that local health departments are facing a workforce crisis in that they are unable to recruit, train, and retain Public Health workers to meet communities’ needs. Some factors leading to this shortage are inadequate funding, uncompetitive salaries and benefits, large numbers of retiring workers, not enough currently trained workers, and a general lack of enthusiasm for service in public health. Public health workers provide essential services and without enough of these workers the public’s health would suffer drastically.<sup>66</sup>

### **Rheumatology (2007) – “Shortage Exists Now and is Likely to Worsen”**

In a 2007 *Arthritis and Rheumatism* article, the authors predict substantial excess in demand relative to the supply of rheumatologists between 2005 and 2025. The nation is facing an increasing prevalence of musculoskeletal diseases due to the growth and aging of the population at a time when the supply of rheumatologists is not projected to increase. The authors note it appears there is a current shortage as a survey of rheumatologists reveals an average wait for a new appointment of 38 days.<sup>67</sup>

### **Thoracic Surgery (2009) – “Projections of a Shortfall”**

A new study in *Circulation* explores the fact that cardiovascular disease, currently responsible for a third of American deaths, will remain the leading cause of mortality and morbidity for the elderly, whose numbers will double between now and 2030. Not only will the population require more thoracic surgery services but the number of active cardiothoracic surgeons has fallen for the first time in 20 years and by 2025, it is probable that there will be a shortage of at least 1,500 surgeons. The supply alone of cardiothoracic surgeons will fail to meet the demands of an expanding and aging US population and with the expected increase in demand; the shortfall will be even greater.<sup>68</sup>

## **NATIONAL REPORTS**

### **“Physicians and Their Practices Under Health Care Reform” - The Physicians Foundation, Inc. (2009)**

In the wake of health care reform, the Physicians Foundation saw a need for a “critical analysis of how various proposed changes might affect the demand for physicians and the ability of their practices to provide optimum patient care.” The Team of experts rejected the notions that higher use of physician services in certain areas is considered “overuse” and that savings could be found by reducing the volume of care in these areas. Through an assessment of the future demand for physician services, the Team endorsed the recent reports citing a shortage of physicians in different specialties and geographic regions. In light of the shortage of physicians, the Team recommends training more physicians, removing the cap on GME positions, that was established a decade ago, and creating new medical schools. Training healthcare workers at all levels, from physicians to aides, is essential in creating a functioning healthcare system and must begin immediately given the duration of training required. Overall, this report, “projects the size and characteristics of the physician workforce that will be required in the future, while recognizing that, because of the long lead times in training physicians, health care will have to be structured around persistent physician shortages for a decade or more.”<sup>69</sup>

### **“The Complexities of Physician Supply and Demand: Projections Through 2025” – Association of American Medical Colleges (2008)**

Using the most recently available data, a new report by the AAMC Center for Workforce Studies projects future supply and demand for physicians and concludes that a national shortage is likely. Driven by such factors as U.S. population growth, aging population and doctors, and increased physician visits, the demand for doctors will outstrip the supply through at least 2025. If physician supply and use patterns stay the same, the United States will experience a shortage of 124,000 full-time physicians by 2025. US medical schools are increasing their enrollment as recommended by the AAMC. The report concludes that while this increase is necessary, it will not be sufficient to meet future patient needs and demand. Actions beyond increasing the supply of physicians will be needed. Complex changes such as improving efficiency, reconfiguring health care delivery, and making better use of both physicians and other health care professionals will also be necessary.<sup>70</sup>

### **“Out of Order out of Time” - Association of Academic Health Centers (2008)**

In a report by the Association of Academic Health Centers (AAHC) the dysfunction of public and private health workforce planning is highlighted and a call is given to implement a comprehensive national policy with effective solutions. The study claims that too many entities are controlling health workforce policy making which leads to a limited focus instead of a broad strategic vision and short term decisions driven by responses to crisis rather than long term planning. A broader integrated approach is recommended where the Federal Government is in charge of workforce planning and it becomes a priority domestic policy issue.<sup>71</sup>

### **“Growth and Aging of the U.S. Population will Cause a Surge in Demand” – The Federal Department of Health and Human Services (DHHS) (2006)**

