

THE SUPPLY CYCLE OF DOCTORS

OF DOCTORS AND RESTAURANTS

Currently we have almost nine hundred thousand actively practicing physicians in the United States. Many experts say this is an oversupply.¹ Yet how can there be too many physicians when we typically must wait weeks or more to get an appointment with our doctor?

One way to demystify this paradox is to consider the city of San Francisco. This medium-size city is unique for a number of reasons, two of which are its high ratios of both physicians and restaurants per capita. In fact, it has been ranked the top American city on both measures.²

So let us briefly talk about food, for which San Francisco is famous. Excellent restaurants help attract some sixteen million tourists to the city annually.³ Many of these visitors phone the best-known restaurants—maybe a dozen or more—only to find they have to wait several weeks for a reservation. Should they conclude there aren't enough restaurants in San Francisco?

I wanted to see if there were similarities in getting access to popular restaurants and doctors, so my team and I conducted some informal research.

We called restaurants that were listed in the Zagat Survey guide⁴ as the most popular and that served the best food and asked for a reservation for four people for the next available Saturday night. The average wait time was forty-one days. For comparison, we also called restaurants picked randomly from the phone book. We called on a Thursday, and in every case, we were given a reservation for the next Saturday.

The phenomenon at work is that everybody is competing to go to the top twenty restaurants, resulting in long wait lists for reservations. As most of these disappointed tourists discover, there are excellent restaurants around practically every corner in San Francisco, and a surprising number of them don't even require a reservation.

To look at access to doctors, we called physicians from *San Francisco Magazine's* "Best Doctors 2005: The Bay Area's 520 Top Docs."⁵ This listing was created by Best Doctors, Inc., which "asked the country's most respected physicians a simple question: Who would you send your loved ones to?" Our research team used the list to call for a nonurgent routine visit with a primary care doctor, and also called a similar number of doctors picked at random from the phone book. The average wait time was sixty-six days for a doctor on the "Top Docs" list, and twenty-seven days for doctors randomly selected.⁶

As with restaurants, a similar mechanism is at work when people arrange to get medical care for a particular problem. Most people are calling the same doctors in very much the way they call the same set of restaurants. And they find that the wait time for an appointment is similarly lengthy. But this does not indicate a shortage of doctors in San Francisco; in fact, it's very much the opposite.⁷ Clearly there is more to this story.⁸

Others have looked at physician appointment wait times. In their 2004 survey, Merritt, Hawkins & Associates examined wait times in fifteen American cities for first-time appointments with four types of specialists: cardiologists, dermatologists, ob/gyns, and orthopedic surgeons (see Table 1.1). The results varied greatly by city. In cardiology, for example, the average wait in Seattle was only nine days, whereas in Boston it was thirty-seven days. To see a dermatologist in New York would take nine days, whereas in Boston the wait would average fifty days. The wait for an ob/gyn appointment in Miami would be ten days, whereas the wait in Boston would be forty-five days. In fact, Boston reported the longest average wait times in three of the four specialties surveyed, and the second-longest wait in the remaining specialty (orthopedic surgery).⁹ What's going on? Boston is home to some of the most prestigious medical schools and teaching hospitals in the world. This fact may be at the heart of the wait time problem (although managed care and malpractice rates may affect physician retention): people want to go to the best doctors and believe that Boston offers the best.

For a fuller understanding of the adequacy of the supply of doctors, we must expand our view to include rural and inner-city areas. Even in a greater metropolitan region that has a healthy supply of doctors, some areas will not have enough. This raises the question of the difference between *supply* and *distribution*, which can be illuminated with another example involving the quest for a meal. Suppose ten friends arrive at a dinner party at your house, where the table is set with ten plates of food. Ten chairs are evenly spaced around the table, but most of the plates are grouped around just seven of them. Three of your guests end up with two plates of food each, four guests each have a single plate, and three guests go home hungry. This is a distribution problem, a fundamental component of the physician supply challenge in the United States.

