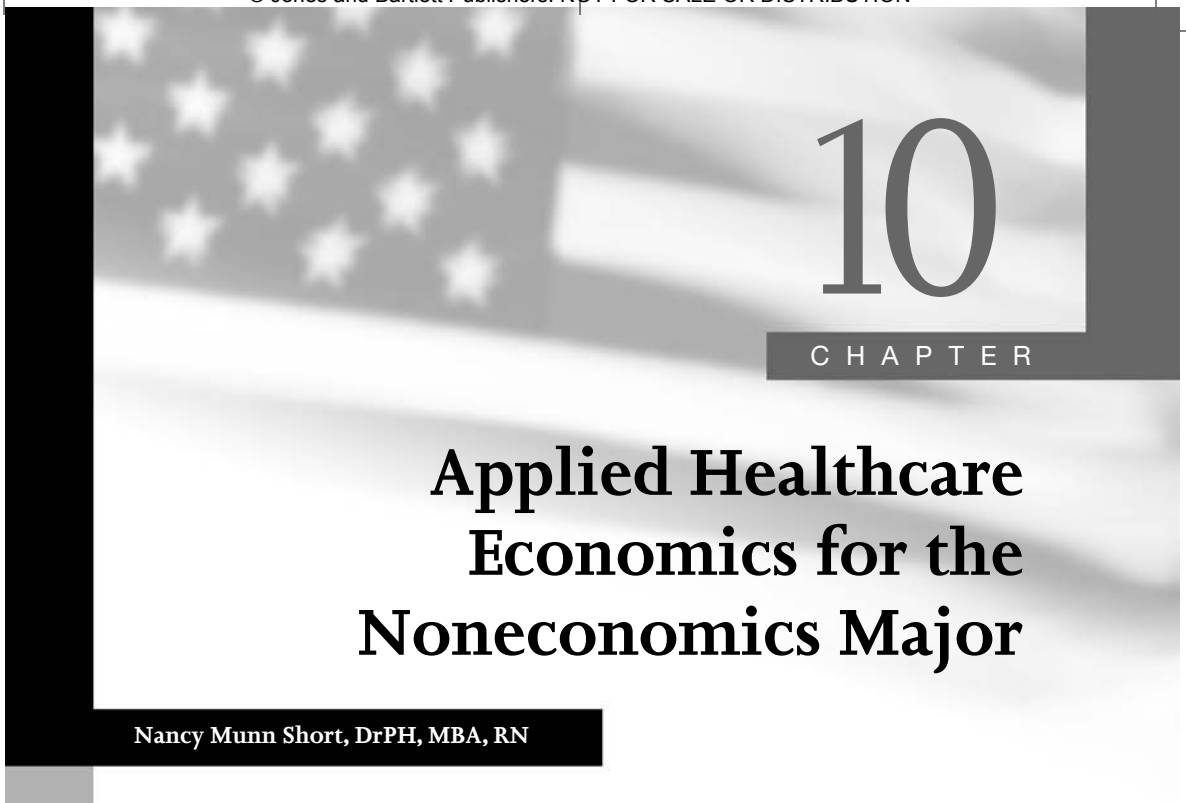

CHAPTER 10

Applied Healthcare Economics for the Noneconomics Major

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Other people, including the politicians who make economic policy, know even less about economics than economists do.

—Herbert Stein, *Washington Bedtime Stories*

Key Terms

- **Adverse selection** A situation in which, as a result of private information, the insured are more likely to suffer a loss than the uninsured. A form of information asymmetry.
- **Externalities** The effects that the acts of consumers or producers have on each other; may be positive or negative.
- **Information asymmetry** Occurs when some parties to business transactions may have an information advantage over others.
- **Microeconomics** A branch of economics that studies how individuals, households, and firms make decisions to allocate limited resources.
- **Moral hazard** The change in peoples' behavior as a result of a perceived reduction in the costs of misfortune (health insurance changes the costs of becoming ill or injured).