The Health Resources and Services Administration (HRSA) in the U.S. Department of Health and Human Services (DHHS) released a report in 2006, projecting a shortfall of approximately 55,000 physicians in 2020. If current trends continue, the full time equivalent (FTE) physician supply is projected to grow to 866,400 by 2020, while demand for physicians will increase to 921,500 due to the

growth and aging of the U.S. population. The report projects shortages will be in greatest in non-primary care specialties.<sup>72</sup>

### **“U.S. Likely to Face a Shortage in 2020” – U.S. Council on Graduate Medical Education (COGME) Report (2005)**

In January 2005, the Council on Graduate Medical Education (COGME) released its 16th Report, “Physician Workforce Policy Guidelines for the United States, 2000-2020” recommending an increase of 3,000 medical school graduates by 2015 in order to meet rising demand and need. Only under the most optimistic of various supply and demand scenarios outlined in the report would the nation have an adequate supply to meet demand in the year 2020. When the mid-points of the projected supply and demand scenarios outlined in the report are used, the net result is a projected shortage of about 85,000 physicians in 2020 – which is equivalent to approximately ten percent of today’s physician workforce.<sup>73</sup>

### **“America is Running out of Physicians” – Merritt, Hawkins & Associates (2004)**

In 2004, Merritt, Hawkins & Associates, a health care staffing and consulting firm, published, “Will the Last Physician in America Please Turn off the Lights? A Look at America’s Looming Doctor Shortage.” The authors predict there will be a shortage of 90,000 to 200,000 physicians and that average wait times for medical specialties are likely to increase dramatically beyond the current range of two to five weeks. Various factors, including the demise of managed care, the aging of the population, changing practice patterns, increasing regulation and paperwork are some of the reasons cited for the impending shortage.<sup>74</sup>

## References

- <sup>1</sup> Alaska Department of Health and Human Services, Report of the Alaska Physicians Supply Task Force: Securing an Adequate Number of Physicians for Alaska's Needs, University of Alaska. August 2006.
- <sup>2</sup> William G. Johnson, P., M. Mary E. Rizma, FAAP, et al. (2005). "The Arizona Workforce Study – Part I: The Numbers of Practicing Physicians 1992-2004." Arizona State University and University of Arizona Health Sciences Center.
- <sup>3</sup> Center for Health Workforce Studies University at Albany, SUNY (2004). "California Physician Workforce Supply and Demand through 2015." Rensselaer, NY, University at Albany, State University of New York.
- <sup>4</sup> <http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2006/11/14/BAG4JMCA8D1.DTL> last downloaded July 27, 2007.
- <sup>5</sup> Center for California Health Workforce Studies, University of California, San Francisco. "Physician Diversity in California: New Findings from the California Medical Board Survey" March 2008.
- <sup>6</sup> Colorado Health Institute. 2011. "A Half Million Newly Insured: Is Colorado Ready: An Analysis of Primary Care Workforce Needs After Health Care Reform"  
[http://www.coloradohealthinstitute.org/uploads/downloads/A\\_Half\\_Million\\_Newly\\_Insured\\_Is\\_Colorado\\_Ready\\_2pg.pdf](http://www.coloradohealthinstitute.org/uploads/downloads/A_Half_Million_Newly_Insured_Is_Colorado_Ready_2pg.pdf)
- <sup>[i]</sup> Florida Board of Governors Meeting, Nov. 17, 2005, [http://www.flbog.org/BOG/meetings/2005\\_11\\_17/25\\_FIU.pdf](http://www.flbog.org/BOG/meetings/2005_11_17/25_FIU.pdf)
- <sup>7</sup> <http://news.ucf.edu/UCFnews/index?page=article&id=002400410774959e30109f4453599007871> last downloaded July 27, 2007.
- <sup>8</sup> Florida Department of Health. (2008). "2008 Florida Physician Workforce Annual Report."
- <sup>9</sup> The Board of Regents University System of Georgia, Expanding Medical Education in Georgia: Roadmap for Medical College of Georgia School of Medicine and Statewide Partners. January, 2008.
- <sup>10</sup> The Georgia Board for Physician Workforce (2005). "Physician Supply and Demand Indicators in Georgia," Atlanta, GA
- <sup>11</sup> John A. Burns School of Medicine (2010). A report to the 2011 Hawai'i State Legislature: Report on Findings from the Hawai'i Physician Workforce Assessment Project.
- <sup>12</sup> M. Inada et al. / Californian Journal of Health Promotion 2005, Volume 3, Issue 4, 157-159
- <sup>13</sup> Medical Education Study Committee, Medical Education Study Final Report. Boise, ID. November 2007.
- <sup>14</sup> Illinois New Physician Workforce Study. 2010. Northwestern University's Fienberg School of Medicine, the Illinois Hospital Association, and Illinois State Medical Society.
- <sup>15</sup> McKeag et al. Indiana's Health Professions Workforce Shortages & Maldistribution. 2007
- <sup>16</sup> University of Iowa Task Force. 2007.
- <sup>17</sup> Kentucky Institute of Medicine Task Force Report, Comprehensive Statewide Physician Workforce Study. August 2007.
- <sup>18</sup> Casey, B. R., J. Owens, et al. (2005). "Rural Kentucky's physician shortage: strategies for producing, recruiting, and retaining primary care providers within a medically underserved region." *J Ky Med Assoc* 103(10): 505-13.
- <sup>19</sup> Maryland Hospital Association and The Maryland State Medical Society, Maryland Physician Workforce Study, Prepared by Boucher and Associates. January 2008.
- <sup>20</sup> Massachusetts Medical Society (2012). "2012 MMS Physician Workforce Study."  
[http://www.massmed.org/AM/Template.cfm?Section=Research\\_Reports\\_and\\_Studies2&CONTENTID=77980&TE](http://www.massmed.org/AM/Template.cfm?Section=Research_Reports_and_Studies2&CONTENTID=77980&TE)