Table 1.1. Average wait times in days in 2004, by metropolitan area

City	Cardiology		Dermatology		OB/Gyn		Orthopedic Surgery	
	Wait time	MDs per cap	Wait time	MDs per cap	Wait time	MDs per cap	Wait time	MDs per cap
Los Angeles	14	7.1	14	4.1	19	13.7	43	7.8
San Diego	17	6.9	12	5.9	31	11.7	13	10.1
Denver	23	15.4	21	5.9	23	31.2	23	15.4
Washington, D.C.	12	18.4	15	10.3	11	34.5	8	19.3
Miami	21	12.3	17	5.9	10	13.1	11	8.1
Seattle	9	9.3	27	6.1	26	15.9	12	12.6
Atlanta	17	14	21	10.7	24	37.6	8	16.5
Boston	37	36.3	50	11.3	45	29.4	24	26.9
Detroit	20	4.9	25	2.9	39	11.9	18	3.7
Minneapolis	15	11.8	43	6.2	20	19.4	19	14
New York	22	33.5	9	23	14	45.6	16	30.3
Portland	25	8.8	30	7.4	30	22.6	19	11.9
Philadelphia	27	14.4	33	5.4	28	18.4	18	11.8
Dallas	10	8.1	34	3.8	17	16.5	10	8.2
Houston	11	8.9	13	4.1	20	13.3	15	7.8
Weighted average	18.8	10.6	24.3	6	23.3	17.4	16.9	10.6

SOURCES: Average wait times are obtained from Merritt, Hawkins & Associates, "Summary Report: 2004 Survey of Physician Appointment Wait Times," www.merrithawkins.com/pdf/Survey_2004_Patient_Wait_Times.pdf

Data on physicians and population are obtained from the Area Resource File, 2005.

WHY WE NEED TO GET IT RIGHT

The supply of doctors is crucial to health because physicians are the lynchpin of the medical system and have enormous influence on the quality of health care and the health status of all of us. Doctors are considered a “social good” because the health of the population affects the productivity of the economy and the well-being of everyone in it.

For individuals, the crucial question is this: *Can I see a doctor—a good doctor—when I need one?* This is the square one of the health care system for most people.

Although restaurant supply is determined entirely in the marketplace, the doctor supply is strongly influenced by the government. Not only does it subsidize the training of doctors, it enables large numbers of international medical graduates to be trained in the United States and often to go on to practice here.

What would happen if Americans suddenly started visiting doctors more often? This is not entirely hypothetical; if health insurance programs are expanded, that is exactly what would happen. An aging population or changing disease levels could also lead to a sudden increase in patient visits and need for services. How can doctors respond? The main avenue open to them is to increase the number of hours they work—but only to the point beyond which they would consider it to be unreasonable. After that threshold, they might discourage additional patients and visits by raising their prices. This is what we mean by a physician “shortage.”

A *shortage*, as health economists use the term, does not mean that there are people who want service and are not getting it. Rather, the price rises until the extra people waiting in line no longer want the service. It’s too expensive for them. Everyone who wants service at the new, higher price is getting it. That’s how markets work. This is how they “clear,” even in the shortage situation.

The same market-clearing situation occurs in a surplus. If people stop going to the doctor as often, doctors will be waiting around their offices for patients to show up. We may, then, have a case in which five doctors are doing the work that could be done by four. What’s wrong with that? It’s too wasteful. It costs society about \$1 million to train a doctor¹⁰ (see Appendix A for details). We can’t afford to waste *any* of this extremely valuable health workforce.

And there is another deleterious impact of oversupply. It sets up potential health hazards as more doctors are forced to compete for the same patients. Some may feel compelled to provide services that are marginally beneficial in order to maintain their incomes and keep their practices going.¹¹ Oversupply creates an incentive for doctors to perform services for which they may have little experience. If they don't have enough patients, they can gain by performing tasks on their current patients that they would otherwise refer to a specialist. And with relatively few patients to treat, they have fewer opportunities to gain the needed experience in specialized procedures or services. It is well-established that, in medicine, practice makes perfect in terms of health outcomes.¹²

How, then, do we know when we have the "right" number of doctors? If the current supply can reasonably adjust their hours, either up or down, to take care of all the patients who walk in the door, then we have the most efficient number. If doctors cannot reasonably adjust their hours, unnecessary inefficiencies arise. Either prices rise too quickly or doctors wait around. That's inefficient even in a market-clearing situation.