- **Opportunity costs** The value of the next best choice that one gives up when making a decision. Also called *economic costs.*
- **Rationality** A choice taken from competing options yields anticipated net benefits that exceed the opportunity cost.
- **Utility** An economic term indicating a measure of happiness or satisfaction gained by consuming goods and services. Economists assume that all people seek to maximize utility.

Introduction

Economics is not widely considered to be one of the sexier sciences. The annual Nobel Prize winner in economics never receives as much publicity as his or her compatriots in peace, literature, health, or physics. Economics is an art that consists of ascertaining the immediate effects of any act or policy (personal, institutional, or political) while also looking at the long-term effects. The science of economics may indicate a direction to take to achieve the greatest **utility** from an act or decision, but the art of economics requires tracing the consequences (both intended and unintended) of that action not merely for one group but for all groups.

This is especially true for healthcare economics: If you were to line up 10 economists and ask them to recommend how to implement universal health care in the United States, you would likely have 10 different answers spanning from classical economic theories to Keynesian and beyond. This chapter introduces the reader to a broad understanding of applied economic principles that explain the complexities of the U.S. health system in a health policy context.

How Do Markets Work and What Is the Healthcare Market?

Market competition represents the core concept of what is known as **microeconomics**. In a free-market economy such as that in the United States, individual choices generally determine the course of our lives. Simultaneously, as voters and citizens, we make decisions that determine regulations and policies that govern our choices.

We base our choices on what economists refer to as *utility*. Theories of demand and supply are derived from this concept of utility. Consumer preferences are based on the perceived utility of a good or a service: As people's tastes change for some reason, they may want more of one good and less of another. Depending on the demand for a good or a service, supply theory tells us that firms will adjust produc-

tion (and prices) to meet the demand unless some sort of constraint on production exists.

For example, a constraint on the "production" of registered nurses is the number of open slots for admission to nursing schools. To some extent, the federal government's policies for funding nursing education programs and student scholarships or loans affects the number of schools of nursing and available slots for admission. So, you can see that the government can create incentives or disincentives for increasing or decreasing the nursing workforce. One purpose of government is to properly align incentives and disincentives to meet goals for a healthy population. However, in the course of aligning these forces, unintended consequences may occur.

Nurse Shortages

Economic definitions of worker shortages are based on considerations of how characteristics of a given market for professionals differ from the ideal, highly competitive market. An economic definition of a labor shortage is the excess of the quantity demanded over the quantity supplied at market prices. Nursing shortages have been cyclical for more than 30 years—have wages risen to an "equilibrium" where supply of nurses equals demand?

In reality, we depend on reported percentages of unfilled, budgeted nursing positions to describe excess or shortage. In healthcare markets, large employers such as hospitals may want to recruit more nurses but not incur additional costs to "lure" additional nurses. Recruiting new nurses at a higher wage results (theoretically) in adjusting all nurses' wages upward. If the cost of adding one more nurse (her wage plus adjusted wages) exceeds the revenue that adding the nurse will provide, the hospital will not hire another nurse.

This scenario gets even trickier in the case of nurse staffing because hospital revenues are not often attributed to nurses and nursing care: (1) most hospitals account for nursing care as a cost center and roll the labor costs into room rates, and (2) hospital administrators are often schooled without a basic understanding of nursing's contributions to patient outcomes.

There is a seemingly endless supply of capable nurses in the global market. For example, the Philippines have developed their nurse education system to be an export market for registered nurses. Nurses from many impoverished nations are eager to better their lives as well as the lives of their families and are willing to move to accomplish this. When considering the healthcare workforce market, the global market for nurses is a hot-button political and moral issue. However, the economics of this market are based on rational behavior.

