CSHP
Rutgers Center for State Health Policy

Evaluating the Adequacy of Physician Supply: An Update on the Literature

APRIL 2007

ISSUE BRIEF

Background

This *Issue Brief* provides an update of the available literature on the topic of measuring physician supply since the Rutgers Center for State Health Policy's first report on this was issued in 2005 (Cantor et al., 2005). In that report, we concluded that although needs- and demand-based measures of the adequacy of the physician supply have historically been used in workforce planning, benchmarking (i.e., comparing physician supply between different geographic regions or with organized health care systems) is the preferred methodology. Since the last report, few new needs- or demand-based studies have been published and to date, no new benchmarking studies have emerged.

About This *Issue Brief*

The New Jersey Medical Care Access and Responsibility and Patients First Act (N.J.S.A.2A:53A-37 et al.), signed into law in June 2004, requires the Commissioner of the Department of Banking and Insurance (DOBI) to determine which medical specialties are eligible for malpractice insurance premium subsidies. In making this determination, the law provides that the DOBI Commissioner may, in consultation with the Commissioner of Health and Senior Services, consider whether "…access to care for a particular specialty is threatened…" (C.17:30D-3(2)e). Rutgers Center for State Health Policy (CSHP) was commissioned by the NJ DOBI to provide information about the availability of physician services in New Jersey to assist the Commissioner in the implementation of this provision of the Act. This Issue Brief provides background on the physician supply benchmarks used in CSHP's analysis.

Recent Developments

In January 2005, the Council on Graduate Medical Education (COGME) revised its previous estimates of physician supply to the US Department of Health and Human Services and Congress. COGME's Sixteenth Report, "Physician Workforce Policy Guidelines for the United States, 2000 - 2020," projects a shortage of 85,000 physicians in 2020 based upon the current physician-to-population ratio and using the mid-point of adjusted supply and demand factors. COGME's baseline non-adjusted supply projections estimate a full-time-equivalent (FTE) physician-to-population ratio of 283 per 100,000 in 2000, increasing to 298 per 100,000 in 2020. Their baseline non-adjusted demand projections estimate an FTE physician-to-population ratio of 283 per 100,000 in 2000, increasing to 303 per 100,000 in 2020 (COGME, 2005). Based upon their analysis of the available data, the Association of American Medical Colleges concurs that shortages are becoming more likely, with over a dozen states and a dozen physician specialties reporting or expecting a shortage in the near future (AAMC, 2006a, 2006b; Salsberg, 2006). As of January 2006, the American Medical Association (AMA) reports that 21 states (up from 20 in 2005), including New Jersey, are in a "full-blown medical liability crisis [in which] patients continue to lose access to care" (AMA, 2006). The AMA asserts that in those states facing a crisis, many obstetricians and rural family physicians are no longer delivering babies, and fewer specialists are providing high-risk trauma care or performing complicated surgeries.

A recent study of physician supply trends by the US Department of Health and Human Services' Agency for Healthcare Research and Quality (AHRQ), finds that physician supply increased from 1985-2000 in states with caps on noneconomic damages in malpractice cases more than in other states, with the greatest increases in rural areas. In that study, states with caps limiting noneconomic damage awards to $250,000 had much larger increases in the supply of

Report on New Jersey Physician Supply

The full CSHP report on the availability of physician services can be found at http://www.cshp.rutgers.edu/Downloads/6050.pdf. That report draws on detailed year-end American Medical Association (AMA) Physician Masterfile data for the years 2001, 2003, 2004, and 2005 matched to New Jersey Board of Medical Examiners (NJBME) licensure lists for the respective years. Main practice specialties provided in the AMA Masterfile data were mapped as closely as possible to the Insurance Service Organization list of specialties provided by DOBI. New Jersey population data by county for the years 2001, 2003, 2004, and 2005 were used to calculate physician-to-population ratios by specialty. Ratios for specialties that serve specific demographic groups were limited to these groups. Measures of change from 2001 to 2003 to 2004 to 2005 were also computed.