Of course, other forces can affect the supply of services. If physician productivity improves, then the same doctor can provide more services without increasing hours. Productivity can be improved by adding more nurse practitioners or physician assistants, by training the doctor to use new information technology, and by working in teams. Productivity changes generally happen slowly, however. Clearly productivity improvements will be more efficient than training new doctors. The real question is, How much more productivity can we reasonably get out of doctors?

It is also worth noting that the government plays a major role as both a buyer of services and a regulator of prices. The government sets a fixed schedule of prices it will pay for particular services that Medicare patients need. Doctors can either accept or reject these patients. Doctors often take Medicare patients in addition to participating in the private market already described. However, the Medicare price schedule depends in part on market conditions in the private market, so the two are intertwined. The price schedule for Medicaid is lower than for Medicare, so fewer physicians accept Medicaid patients.

HOW DO WE KNOW WHERE WE STAND?

How do we know if we are in the middle of a doctor shortage? Physicians do not generally record the number of hours they work, and even if they did, it wouldn't be known what the average doctor considers to be a "reasonable" work schedule.

Market signals cannot tell us if we are moving toward an equilibrium¹³ or away from it unless we have a benchmark—a point in time when there was the "right" number of doctors. As a starting point, I propose that this happened sometime around the 1980s. Economists and policy experts in the early to mid-1990s were projecting physician surpluses. This was pretty much true across the board. Continuing along the same line of thinking, the Balanced Budget Act of 1997 limited the number of resident physicians that Medicare was willing to finance. Policymakers basically believed at that point that the country didn't need to be producing as many doctors as it was.

Then, in 2006, the Association of American Medical Colleges (AAMC) put out a report crying for help in the wake of what it deemed to be an impending shortage of doctors.¹⁴ What had changed? If the policymakers are reasonably accurate in their forecasting techniques, this indicates that there was an equilibrium some time in between the surplus forecasts and the shortage forecasts. For this reason, I assume that somewhere around the year 2000, America had the right number of doctors. This benchmark is also consistent with the fact that physician incomes were not moving very much around this time period. It isn't a perfect baseline, but from a policy perspective, I believe it's the best benchmark we have to work with.

Given our baseline, we need some way of assessing where the market for doctors is heading. This brings me to the main purpose of this book. When we look into the future, we have two things to think about: trends and turning points. Some people view turning points as random occurrences—shocks that come out of left field and are impossible to prepare for. As an economist and policy analyst, I like to think differently. Turning points generally happen when pressure builds up and forces a shift, such as a change in the structure of the market.

History can educate us about turning points in the supply of doctors. For instance, an oversupply of doctors some thirty years ago caused a build-up

in pressure. This resulted in managed care infiltrating the market to relieve some of those pressures. In essence, managed care took market power out of the hands of doctors, who had been using their power to induce demand and raise prices. Payers and consumers were no longer willing to go along with that, and managed care stepped in to curb the “rents”¹⁵ that doctors were enjoying. Managed care firms encouraged the use of less expensive labor, such as nurse practitioners and physician assistants, to do things that doctors did at a higher price. Managed care has, of course, introduced new issues, which I will go into in some detail in later chapters. The main point that I am making here is that pressure builds up in a market and calls for a restructuring. This is when turning points emerge. Policymakers need to be on the lookout for key turning points in an industry, or they could greatly miss the mark when they make decisions.

In order to be sensitive to areas in which there may be a turning point, we have to know where there is pressure in the market. That’s where market signals come in. Doctor incomes, economic rates of return on training, the number of doctors in different specialties, and the spatial distribution of doctors—all of these give market signals. For example, doctor salaries have not risen as fast as salaries in other professions in recent years. During this time, the number of nonphysician workers in the health care sector has risen rapidly, while the number of doctors has grown only modestly. These facts together indicate that there has been a greater amount of substitution going on. Nurse practitioners, nurses, and other personnel have taken on tasks that the physician used to do. This has relieved some of the demand on physicians and made each more efficient. By looking at the various market indicators, then, we can piece together a picture of the situation today and going forward.

Market indicators can do a lot. They can identify places where market pressure might push the market in a different direction. They can also help to project trends into the future. Economic models help us tell where the market is going if there isn’t a turning point. Market indicators suggest a baseline point for thinking about where we are going. To begin, let us see what the past can tell us about the structure of the industry and how built-up pressure leads to change.