Economic Rationality

People generally demand those things that put them at the highest level of welfare, given the resources available. This is true to some extent in the healthcare markets. Individual choices exhibit **rationality** in the sense that the individual gains something of importance (to him/her) by a specific choice. Individuals may find maximum utility in choices that appear irrational to healthcare providers: The choice to smoke is the best example. Suppose a person smokes but knows that smoking is harmful and dangerous to his or her health. The pleasure or relief of smoking has higher utility than quitting. But what if the smoker does not have complete information about the dangers of smoking? Exhibit 10–1 describes a game of rational choice when incomplete information is known.

Information Economics

Asymmetrical information is the term used by economists to point out that healthcare consumption differs from purchasing other goods and services because of the inability of patients, providers, or payers to possess all of the information needed for completely rational decision making. Optimal rational decision making requires "perfect information" where consumers are just as knowledgeable as sellers.

Think about when you buy a car. You gather all of the information that you can to eliminate any advantage the car seller may have in terms of the worth of this particular car. Being newly informed, you may choose to go to several dealerships before you find a seller that meets your expectations (or utility). Now think about your typical healthcare experience. You go to your primary care provider for your annual physical and the physician finds an abnormality and refers you to a specialist. Depending on your level of information, you will blindly trust the specialist or you may "shop around." You may be very hard-pressed to learn about the quality or performance of either your primary care provider or the specialist. If you are referred to a hospital, you are probably unable to learn the nurse-to-patient ratio even though evidence shows that this is critical to your well-being. There is **information asymmetry**.

Healthcare professionals generally know what is "best" for patients, right? The problem of asymmetric information differs from a simple information problem in that one party possesses knowledge needed to enable rational decision making that the other party lacks. In health care, the patient delegates much decision making to the healthcare professional (and sometimes even to the insurer). However, the healthcare professional and the insurer have a potential conflict of interest because of the

Exhibit 10–1 The Prisoner's Dilemma

The Prisoner's Dilemma

A classic economic "game" that explores rational choice is known as the Prisoner's Dilemma. In the game, two suspects, A and B, are arrested by the police. The police have insufficient evidence for a conviction, and, having separated both prisoners, visit each of them to offer the same deal: If one testifies for the prosecution against the other and the other remains silent, the betrayer goes free and the silent accomplice receives the full 10-year sentence. If both stay silent, both prisoners are sentenced to only 6 months in jail for a minor charge. If each betrays the other, each receives a 2-year sentence. Each prisoner must make the choice of whether to betray the other or to remain silent. However, neither prisoner knows for sure what choice the other prisoner will make. So, this dilemma poses the question: How should the prisoners act? The dilemma can be summarized using a two-by-two table:

	Prisoner B Stays Silent	Prisoner B Betrays
Prisoner A Stays Silent	Both serve 6 months	Prisoner A serves 10 years Prisoner B goes free
Prisoner A Betrays	Prisoner A goes free Prisoner B serves 10 years	Both serve 2 years

The dilemma arises when one assumes that both prisoners only care about minimizing their own jail terms. Each prisoner has two options: to cooperate with his accomplice and stay quiet, or to defect from their implied pact and betray his accomplice in return for a lighter sentence. The outcome of each choice depends on the choice of the accomplice, but each prisoner must choose without knowing what his accomplice has chosen to do.

Such a distribution of losses and gains seems natural for many situations because the cooperator whose action is not returned will lose resources to the defector, without either of them being able to collect the additional gain coming from the "synergy" of their cooperation. For simplicity, we might consider the Prisoner's Dilemma as zero-sum insofar as there is no mutual cooperation: Each gets 0 when both defect.

The problem with the Prisoner's Dilemma is that if both decision makers were purely rational, they would never cooperate. Rational decision making means that you make the decision that is best for you whatever the other actor chooses. Suppose the other one would defect; then, it is rational to defect yourself: You won't gain anything, but if you do not defect you will be stuck with a loss. Suppose the other one would cooperate; then, you will gain anyway, but you will gain more if you do not cooperate, so here too the rational choice is to defect. The problem is that if both actors are rational, both will decide to defect, and none of them will gain anything.