All analyses were limited to physicians designated by the AMA Masterfile as active in patient care with a main office location in New Jersey. The county of the main office location for each physician was used for the county-level analyses. To evaluate the adequacy of supply, New Jersey physician-to-patient ratios were compared to benchmark figures (Weiner, 2004) and U.S. supply (U.S. supply data for 2004 has also been added; Smart, 2006).

obstetrician-gynecologists and surgeons in rural areas than states with a cap above that level (Encinosa and Hellinger, 2005). The AHRQ study focused on trends before and after caps were imposed, without controls for other factors possibly affecting supply. However, a more sophisticated study modeling the determinants of physician supply in roughly the same time period as the AHRQ study also finds that the total effect of tort reform increases physician supply (Kessler, Sage, and Becker, 2005).

Measuring the Adequacy of Physician Supply

As discussed in our original report, three different methodologies have been developed to measure the adequacy of physician supply. Needs-based models compare projected physician supply with estimates of disease prevalence and development of new technologies. However, because of the complexity of many diseases and the lack of outcomes data on emerging technological development, this method is less useful to workforce planners. Demand-based models project future utilization from current utilization, assuming that current utilization levels are driven by patient demand. This method sustains current utilization without taking into account that increased supply leads to increased utilization or the possibility that current utilization may be inadequate. The latest methodology that researchers have developed is benchmarking, comparing physician supply between different geographic regions or with organized health care systems that are presumed to have efficient staffing. Benchmarking is preferred over needs- or demand-based models because it allows comparisons among similar geographic areas and avoids somewhat arbitrary physician-to-population ratios by specialty (Schroeder, 1996).

The original report also described the criteria developed by the federal government to determine health professional shortage areas and medically underserved areas or populations, and national physician-to-population ratios provided by the Dartmouth Atlas of Health Care (1998). These remain unchanged from the original report.

Needs-Based Models

A 2006 study by the American Academy of Family Physicians (AAFP) predicts a shortage of family medicine physicians. That study, on which the group based revisions to its 1998 workforce policy, called for a family physician-to-population ratio of 43 per 100,000 (based on the assumption that family physicians would make up half of all generalists). They found that in 2005, there were 31.2 family physicians per 100,000 population, far less than their recommended level. Their needs-based estimates now project that the anticipated need for primary care will require a ratio of 41.6 family physicians per 100,000 in 2020. AAFP calculates that New Jersey would require 2,680 family physicians in 2006 and 3,551 in 2020 (AAFP, 2006).

Table 1: Intensivist Utilization by Age Group, United States, 2000

Age Category	Crtitical Care Physicians per 100,000 Population
18 to 24	0.13
25 to 44	0.30
45 to 64	1.48
64 to 74	4.94
74 to 84	7.66
84+	9.44

Source: Health Resources and Services Administration. "The Critical Care Workforce: A Study of the Supply and Demand for Critical Care Physicians." Washington, D.C.: U.S. Department of Health and Human Services, May 2006.

Demand-Based Models

A new demand-based estimate by the US DHHS Health Resources and Services Administration (HRSA) looks at the relatively new specialty of critical care medicine. Currently, critical care physicians or intensivists see only one third of patients in Intensive Care Units (ICU) because of the limited supply of these physicians. A growing body of research has indicated that the supply of critical care physicians is lower than what is required to care for patients in ICUs and that patient outcomes are improved when there is a critical care physician available around the clock in the ICU. The HRSA study finds that in a baseline scenario in which current levels of use of intensivists' services remain the same, the projected supply of intensivists in 2020 would likely be adequate. However, given that demand for these services may increase because of the aging of the population and the association of intensivist care with improved patient outcomes, the nation will more likely face a shortage, requiring at least 65 percent more intensivists than the projected supply in 2020. Intensivist utilization by age group in 2000 is provided in Table 1 (HRSA, 2006).