A NEW VIEW: THE PHYSICIAN SUPPLY CYCLE

If we are to move toward the right number of doctors, we must first consider what is meant by “right.” There are schools of thought on this matter, as I will discuss in later chapters. My premise is that the supply and demand of doctors are best understood in the framework of a market. And I further posit that the emergence of managed care beginning in the 1980s “connected” what had been a disconnected or inefficient market. Though far from perfect, the market forced doctors to compete on price in order to enter the managed care environment. The most telling evidence of this dramatic change can be observed through physician incomes, as I will examine in detail in Chapter 3. Another result of the market shift has been the strong emergence of physician assistants and nurse practitioners, which changed the size and character of the physician workforce.

These changes did not occur in a vacuum. To understand the way the doctor supply and demand have evolved in the United States, we must consider some landmark events that influenced them. Many health industry observers have dutifully compiled the historical record on physician supply. The depiction in Figure 1.1 highlights a number of markers that are significant to the *market* view of physician supply, and subjects them to fuller examination from this perspective.¹⁶

These historical landmarks tell a story about the marketplace for physicians that I call the Supply Cycle of Doctors. To see the pattern emerge, I will analyze the steps along the way.

Doctor Shortage

The story begins with a perceived doctor shortage. From 1900 to the mid-1960s, there was almost universal agreement that the nation did not have enough physicians, even though the per capita supply remained relatively stable. Nevertheless, the perception of shortage influenced the events that followed. I use the term *perceived shortage* because there wasn’t any real way of knowing, nor were any studies conducted with acceptable analytic rigor. However, a report published in 1910 found that medical schools did not base their training on a high enough standard of science.¹⁷ The publication of this report resulted in the closure of many medical schools, and this in turn caused the number of medical graduates per year to drop precipitously.

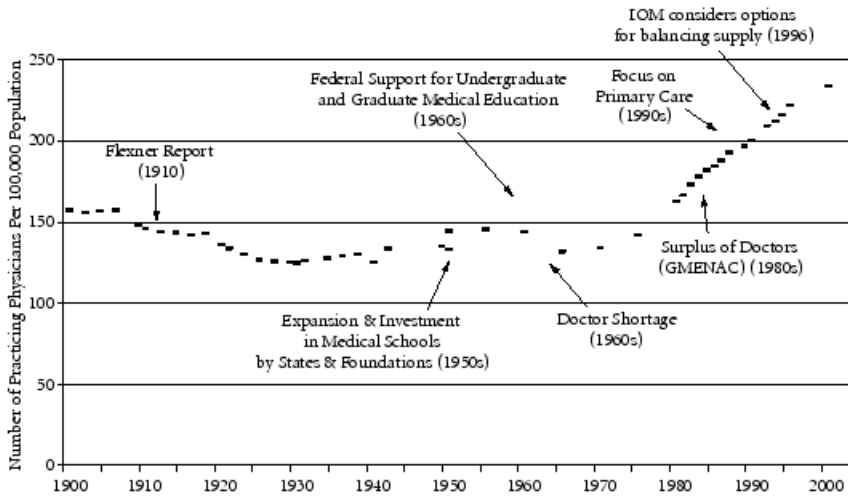


Figure 1.1. Physician workforce milestones in the twenty-first century, 1900–2000

SOURCES: *Historical Statistics of the United States—Colonial Times to 1970*, U.S. Department of Commerce, 1975; *Physician Characteristics and Distribution in the U.S.*, 2001–2001 Edition, American Medical Association; and *Physician Characteristics and Distribution in the U.S.*, 2005 Edition, American Medical Association.

Doctor Supply Build-Up

Now fast forward to the 1950s and 1960s, when anecdotal evidence from the previous decades led to a general consensus that the United States had a shortage of physicians,¹⁸ prompting the federal and state governments to allocate funds to increase the supply.¹⁹ This support began around 1963, and by 1976 had resulted in the building of some forty new medical schools and the expansion of many older ones.²⁰

A signal event was the passage of Medicare and Medicaid in 1965. This was a directional change for the nation because, for the first time, the federal government took on the responsibility of providing health care for the elderly and disabled. These two programs enabled more Americans to seek and receive health care, which subsequently increased the demand for physicians.²¹