- 
- <sup>21</sup> Center for Health Workforce Studies. “Physician Supply and Demand in Michigan Through 2020” February 2006.
- <sup>22</sup> Brooks KD, Cieslak JE, Radcliffe PM, Sjogren K. “Primary Care in Minnesota: An Academic Health Center Perspective” January 2008.
- <sup>23</sup> Cossman, J. S. (2004). "Mississippi's physician labor force: current status and future challenges." J Miss State Med Assoc 45(1): 8-31.
- <sup>24</sup> Health Management Associates, Inc. (2009). “Issues in Missouri Health Care 2009”  
[http://www.covermissouri.org/docs/issues2009/13\\_Who%20Will%20Care%20for%20Missouri's%20Sick%20Assuring%20a%20Adequate%20Health%20Care%20Workforce\\_New%20Years%20Packet.pdf](http://www.covermissouri.org/docs/issues2009/13_Who%20Will%20Care%20for%20Missouri's%20Sick%20Assuring%20a%20Adequate%20Health%20Care%20Workforce_New%20Years%20Packet.pdf)
- <sup>25</sup> Saul M. J. Rivard. (2009). “Montana’s Primary Care Workforce” Montana State University Office of Rural Health.  
[http://www.montanaruralhealthinitiative.org/Images/Programs/Attachments/93/Montana%E2%80%99s\\_Primary\\_Care\\_Workforce8-14.pdf](http://www.montanaruralhealthinitiative.org/Images/Programs/Attachments/93/Montana%E2%80%99s_Primary_Care_Workforce8-14.pdf)
- <sup>26</sup> Mueller, Keith, et al. (2008). Nebraska Center for Rural Health Research. “A Critical Match”  
<http://www.unmc.edu/rural/documents/InterimWorkforceReport090308.pdf>
- <sup>27</sup> [http://www.unr.edu/med/news/BoardofRegentsPresentation/HSC\\_Release\\_3\\_17\\_06.pdf](http://www.unr.edu/med/news/BoardofRegentsPresentation/HSC_Release_3_17_06.pdf) last downloaded July 31, 2007.
- <sup>28</sup> New Jersey Council of Teaching Hospitals. (2009). “New Jersey Physician Workforce Task Force Report”
- <sup>29</sup> New Mexico Health Policy Commission. “Physician Supply in NM 2006”, Printed December 2007.
- <sup>30</sup> Center for Health Workforce Studies. “The Healthcare Workforce in New York, 2007” March 2009.
- <sup>31</sup> North Carolina Institute of Medicine. Providers in Demand: North Carolina’s Primary Care and Specialty Supply. NCIOM Task Force on Primary Care and Specialty Supply. Durham, NC. June 2007
- <sup>32</sup> Oregon Health & Science University’s Center for Rural Health (2004). “Physician Workforce in Oregon 2004: A Snapshot.”
- <sup>33</sup> Pennsylvania Medical Society. “The State of Medicine in Pennsylvania: An Overview of Pennsylvania’s Physician Market Place” 2008.
- <sup>34</sup> Office for Healthcare Workforce Analysis and Planning (2011). “The Physician Workforce in South Carolina”  
<http://officeforhealthcareworkforce.org/factsUploads/OHWPhysicianWorkforceReport.pdf>
- <sup>35</sup> Texas Higher Education Coordinating Board (2002). “Projecting the Need for Medical Education in Texas.”
- <sup>36</sup> <http://www.ttuhsu.edu/elpaso/fouryear/> last downloaded July 31, 2007.
- <sup>37</sup> Utah Medical Education Council (2012). Utah’s Physician Workforce, 2012: A Study on the Supply and Distribution of Physicians in Utah. <http://www.utahmec.org/uploads/files/15/2012%20Physician%20Workforce%20Report.pdf>
- <sup>38</sup> Vermont Area Health Education Centers (AHEC) Network. The Vermont Primary Care Workforce Snapshot. 2009
- <sup>39</sup> Governor’s Health Reform Commission Final Report; Roadmap for Virginia’s Health, September 2007
- <sup>40</sup> Wisconsin Hospital Association (2011). “100 New Physicians a Year: An Imperative for Wisconsin”  
<http://www.wha.org/Data/Sites/1/pubarchive/reports/2011physicianreport.pdf>
- <sup>41</sup> Washington Center for Health Workforce Studies. (2008). Wyoming Primary Care Gaps and Policy Options.

