Current Perspectives on Physician Supply and Demand

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A recent government study* presents physician supply and demand projections through 2020 in total, for physicians in patient care, and for fifteen specialties. The study incorporates demographic and economic factors as well as changes in workforce characteristics. The results add to a growing body of research and opinion that the nation is facing a physician shortage.

Overview of the Study

This study updates data and assumptions for the Physician Supply Model and Physician Requirements Model developed by the Health Resources and Services Administration.

The base year is 2000, at which time physician supply and demand were assumed to be in balance. Physician supply includes all physicians under age 75. Changes in physician workforce age and sex are incorporated into the model, and supply is expressed both in number of active physicians and number of full-time equivalent (FTE) physicians. One FTE is defined as the average hours worked in patient care per physician in 2000.

While physician supply and demand characteristics vary by specialty, the models and analysis shows that:

- Population growth increases the demand for physicians, though not the physician-to-population ratios.
- Population aging increases the demand and ratios for physicians in specialties that care for the elderly (e.g., cardiology and urology) and reduces demand in those that serve mainly the younger population (e.g., pediatrics).
- As a result of changing physician demographics and lifestyle (e.g., less time devoted to patient care) by 2020 the number of FTE physicians is about 3% less than the number of active physicians.

Table 1 summarizes physician supply minus demand through 2020 for the baseline scenario. Positive numbers indicate a surplus and negative numbers indicate need. Under this scenario, a modest overall surplus exists currently, although there are shortages in many medical and surgical specialties. By 2020 the shortage grows to almost 55,000 physicians.

1. Physician Supply Minus Demand
Baseline Scenario

Specialty	2005	2010	2015	2020
Primary Care	10,300	15,700	14,800	7,400
Medical Specialties	-1,900	-4,600	-10,400	-18,400
Surgical Specialties	-4,400	-12,100	-22,300	-35,100
Other Specialties	3,300	3,700	100	-8,600
Total Patient Care	7,300	2,700	-17,800	-54,700

Physician Demand Ratios

The following ratios, expressed in physicians per 100,000 population, were calculated from data in the report and from the Census Bureau. They may be useful in assessing physician need and in medical staff development planning.

2. Baseline Physician-to-Population Demand Ratios

Specialty	2000	2005	2010	2015	2020
Family Practice	38.3	38.5	39.0	39.7	40.5
Internal Medicine	38.2	38.9	39.9	41.2	42.7
Pediatrics	18.4	17.9	17.3	17.2	17.2
Cardiology	7.3	7.5	7.8	8.3	8.8
Other Medical Specialties	23.4	24.0	24.8	25.8	26.9
General Surgery	13.9	14.1	14.5	15.0	15.5
Obstetrics and Gynecology	14.7	14.6	14.5	14.3	14.1
Ophthalmology	6.5	6.7	6.9	7.2	7.5
Orthopedic Surgery	8.6	8.7	8.8	9.1	9.4
Other Surgical Specialties	5.8	5.9	6.1	6.3	6.6
Otolaryngology	3.5	3.5	3.6	3.6	3.7
Urology	3.7	3.8	3.9	4.1	4.3
Anesthesiology	13.4	13.6	13.9	14.4	15.0
Emergency Medicine	9.3	9.3	9.4	9.4	9.5
Pathology	6.1	6.2	6.4	6.6	6.7
Psychiatry	13.6	13.8	13.9	14.0	14.1
Radiology	11.0	11.1	11.4	11.8	12.2
Other Specialties	17.9	18.2	18.6	19.0	19.6
Total Patient Care	253.6	256.3	260.7	266.9	274.3

Alternative Scenarios

Four scenarios in addition to the baseline were described and modeled as part of the study.

1. Greater use of non-physician clinicians assumes a 60% increase in non-physician clinicians by 2020, each providing 40% of the output of a physician. Under this scenario total physician requirements would be 90,000 lower than the baseline.
2. High economic growth assumes per capita income will increase 2% per year, and that the demand for physician services increases with increasing income. This scenario results in physician requirements 136,000 above the baseline.
3. Increased physician productivity assumes that technology and improved use of staff result in a 1% increase in productivity per year. Under this scenario, 137,000 fewer physicians are required than in the baseline scenario.
4. High economic growth offset by increased productivity is a combination of scenarios 2 and 3, and reduces 2020 physician requirements by 20,000 below the baseline.

Total physician demand was converted to patient care physician demand (about 94% of total) and is shown below. Increased use of non-physician clinicians and increased productivity result in a projected physician surplus through 2020. The economic growth scenario gives rise to a shortage over twice as large as the baseline scenario, while a combination of high economic growth and increased productivity results in a shortage about two-thirds the size of the baseline.

3. Patient Care Physician Requirements in 2020

Scenario	Physician Demand	Supply Minus Demand
Baseline	921,000	-55,000
Use of Non-Physician Clinicians	836,000	30,000
Economic Growth	1,000,000	-134,000
Increased Productivity	792,000	74,000
Growth and Productivity	902,000	-36,000

Observations

For over 25 years, consideration of physician supply and demand has been influenced by the report of the Graduate Medical Education National Advisory Committee, which forecast a physician surplus, especially a surplus of specialists. This study reaches the opposite conclusion, a physician shortage, especially a shortage of specialists.

The Association of American Medical Colleges and American Association of Colleges of Osteopathic Medicine have encouraged their members to increase enrollment. First-year medical school enrollment is expected to increase from 16,500 in 2002 to 19,300 in 2012, which is above the 16,000 annual graduates assumed in the HRSA study. Osteopathic schools anticipate 3,900 graduates in 2009, near the 4,000 output assumed in the study. Whether increased U.S. medical school output results in more physicians depends on whether the number of post-graduate training positions also increases, as well as on the number of international medical graduates joining the U.S. physician workforce.

The study points to three ways that those responsible for ensuring an adequate supply of physicians can better serve their institution and community.

1. Specialists will be in short supply. Attractive practice settings, creative business arrangements, and aggressive recruiting will be needed to compete for these physicians.

2. Productivity matters. Increased physician productivity makes clinical and economic sense.

3. Non-physician clinicians may be an alternative to physicians in some situations. Effectively deploying non-physician clinicians requires careful business planning and may also require cultural change.

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* Physician Supply and Demand: Projections to 2020. October 2006. Health Resources and Services Administration, Bureau of Health Professions, Department of Health and Human Services. Online at ftp://ftp.hrsa.gov/bhpr/workforce/PhysicianForecastingPaperfinal.pdf