It must be noted that Medicare was not created because of concern about the supply of doctors. It was a mechanism to fund hospitals, whose primary users were the elderly and disabled—the typical Medicare population. Government dollars were allocated to the education of medical residents, which took place in hospitals, triggering a sharp increase in the supply of doctors.²²

Medicare was only using residency programs as a mechanism to channel funding to the elderly and disabled. The expansion of residency programs was a secondary, and arguably unintentional, consequence. This unintentional policy of financing graduate medical education still exists. By funding residency training, Medicare increased the supply of doctors.²³

Medicare boosted the supply of physicians and helped cause a jump in the proportion of doctors who were specialists.²⁴ Between 1965 and 1980, as medical schools continued to grow, the number of actively practicing doctors per 100,000 population increased from 132 to 163.²⁵ The growth in health care expenditures during that same time span was startling.

Doctor Oversupply Spurs Competition

Finally, in 1980, the government began to take notice. Various commissions and studies all pointed to a current and future oversupply of physicians in the nation. Figure 1.2 summarizes these estimates. The Graduate Medical Educa-

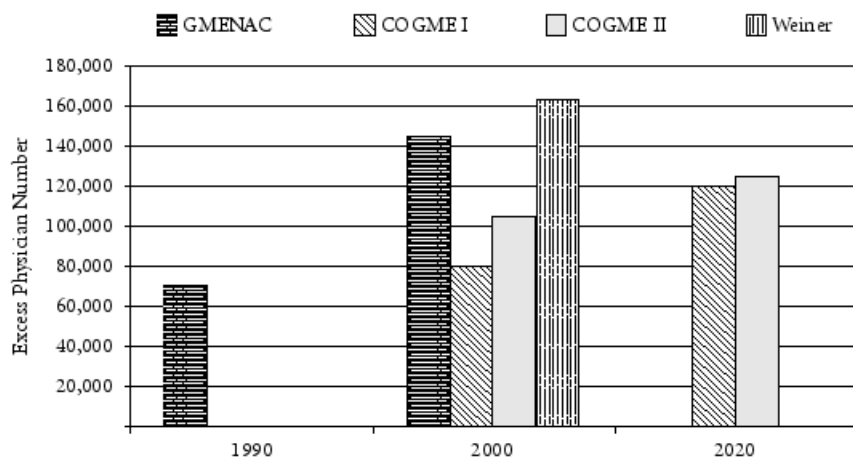


Figure 1.2. Various forecasts of physician oversupply

SOURCES: Graduate Medical Education National Advisory Committee (GMENAC), *Report to the Secretary: Dept. of Health and Human Services. Vol. 1, Summary Report*, DHHHS Publication No. (HRA) 81-651, Washington, DC: Health Resources Administration, 1986; Council on Graduate Medical Education, *COGME (I) 1994 Recommendations to Improve Access to Health Care Through Physician Workforce Reform*, Rockville, MD: U.S. Dept. of Health and Human Services, 1994; *COGME (II) 1995 Physician Workforce Funding Recommendations for Department of Health and Human Services' Programs*, Council on Graduate Medical Education, 7th Report, Rockville, MD: U.S. Dept. of Health and Human Services, 1995; J. P. Weiner, "Forecasting the Effects of Health Reform on U.S. Physician Workforce Requirement: Evidence from HMO Staffing Patterns," *Journal of the American Medical Association* 272, no. 3 (July 20, 1994): 222-230.

tion National Advisory Committee (GMENAC) warned that by 1990, the nation would have seventy thousand more physicians than needed.²⁶ Numerous government reports and significant papers were published in the 1990s that suggested even larger surpluses in 2000 and 2020.²⁷

Managed Care Growth

Enter managed care. Managed care is an arrangement that shifts power away from doctors to payers. For example, managed care contracts place limits on services, whereas fee-for-service reimburses whatever the doctor bills. Beginning around 1983, managed care emerged as a market force that grew sharply through 1993. In regions where managed care secured a solid foothold, doctors were forced to compete for patients, putting economic pressure on them to change the way they practice. They now had incentives to consider less-expensive medications, decline to provide services of questionable value, and seek other cost-efficient ways to provide care. And it pitted doctor against doctor to see who could provide a service for less. Supply and demand for doctors now had real meaning, as I discuss in detail in Chapter 2. The advent of managed care fundamentally changed the physician marketplace by sharply reducing doctors' control over their practice and their income.