- 
- <sup>42</sup> Center for Health Workforce Studies University at Albany, SUNY (2000). "A/I Physician Workforce Report." Rensselaer, NY, University at Albany, State University of New York.
- <sup>43</sup> The Center for Health Workforce Studies. (2006) "Forecasting Allergy and Immunology Physician Supply and Demand through 2024"
- <sup>44</sup> Schubert A, Eckhout, G, Tremper K. "An Updated View of the National Anesthesia Personnel Shortfall" *Anesth Analg* 2003; 96:207-14
- <sup>45</sup> Fye, W. B. (2004). "Cardiology's Workforce Shortage: Implications for Patient Care and Research." *Circulation* 109(7): 813-816.
- <sup>46</sup> Fye, W. B. (2004). "Cardiology workforce: a shortage, not a surplus." *Health Aff (Millwood)* Suppl Web Exclusives: W4-64-6.
- <sup>47</sup> Fye, W. B. (2004). "Introduction: The origins and implications of a growing shortage of cardiologists." *J Am Coll Cardiol* 44(2): 221-32.
- <sup>48</sup> Kim, W. J. (2003). "Child and Adolescent Psychiatry Workforce: A Critical Shortage and National Challenge". *Academic Psychiatry* 4:277-282.
- <sup>49</sup> Health Resources and Services Administration (HRSA). *The Critical Care Workforce: A Study of the Supply and Demand for Critical Care Physicians*. May 2006.
- <sup>50</sup> Kimball, A.B. and Jack S. Resneck, Jr. (2008). "The US dermatology workforce: A specialty remains in shortage. *J AM Acad Dermatol* 59 (5): 745-745.
- Resneck, J., Jr. and A. B. Kimball (2004). "The dermatology workforce shortage." *J Am Acad Dermatol* 50(1): 50-4.
- <sup>51</sup> <http://www.iom.edu/CMS/3809/16107/35010.aspx> last downloaded July 31, 2007
- <sup>52</sup> American College of Emergency Physicians. (2009) "The National Report Card on the State of Emergency Medicine" <http://www.emreportcard.org/uploadedFiles/ACEP-ReportCard-10-22-08.pdf.pdf>
- <sup>53</sup> Rizza, R. A., R. A. Vigersky, et al. (2003). "A model to determine workforce needs for endocrinologists in the United States until 2020." *Endocr Pract* 9(3): 210-9.
- <sup>54</sup> American Academy of Family Physicians "Family Physician Workforce Reform: Recommendations of the American Academy of Family Physicians" December 2006.
- <sup>55</sup> Dall, Tim, et al. *The Impact of Improved Colorectal cancer Screening Rates on Adequacy of Future Supply of Gastroenterologists*" Prepared for Olympus America Inc. January 7, 2009.
- <sup>56</sup> Lynge, Dana C. et al. "A longitudinal Analysis of the General Surgery Workforce in the United States, 1981-2005" *American Medical Association* 143 no. 4 2008.
- <sup>57</sup> Institute of Medicine. "Retooling for an Aging America: Building the Health Care Workforce" April 2008.
- <sup>58</sup> The Donald W. Reynolds Foundation and the John A. Hartford Foundation. (2009). "The Status of Geriatrics Workforce Study"
- <sup>59</sup> Korf, B. R., G. Feldman, et al. (2005). "Report of Banbury Summit meeting on training of physicians in medical genetics, October 20-22, 2004." *Genet Med* 7(6): 433-8.
- <sup>60</sup> Gottfried, O. N., R. L. Rovit, et al. (2005). "Neurosurgical workforce trends in the United States." *J Neurosurg* 102(2): 202-8.

