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over support for needle exchange programs to reduce HIV transmission. Satcher also released a landmark report on mental health.

Waxman and Sen Edward Kennedy (D, Massachusetts) have introduced legislation to give the surgeon general more independence by reporting directly to the secretary of the US Department of Health and Human Services (DHHS) rather than to the assistant secretary, submitting a budget for the office directly to the president and Congress, and having the ability to hire and fire personnel.

The current Congress is not likely to act on the legislation, but the bills can be revived next year. "We want to see if a new administration will be committed to having a surgeon general who can speak to the American people without interference," said Waxman.

Some experts say politics will always intrude to some extent. The US Surgeon General is a political appointee, chosen by the president. "This goes all the way back to beginning of Public Health Service in 1798," said retired Navy Captain Gerard Farrell, executive director of the Commissioned Officers Association of the US PHS.

"Illnesses of merchant seamen were primarily sexually transmitted diseases," Farrell explained. "These are tough issues to take on. But the importance of the surgeon general is to take on the science of the issues without political pressure."

In the next presidential administration, the DHSS, which includes the surgeon general's office, could be in for some changes. An ad hoc committee of the Institute of Medicine (IOM) is at

work on a report assessing the organization of the department.

"The committee is looking at specific activities of specific agencies to see if they can be aligned in ways that are more effective to advance the health of the nation," said IOM Executive Director Judith Salerno, MD, MS. The IOM report, with recommendations, is expected in early December.

But with a close presidential election at hand, it is anyone's guess how the surgeon general's office will fare in a new administration. "I don't think there is any clarity yet how it will go," said former Assistant Surgeon General Herbert Parden, MD, president and chief executive officer of New York–Presbyterian Hospital in New York City. "But the next president should be well-advised, given the importance of health right now, to have leadership that's strong." □

Reports Warn of Primary Care Shortages

Bridget M. Kuehn

THE UNITED STATES FACES A SHORTAGE of primary care physicians that could exceed 40 000 by 2025, according to a recent analysis by researchers from the University of Missouri and the Health Resources and Services Administration (Colwill JM et al. *Health Aff* [Millwood]. 2008;27[3]:232-241).

The analysis adds to a growing body of evidence that US medical schools are producing too few physicians to meet the demand for medical services. Its findings were supported by a second recent report by the National Association of Community Health Centers, which also predicts a substantial shortfall of primary care physicians and other frontline clinicians (<http://www.nachc.com/client/documents/ACCESS%20Transformed%20full%20report.PDF>). The reports emphasize that such a shortage is likely to disproportionately affect certain vulnerable populations, including the elderly, individuals who rely on community health centers, and people in rural or

poor urban communities who have traditionally been underserved.

Thomas C. Ricketts, MPH, PhD, deputy director of the Cecil G. Sheps Center for Health Services Research at the University of North Carolina in Chapel Hill, said such evidence has led to a shift in perception about the physician workforce. Ricketts explained that in the 1990s, many predicted a sur-

plus of physicians in the United States. However, rapid population growth coupled with slow growth in physician training programs has created a shortage of physicians, not just in primary care but in general.

AGING POPULATION

Overall population growth and a growing elder population are major factors



A projected shortage of primary care clinicians could mean long waits for patients and heavy burdens for physicians.



driving the projected shortfall of primary care physicians, according to Jack M. Colwill, MD, professor emeritus of family and community medicine at the University of Missouri, in Columbia.

Colwill and his colleagues predict that these factors will increase the workload for primary care physicians treating adults by 29% between 2005 and 2025. Yet the supply of generalists caring for adults will increase by only 7% during that same period. This could lead to a shortfall of 35 000 to 44 000 primary care physicians who treat adults. Meanwhile, the workload for pediatricians and family physicians who treat children is expected to grow by 13%; however, the supply of physicians providing pediatric care should be sufficient to meet this growing demand, according to the analysis.