A number of empirical studies have shown that managed care took hold and grew more rapidly in areas that had an oversupply of doctors.²⁸ In fact, doctor-to-population ratios are important predictors of managed care establishment and growth. We do not suggest that oversupply was the only impetus behind managed care's spread across the country, but *without oversupply, it would not have happened. Why would doctors discount their fees and give up their autonomy?* Competition for patients is the compelling underlying story about how the U.S. health care system evolved over the past few decades, and why. Many observers have thought of managed care as an alien visitor to the planet. In actuality, its origins are distinctly American. Managed care emerged from—and is an indicator of—an oversupply of doctors in the United States.

Doctor Income Drops

In a properly functioning market, an increase in the income of any profession implies that there is a shortage. In contrast, if income is falling, the market is signaling a surplus.²⁹ This simple proposition did not apply to physicians

before the advent of managed care. In the 1960s and 1970s the typical newly trained doctor would move to wherever he (or, far less often, she) wanted to practice, let people know he was in town, and wait for the patients to line up. Usually, the wait wasn't long. These physicians did not have any constraints or economic worries because the system did not deal with doctors as *economic units*, rather as *social goods*. The payment system was passive; whatever doctors did, they were paid for it. This made for a professionally and economically rewarding life for doctors.

Managed Care Maturity

To compete in the managed care environment, however, physicians had to discount their fees substantially—30 percent on average.³⁰ The resulting drop in incomes, specialty by specialty, is described in Chapter 3.

By making the market work more efficiently, managed care significantly reduced the rate of increase in health care spending between 1993 and 2001, when health maintenance organization (HMO) growth peaked. HMOs had produced health care of high quality while using fewer doctors. In fact, Jonathan Weiner pointed out that HMOs managed to provide high-quality care with doctor-population ratios of 144 to 176 per 100,000. This contrasts sharply with our nation's current ratio: about 229 doctors per 100,000 in 2004.³¹

The period of managed care's maturity brought about another phenomenon that is central to this book. Prior to the market shift introduced by managed care, there had not been any rigorous criteria for determining the right number of doctors for a given population. The United States either had more or fewer doctors per capita than some other country, state, region, or health plan. Therefore, all decisions were made in a relative sense because the demand for doctors was unrelated to the supply. Managed care made it possible, for the first time, to apply market measures—as I will discuss in Chapter 6—to see where the country is now and where we are heading.

Redistribution of Doctor Supply

Because the managed care market is sensitive to demand, it was instrumental in altering the distribution. This is set out in Chapter 4. Market factors also led to the rapid growth in the use of physician assistants and nurse practitioners

to effectively increase the size and accessibility of the medical workforce. These professionals perform some two-thirds of the services traditionally provided only by physicians.³² As I discuss in Chapter 5, they must be included in assessing the market for doctors.

Managed Care Backlash and Decline

Managed care growth reached a peak around 2000, after which it began a gradual decline. The turning point was precipitated by both a physician and consumer backlash, as I discuss in Chapter 2; however it may also reflect the exhaustion of managed care's ability to reduce prices. Nevertheless, managed care has remained a fundamental ingredient of the health care system, and the market signals that it engendered are still at work today.

Where Are We Headed?

To show how these milestones affected the physician supply, we consider them as an overlay to the configuration we call the "Supply Cycle of Doctors," shown in Figure 1.3. This simplified and stylized depiction is, in part, historical because its momentum is propelled by the events I have discussed.