- 
- <sup>61</sup> Erikson CE, Salberg E, Forte G, et al. "Future Supply and Demand for Oncologists: Challenges to Assuring Access to Oncology Services" *Journal of Oncology Practice* 3 (2):79-86.
- <sup>62</sup> Expert Work Group on Pediatric Subspecialty Capacity. "Recommendations for Improving access to Pediatric Subspecialty Care through the Medical Home" December 2007.
- <sup>63</sup> [http://www.acponline.org/hpp/statehc06\\_1.pdf](http://www.acponline.org/hpp/statehc06_1.pdf) - 2006-01-31 last downloaded August 2, 2007
- <sup>64</sup> Colwill JM, Cultice JM, Kruse RL. "Will Generalist Physician Supply Meet Demands of an Increasing and Aging Population?" *Health Affairs*. April 29, 2008.
- <sup>65</sup> Scully J.H. and J.E. Wilk (2003). "Selected Characteristics and Data of Psychiatrists in the United States, 2001-2002" *Academic Psychiatry* 27(4): 247-251.
- <sup>66</sup> Center for Studying Health System Change. *Public Health Workforce Shortages Imperil Nation's Health*. No. 4, April 2008.
- <sup>67</sup> Deal CL, Hooker R, Harrington R et al. "The United States Rheumatology Workforce: Supply and Demand, 2005-2025". *Arthritis and Rheumatism*. 2007; 56 (2) 722-9.
- <sup>68</sup> Grover, A. et al. 2009. "Shortage of Cardiothoracic Surgeons Is Likely by 2020" (*Circulation*. 2009;120:488-494.).
- <sup>69</sup> Cooper RA, Getzen T, Johns MME, Ross-Lee B, Sheldon GF, Whitcomb ME. *Physicians and Their Practices Under Health Care Reform*. Physicians Foundation, 2009.
- <sup>70</sup> Association of American Medical Colleges "The Complexities of Physician Supply and Demand: Projections Through 2025" October 2008.
- <sup>71</sup> Association of Academic Health Centers. (2008). "Out of Order, Out of Time". Washington, DC, AAHC.
- <sup>72</sup> Health Resources and Services Administration (HRSA). *Physician Supply and Demand: Projections to 2020*. October 2006.
- <sup>73</sup> Council on Graduate Medical Education. "Physician Workforce Policy Guidelines for the U.S. for 2000 – 2020." Rockville, MD: U.S. Department of Health and Human Services; 2005.
- <sup>74</sup> Merritt, J., J. Hawkins, et al. (2004). Will the Last Physician In America Please Turn Off The Lights? A Look at America's Looming Doctor Shortage. Irving, TX, Practice Support Resources, Inc.