These estimates are intended to be very conservative, said Colwill. He explained that the projections assume that the current supply of physicians is adequate and that the number of visits per person will remain at current levels. But he noted that some individuals believe there is already a shortage of physicians and that historically the number of primary care visits per person has increased over time.

In addition, said Ricketts, various factors can influence the demand for care in unpredictable ways. For example, he explained, new diseases and new types of treatments might cause an increase in demand, or physicians might develop more efficient treatment strategies that enable fewer physicians to treat more patients.

UNDERSERVED COMMUNITIES

Complicating the problem of projected shortages is the inequitable distribution of physicians. Currently, many rural or poor urban communities have little access to primary medical care, and a growing shortage of primary care physicians could exacerbate these disparities.

The National Association of Community Health Centers released a report in August highlighting the need to address regional shortages of primary care physicians. According to the

association, 56 million individuals—roughly 1 in 5—lack adequate primary care because of a shortage of physicians in their communities.

“That’s a shortage that affects all of us,” said Dan Hawkins, policy director of the association. He noted that when large numbers of people cannot get basic preventive care or early treatment for conditions before they become serious, costs go up. “We all end up paying for that in higher health care premiums and increasingly reduced access to care.”

The report argues that expansion of the federal program for community health services could help solve this problem because such centers are able to operate in places where private practices may find it difficult to survive.

Hawkins explained that in communities where many individuals are uninsured, have low incomes, or are on Medicaid, the resulting low levels of reimbursement pose a barrier to private practice. “Economically, it’s extremely difficult for even the most ardent and committed primary care provider to operate a viable private practice in an underserved community,” he said.

With support from the federal Community Health Centers Program, Hawkins said, community health centers are well positioned to help to fill this void. If health centers were able to serve an additional 30 million patients by 2015, they could save the US health care system between \$22.6 billion and \$40.4 billion annually, according to the report.

But many of these centers face an existing shortage of clinicians and will need substantial influxes of staff to reach more of the underserved. According to the report, to serve an additional 30 million patients by 2015, community health centers will need about 10 000 more primary care physicians, more than 5000 more nurse practitioners and physician assistants, and more than 11 000 additional nurses. To meet the more aggressive goal of serving an additional 69 million patients, the centers would need about 51 000 additional primary care clinicians and more than 37 000 additional nurses.

TARGETING SALARIES

Experts agree that a multipronged approach will be necessary to reverse the projected shortage of primary care physicians and to increase the supply of physicians overall.

Boosting the number of medical school graduates is one strategy being pursued. In 2006, the Association of American Medical Colleges (AAMC) set the goal of increasing enrollment in US medical schools by 30% by 2015. Results of an AAMC survey of US medical schools released in May indicate that first-year enrollment in US medical schools is estimated to grow by 21% (3400 students per year) by 2012. Additionally, several new medical school programs are being planned. By 2016, the number of graduates from US medical schools could increase by 5300 per year.

Expanding existing post-MD educational programs is also essential, noted Edward Salsberg, MPA, the director of AAMC’s Center for Workforce Studies. Salsberg and his colleagues recently published an analysis of the impact of federal funding limitations on the growth of graduate medical education programs (Salsberg E et al. *JAMA*. 2008;300[10]:1174-1180). They found that the enactment of the 1997 Balanced Budget Act was associated with a temporary end to the growth of such programs, but that some growth occurred between 2002 and 2007. Salsberg said additional federal funding will be important to continue the growth of these programs.

Addressing disparities between the salaries of primary care physicians and specialists is another area under scrutiny. Mark H. Ebell, MD, professor at the University of Georgia, recently published an analysis of the relationship between starting salaries for various physician specialties and the number of students choosing those fields (Ebell MH. *JAMA*. 2008;300[10]:1131-1132). Not surprisingly, he found that more students chose lucrative specialties. The lowest average starting salary was in family practice (\$185 740), and just 42.1% of the first-year family medicine residency slots were filled by US graduates.