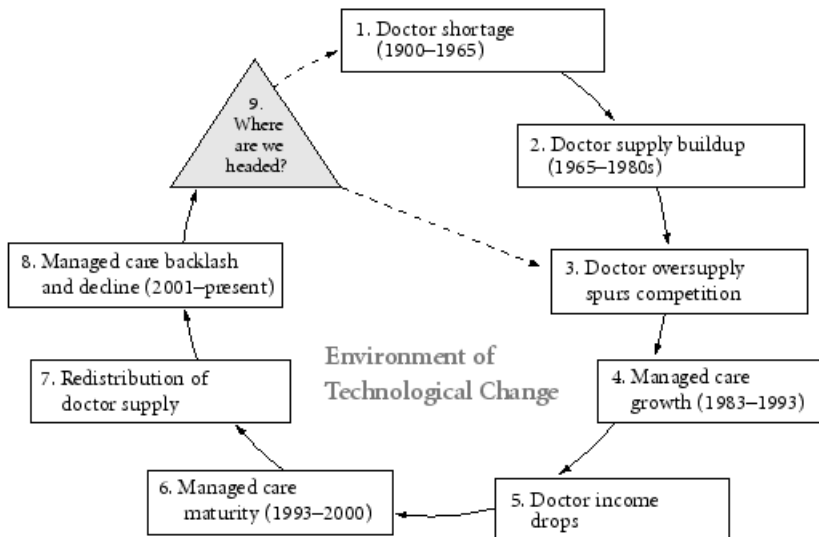


Figure 1.3. The supply cycle of doctors

But it's not *only* historical, because the underlying dynamics are always in play. They will continue to shape the physician supply according to environmental factors that emerge over the coming decades, including shifts in the health care system—especially those driven by new technology—and major changes in society and the economy as a whole. Each step in the supply cycle is based on the data and analysis that I present in the chapters that follow.

ABOUT THIS BOOK

This is a data-driven book. It is grounded in the most recently available data about the health care workforce from a wide variety of sources. Each chapter in Part I drills down into the economic, market, and policy issues relevant to the doctor supply cycle. Several chapters include a close-up view of California, where the supply-cycle dynamics have played out in a particularly dramatic way. Also, a chapter is devoted to international supply-and-demand factors, because health care must increasingly be considered a part of the global economy. However, the emphasis is on the national picture in the United States.

Although the book comes out of an economics perspective, it is not intended to be an academic discussion. The data are interpreted in a way that is intended to be meaningful to health care professionals, medical academics, regulators, health policy professionals, and the public. The book's purpose is to inform the policy debate by bringing a deep understanding of the problems of a health care system that is badly in need of repair. Concerns about access, cost, and quality have become urgent during the past two decades. Reforms that will affect the availability of health insurance coverage are being hotly debated at the federal level and by the states. Such changes are obviously important. But without systemic improvements in the delivery of services, all of these reforms will be unsuccessful; they will simply lead to more frustration for patients, health care professionals, and policymakers alike.

Previous efforts to analyze and fix endemic workforce misalignments have been flawed in their logic and have often exacerbated the problems. This book discusses those initiatives and brings new clarity to the economic forces and market signals that drive health care and its immense workforce, including doctors. It takes into account the enormous complexities of health care delivery and tries to sort out the essential features that need to be changed.

The book's premise is that effective reform must *start* by looking at the delivery side—at the doctors and other health care workers who make it all happen. This is because an efficient, cost-effective, high-quality health care system depends fundamentally on having the right number of doctors, of the right specialty, in the right locations. A corollary to this statement is that the health care delivery workforce *as a whole* must be taken into account. Physicians are truly the engine of medical care, but they make up only a small fraction of caregivers. Their responsibilities are increasingly being shared with other highly skilled workers, in particular nurse practitioners and physician assistants.

Part I concludes with a discussion of the various ways that health economists and others think about the “right” supply of doctors. There is little agreement on which perspective is closest to the mark—or in fact what the mark should be. Nevertheless, I believe that economic factors—in an environment of rapid technological advances—can suggest the direction of the supply cycle over the next five and ten years.

To bring a rich variety of perspectives to this puzzle, I talked with twenty-seven leading figures in the fields of health economics, health policy, and academic medicine. These extraordinary conversations about the health care workforce make up Part II of this book.

Then, in “A Final Word,” I leave readers with some observations and reflections on how to improve health care in the United States, and how the role of doctors is likely to be transformed in the coming years. These insights are derived from both the research and analysis spelled out in Part I and the far-ranging discussions in Part II.

In the end, this book is intended to help policymakers and other health care leaders better visualize the economic framework that underlies health care delivery. It provides a multidimensional view of institutional functioning—how health care systems actually operate. This is essential to addressing the fundamental question: How can we significantly improve the efficiency, cost-effectiveness, and quality of health care for Americans? A key part of that process will be determining the “right” supply of doctors, and how best to achieve that.