THE MEDICAL ONCOLOGY WORKFORCE

An economic and demographic assessment of the demand for Medical Oncologists and Hematologist-Oncologists to serve the adult population to the year 2020

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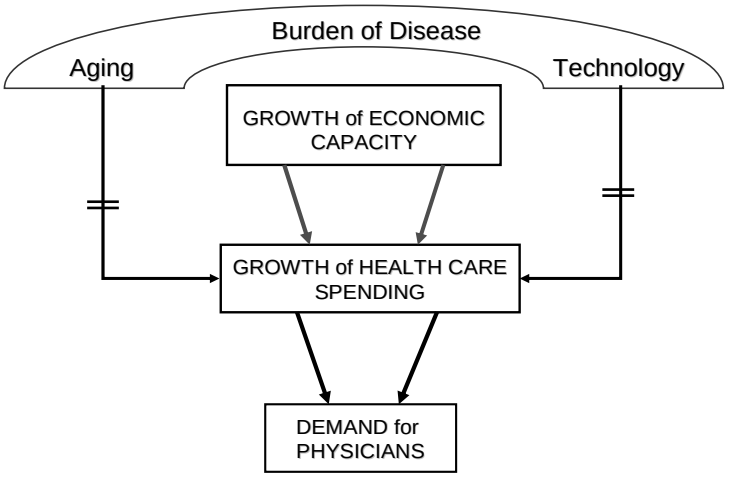
This exercise is an attempt to project the future demand for medical oncologists and hematologist-oncologists based on an assessment of economic and demographic trends. It builds from previous analyses of the physician workforce:

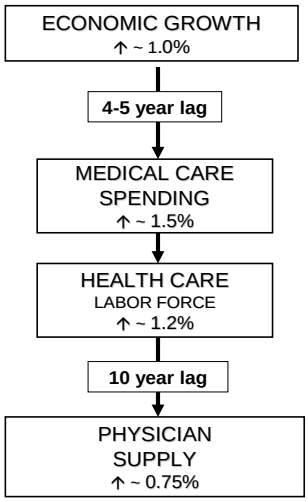
1. Cooper, R.A, Goodman, D.G., Menken, M., Salsberg, E.S. and Whitcomb, M.E.: *Evaluation of Specialty Workforce Methodologies*. (Washington, DC. Council on Graduate Medical Education, Health Resources and Services Administration), 2000.
2. Cooper, R.A.: Forecasting the physician workforce. In *Papers and Proceedings of the 11th Federal Forecasters Conference*. (Washington: US Dept of Education), 2000, pp. 87-96.
3. Cooper, R.A., Getzen, T.E., McKee, H.J. and Laud, P.: Economic and demographic trends signal an impending physician shortage. *Health Affairs* 21(1):140-154, 2002.
4. Cooper, R.A., Getzen, T.E. and Laud, P.: Economic expansion is a major determinant of physician supply and utilization. *Health Services Research* 38(2):675-696, 2003.
5. Cooper, R.A.: Weighing the evidence for expanding physician supply. *Annals of Internal Medicine* 141:705-714, 2004.

Drivers of demand. In the course of the analyses described in the publications above, it became clear that the principal drivers of health care utilization are not the ones most commonly spoken of, such as aging of the population, technology or the overall burden of disease. These drive need (or desire) for health care, but, as in developing countries, need outstrips the fiscal capacity to provide services, and, therefore, fiscal capacity is limiting. The magnitude of future workforce requirements, therefore, is a function of the aggregate ability of society to purchase services through private and governmental means.



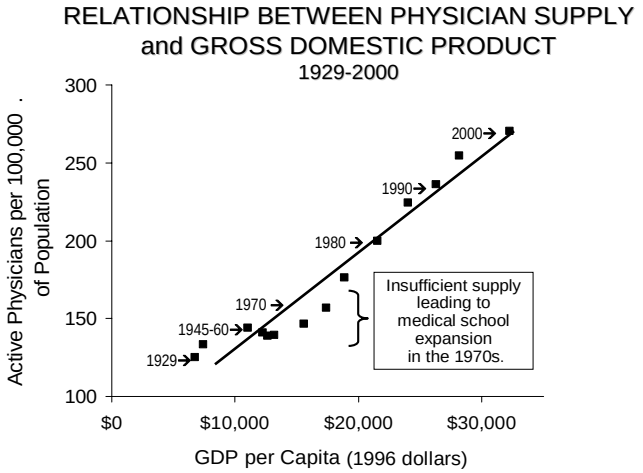
Lags and interrelationship. As the economy grows, not all sectors grow to the same degree. Some even shrink. For example, food, transportation and household goods are static or declining sectors, while electronics, leisure and health care are growing sectors. This is true in all developed countries. As a general rule, per capita health care expenditures increase about 1.5% for each 1.0% increase in gross domestic product (GDP) or per capita income (PCI), two common measures of economic activity. Economists refer to this as an *income elasticity* of 1.5%. However, there is a lag of about four years between changes in GDP and in health expenditures, as benefits plans and consumer behavior adapt to the realities of the economy, and a further lag of a year as premiums increase. Health care employment parallels health care expenditures, since labor if the principal expenditure, but physician supply lags because of the reluctance of policy makers in the US to allow supply to grow. The same is true in Canada, Australia and the UK. Moreover, the labor force increases mainly through additional nurses, technicians and other workers. On average over many years, for every 1.5% increase in the health care expenditures, physician supply increases 0.75%., whereas other health care workers increase at a rate of approximately 1.2%.