Conversely, US graduates filled 88.7% of first-year residency positions in radiology and 93.8% of those in orthopedic surgery, and the average starting salaries in these fields were the greatest, exceeding \$400 000. Ebell had reported a similar trend in 1989 (Ebell MH. *JAMA*. 1989;262[12]:1630).

With the average medical student now graduating with more than \$140 000 in student loan debt, the draw of lucrative specialties that will pay 2 to 3 times what primary care pays is strong, said Colwill. He emphasized the importance of changing the way primary care physicians are reimbursed to make the field more lucrative and, in doing so, more attractive to medical school graduates. He cited the medical home model, in which primary care physicians are reimbursed for managing their patients' overall care and coordinating their specialist care, as one means of improving pay.

Ricketts added that attention needs to be paid to improve the way physicians

are reimbursed across specialties. He emphasized that reimbursement for care should be adjusted based on the value of the service to the patient and the cost of that intervention.

Factors other than pay may also make primary care an unattractive career choice for medical students. A recent survey of 1177 4th-year medical students found that many had unfavorable perceptions of the lifestyle and type of work involved in primary care (Hauer KE et al. *JAMA*. 2008;300[10]:1154-1164).

To overcome the inequitable distribution of primary care clinicians, the National Association of Community Health Centers advocates expanding the National Health Services Corps (NHSC), which provides scholarships and student loan reimbursement for clinicians who agree to work in underserved areas for a minimum of 2 years. About half of these individuals work at community health centers. The AAMC also supports doubling the number of clinicians participating in the program, to 1500 each year.

Hawkins noted that participation in the NHSC for 4 or more years greatly increases the likelihood that a physician will continue to work in an underserved area after leaving the program.

Ongoing efforts to expand the supply of physicians will not be sufficient to prevent the projected shortage of primary care physicians, or to address the shortage of physicians across specialties, Salsberg acknowledged. Efforts must also be made to increase the number of nurse practitioners and physician assistants, and to redesign the way care is delivered to make more effective use of the physicians available, he said.

Colwill said that expanding the supply of primary care physicians will benefit physicians in all specialties. "As the shortage increases, it is going to throw more primary medical care to specialists who don't see that as their primary role," he said. "It's in everyone's best interest to foster increases in the number of primary care physicians." □

Large Group Practices Lag in Adopting Patient-Centered "Medical Home" Model

Mike Mitka

THE INSTITUTIONS THOUGHT TO BE the best equipped to incorporate the patient-centered "medical home" model for delivering health care—large group practices—are falling short in adopting this approach, according to a study of nearly 300 medical groups in the United States.

The medical home model, which was endorsed in February 2007 by the American Academy of Family Physicians, the American Academy of Pediatrics, the American College of Physicians, and the American Osteopathic Association, emphasizes comprehensive, integrated, and coordinated primary care, with the aim of ensuring the best outcomes for patients.

In the study, researchers with the University of California, San Francisco, University of California, Berkeley, and the University of Chicago surveyed and scored 291 group practices with 20 or more physicians that treated patients with asthma, diabetes, congestive heart failure, and depression between March 2006 and March 2007 (Rittenhouse DR et al. *Health Aff [Millwood]*. 2008;27[5]:1246-1258). The researchers focused on each group practice's use of key elements of patient-centered medical home practice: whether the physicians worked closely with other health care professionals in patient care "teams," how well patient care was coordinated and integrated, whether care was delivered to maximize quality and safety, and whether pa-

tients could reach physicians in a variety of ways, including e-mail.

Only about one-third of these medical groups used primary care teams at a majority of their practice sites. About 42% of groups scored 0 or 1 (based on a 0-5 scale, with 5 being the best) in coordination of care, 18% scored at least 4, and only 7% attained a score of 5.

The largest group practices (those with at least 140 physicians) and practices owned by hospitals or health maintenance organizations scored the highest—perhaps, the study authors speculated, because these groups may have more resources to invest in converting to this model of care delivery.

The researchers concluded, "that the model has a long way to go to achieve widespread implementation." □