Benchmarking

Since early 2005, no updates to existing studies or new benchmarking studies have emerged. As in the original report, we consider the work of Weiner (2004) comparing physician staffing in eight large prepaid group practices (PGP) to U.S. workforce ratios still the most thorough and recent. Weiner finds that physician-to-population ratios in the PGP are lower than U.S. workforce ratios, equivalent to a 22 to 37 percent lower utilization of physician services in PGPs. Weiner also provides physician-to-population ratios by specialty, comparing PGP levels to the U.S. As discussed in the original report, one of the concerns with Weiner's study is that PGPs provide care to a small segment of the U.S. population who are mostly employed individuals; this limits the applicability of the study to people with chronic illness or other high-volume users, Medicaid recipients, or the uninsured.

Summary

This *Issue Brief* provides an update on the available literature in assessing the adequacy of physician supply since early 2005. As in CHSP's 2005 report, we conclude that Weiner's benchmark study is the most recent and thorough assessment of supply by specialty and should be used for comparison purposes in analyzing physician supply in New Jersey.

References

American Association of Medical Colleges. "AAMC Statement on the Physician Workforce." June 2006. http://www.aamc.org/workforce/workforceposition.pdf. Accessed October 2006.

American Association of Medical Colleges. "Questions and Answers About the AAMC's New Physician Workforce Position." June 2006. http://www.aamc.org/workforce/workforceqa.pdf. Accessed October 2006.

American Medical Association. "Medical Liability Crisis Map." January 2006. http://www.ama-assn.org/ama/noindex/category/11871.html. Accessed October 2006.

Cantor J, Brownlee S, Sia J, and Huang C. "Availability of Physician Services in New Jersey." New Brunswick, NJ: Rutgers Center for State Health Policy, March 2005.

Council on Graduate Medical Education. "Physician Workforce Policy Guidelines for the United States, 2000-2020. Washington, D.C.: U.S. Department of Health and Human Services, January 2005.

Dartmouth Medical School. "The Dartmouth Atlas of Health Care 1998." Available at http://www.dartmouthatlas.org/pdffiles/ATLAS98.PDF. Accessed January 2005.

Encinosa WE and Hellinger FJ. "Have State Caps on Malpractice Awards Increased the Supply of Physicians?" *Health Affairs*, July/August 2005, 24(4): 1039-1046.

Health Resources and Services Administration. "The Critical Care Workforce: A Study of the Supply and Demand for Critical Care Physicians." Washington, D.C.: U.S. Department of Health and Human Services, May 2006.

Kessler DP, Sage WM, and Becker DJ. "Impact of Malpractice Reforms on the Supply of Physician Services." *Journal of the American Medical Association,* June 1, 2005, 293(21): 2618-2625.

Salsberg E. "Update on Physician Workforce Research and Findings." Presentation at the 2006 AAMC Physician Workforce Research Conference. Washington, D.C.: May 4, 2006.

Schroeder SA. "How Can We Tell Whether There Are Too Many or Too Few Physicians? The Case for Benchmarking." *Journal of the American Medical Association*, December 11, 1996, 276(22): 1841-1843.

CSHP

Rutgers Center for State Health Policy

Contributing to this issue:

Jasmine Rizzo, M.D., M.P.H., Program Development Analyst, Cancer Institute of New Jersey (former CSHP Research Analyst)
Joel C. Cantor, Sc.D., Professor & Director
Susan Brownlee, Ph.D., Survey Research Analyst
Jeff Abramo, B.S., Senior Writer

Rutgers Center for State Health Policy
The Institute for Health, Health Care Policy and Aging Research
Rutgers, The State University of New Jersey
55 Commercial Avenue, 3rd Floor
New Brunswick, NJ 08901-1340
Ph: 732.932.3105 Fx: 732.932.0069
cshp_info@ifh.rutgers.edu
www.cshp.rutgers.edu

Acknowledgements:

This project was commissioned by the New Jersey Department of Banking and Insurance (DOBI). The authors would like to acknowledge Carol Miksad, Steven Green and Veena Singh of DOBI for their guidance and advice. We also wish to thank Mina Ghajar of the Center for State Health Policy for her assistance with the literature search for and production of this report.