This latter relationship between growth in the number of physicians and non-physician workers is anticipated to continue in the future and is a structural element in the projections below. However, as the tasks that can be delegated have become more complex, the workers who are capable of receiving them require more training. Present-day nurse practitioners (NPs), oncology nurse specialists (ONSs) and physician assistants (Pas) are examples of such skilled workers. A continued growth in their numbers is embedded in future projections.

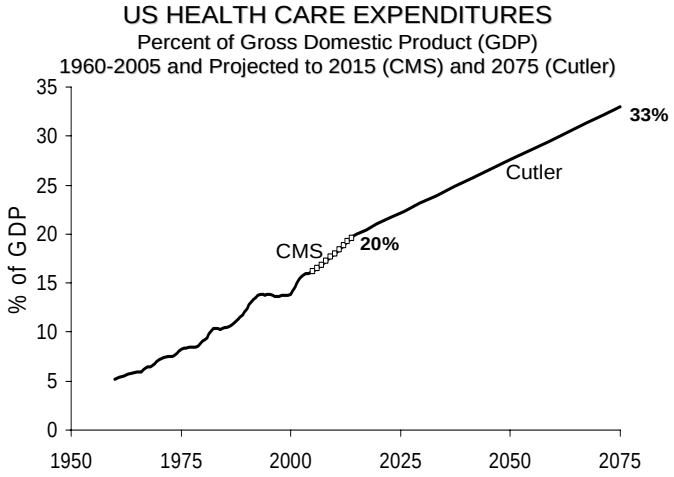


Past growth in physician supply. The observed relationship between physician supply and GDP (on a per capita basis) from 1929 to 2000 is consistent with the formulation above, except for the period after the Second World War, when the nation experienced a physician shortage. It was as a consequence of this shortage that medical school capacity

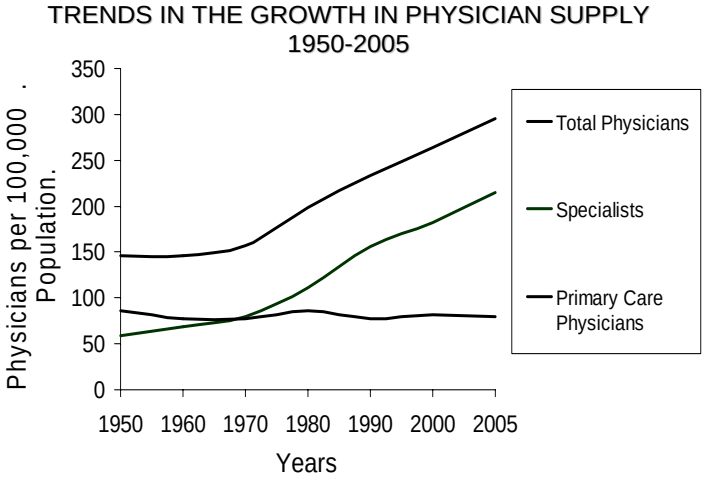
was doubled in the 1960s and 1970s, with a parallel growth of graduate medical education (GME).



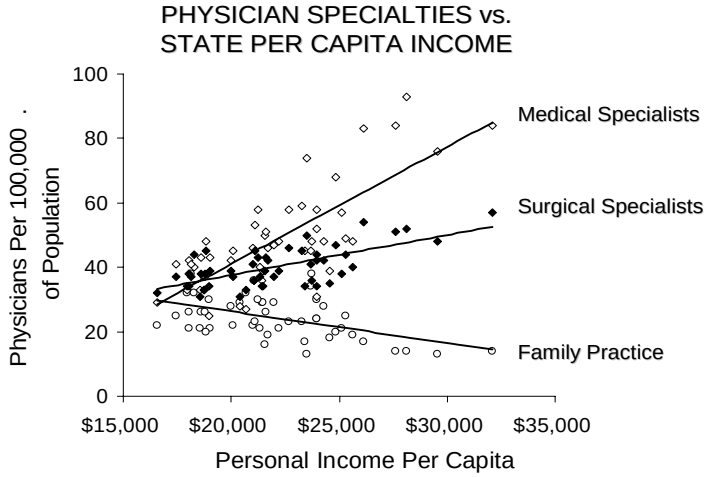
Projections of the economy and of health care spending. The general consensus is that the economy will continue to grow at about 2.0% per capita per year, which is the historic rate. Year-to-year, there will be significant fluctuations, but over periods of decades, growth at that rate is widely anticipated. The Federal Reserve works to assure that this will be true. While the future cannot be assured, it seems prudent to plan for future needs of society based on such projections. Coupled with such macroeconomic projections is the long-term relationship between economic growth and health care spending, just discussed. This coupling leads to the projections of health care expenditures illustrated below. The Center for Medicare and Medicaid Services (CMS) has projected that health care will consume 20% of GDP in 2015. David Cutler, a health care economist, has projected forward to 2075, when he estimates that health care spending will represent one-third if the economy.



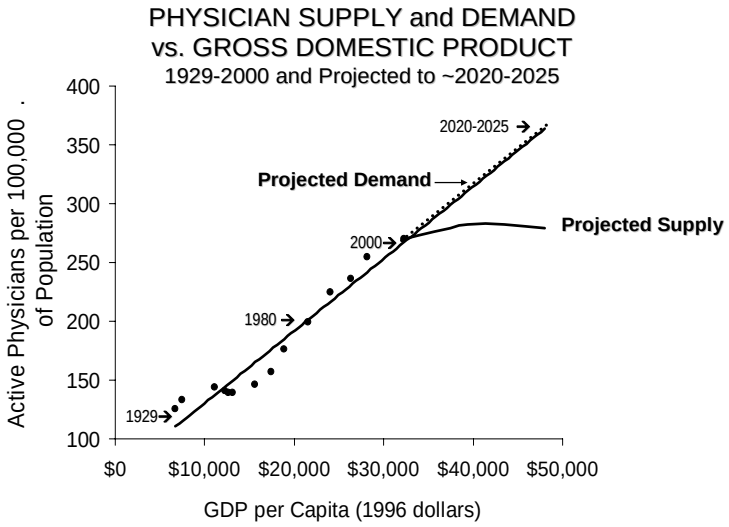
Variation among physician specialties. As health care spending increase and as the physician workforce grows, not all segments of the physician workforce grow to the same degree. Over the last half of the 20th Century, physician supply grew appreciably, but on a per capita basis this growth was entirely of specialists. The number of primary care physicians demanded is a function of population, and in per capita terms there was no change. It is the added services of specialists that consumers desire, and it is specialists capable of providing those services that are demanded. This phenomenon is seen in the figure below.

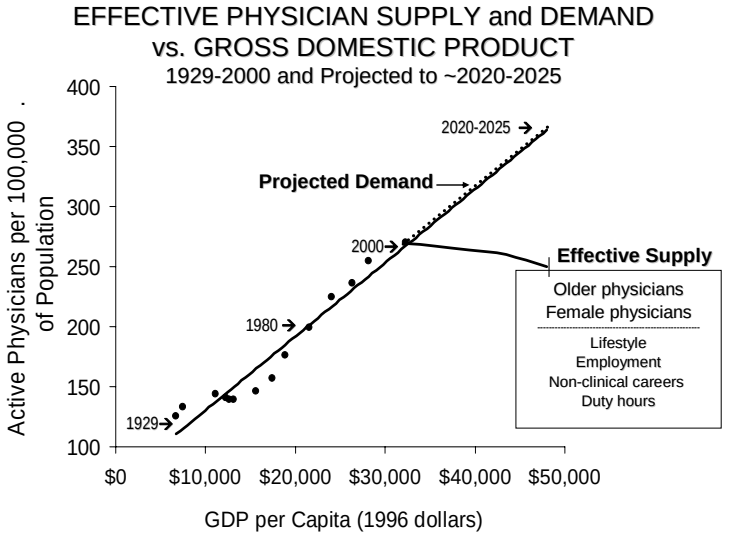


In addition, as the economic status of large population groups increases, the preferences of consumers shift to a greater demand for services from medical and surgical specialists and less from family physicians. The greatest growth in demand is for medical specialists. This is seen in the analysis below, which shows the distribution of major specialty groupings among the states in relation to the gross state product (the state equivalent of GDP).



Projections of the future supply and demand for physicians. Extrapolating the relationships described above projects a per capita demand for physicians that exceeds 350/100,000 of population in the period of 2020-2025, i.e. when the GDP increases to the level that will demand this quantity of service. However, if the rate of training of physicians does not increase over current levels, the per capita supply of physicians will remain peak in 2010 and actually decline thereafter. When recent changes in lifestyle preferences and gender are considered and when aging of the physician workforce is factored in, supply is even less adequate, and the projected shortages are greater.





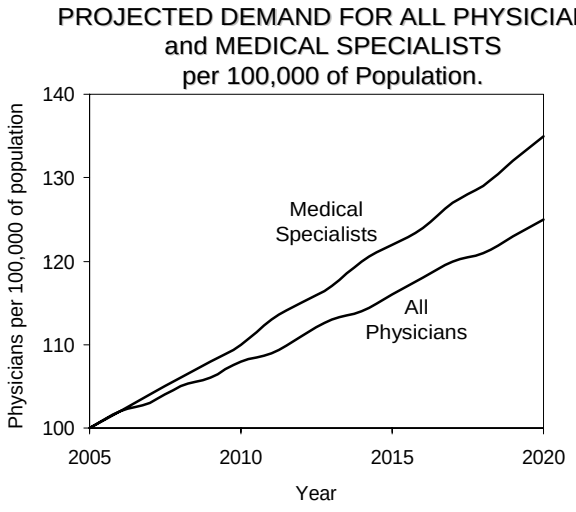
Population. An important consideration in projecting the future demand for physicians is the size of the population that will be served. The Census Bureau is the source of these projections, but it has systematically under-projected the future population. During the 1990s, it projected population growth over the next two decades at 0.8% annually, but after the 2000 Census it increased its estimate of growth to 1.0%, which is the rate used in the projections in this report.

Population Projections, US Census Bureau			Annual Increase
Year of Estimate	2000	2025	2000-2025
1994	274,634	335,050	0.008
1998	275,306	337,815	0.008
2000	282,125	364,600	0.010

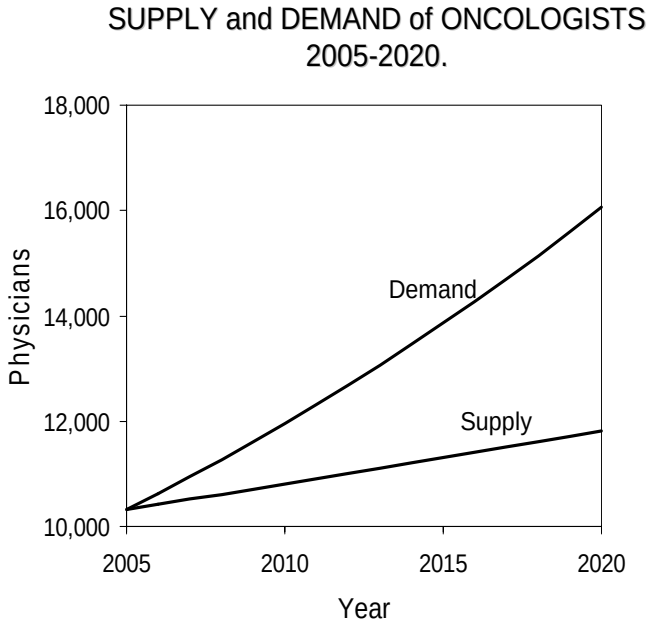
Demand for Medical Specialists. In projecting the demand for oncologists, the following factors were considered: 1) the rising overall demand for physicians, based on economic trends; 2) the differential growth in the demand for primary care physicians and specialists over the past 50 years; 3) the differential demand for medical and surgical specialists in relation to economic growth; and 4) population growth at an annual rate of 1.0% annually.

The differential growth in demand for medical specialists relative to all physicians is depicted below. It was assumed the demand for medical oncologists and hematologist-oncologists was similar to the demand for the larger group of medical specialists. The factors used in this projection, expressed as percentage increase in physicians per 1.0% increase in GDP, were:

Medical specialists	1.00%
Radiology, pathology, anesthesiology	0.75%
Surgical specialists	0.50%
Family practice	0.00%



Supply and Demand for Medical Oncologists. The final projection weds estimates of the future supply of medical oncologists and hematologist-oncologists to the demand projections developed above. The supply estimates were developed by the Workforce Center at the AAMC. Between 2005 and 2020, there will be a 14.5% increase in the supply of oncologists and a 55.8% increase in demand, leaving a gap of approximately 4,000 oncologists, which is equivalent to 26% of the projected demand for medical oncologists in 2020. It will require a 36% increase in the supply of oncologists over that which is projected to meet that demand. While a part of this gap could be filled by NPs, ONSs and PAs, the trends that were drawn upon to develop these projections assume that caregivers other than physicians will contribute relatively more in the future than they do now and that the percent of care provided by physicians will decrease. In addition, these projections do not consider the effects of lifestyle, gender and aging of the physician workforce, as is illustrated above for the physician workforce overall.



Conclusion. This analysis, which is based on economic and demographic trends, projects a 36% deficit in the number of medical oncologists relative to the demand for care in 2020.