A common view is that the puzzle illustrates a conflict between individual and group rationality. A group whose members pursue rational self-interest may all end up worse off than a group whose members act contrary to rational self-interest. More generally, if the payoffs are not assumed to represent self-interest, a group whose members rationally pursue any goals may all meet less success than if they had not rationally pursued their goals individually. You can see that the Prisoner's Dilemma can relate to individual versus group healthcare decisions, especially in light of scarce resources.

exchange of money. Benefiting monetarily from a decision may affect the decision-making process.

Asymmetric information also affects healthcare professionals when patients conceal lifestyle information or state that they are compliant with a treatment when they are not. A patient's caregiver may also withhold or distort information that would be helpful to the provider. Insurers also face information asymmetry: Clients (buyers of insurance like you and me) know much more about the state of their health and their future plans than an insurer knows.

Adverse Selection and Moral Hazard

Economists use two terms to describe the situation insurers face when consumers have greater information: (1) **adverse selection** occurs when a person selects a health plan based solely on the likelihood that they will have higher than usual health expenses (e.g., planning to get pregnant), and (2) **moral hazard** occurs when a health plan member uses more health services than that person ordinarily would because he or she is insured (e.g., a person with orthodontic coverage gets braces on his teeth for cosmetic purposes only).

Insurers may also lack sufficient information regarding the choices and decisions of providers and may be unable to ascertain if a procedure is medically necessary or not. "The patient, who does not pay the bill, demands as much care as possible; . . . the insurance company maximizes profits by paying for as little as possible; and . . . it is very costly for either the patient or the insurance company to prove the 'right' course of treatment. In short, information makes health care different from the rest of the economy" (Wheelan, 2002, p. 86).

Economics is amoral—that is, it is neither a moral science nor an immoral science. The science of health economics can suggest what makes a person, a population, a region, or a nation better off, but philosophy and ethics must be debated elsewhere and are represented by political tradeoffs when policy is made. Similarly, the health market as viewed by economists is amoral: When confronted with finite resources, there will be losers and winners. This is a tough concept for nurses to swallow.

Externalities

Economists analyze the consequences of economic decisions and economic policies by identifying positive and negative externalities. An **externality** is the gap between the private cost and the social cost of a

behavior. Almost every activity generates an externality at some level. A tongue-in-cheek example of externalities is my husband's decision to buy and drive an SUV: The private costs of his decision are different from the social costs. My husband's private costs of driving the SUV are extra gas costs, higher car payments, more expensive tires, higher emissions, and social disdain from an environmentally conscious wife. The public costs may include aggravating asthmatic children, melting the polar ice caps, and perhaps driving up insurance rates for tiny sport cars in his path. These potential social costs are not paid by my husband. Governments often deal with externalities by taxing or regulating the behavior. Examples include emissions standards testing, cigarette taxes, and motorcycle helmet laws.

Opportunity Costs

There is no such thing as a free lunch: For every opportunity taken and for every option discarded there are tradeoff costs. When you purchased the Saturn, you did not purchase the Honda wagon. You also did not take a vacation, buy a new wardrobe, or pay off your college debt. Not acquiring the Honda, the vacation, the new wardrobe or eliminating your debt are the **opportunity costs** of purchasing the Saturn.

Opportunity costs may also be described in terms of time spent on an activity (researching the safety of the Saturn) and other indirect measures or intangibles. An example of opportunity costs related to health policy is the current Medicare policy: 90% of Medicare funds are used for 10% of the beneficiaries. Most Medicare dollars are expended in the final events of a person's life. Because there are finite funds available, deciding to pay for an elderly person's last weeks of life represent an opportunity cost. For example, the funds could also be used for preventive care of 30-somethings, more school nurses, or health research. These are hard choices and are the core of perennial political debates at the federal, state, and local levels.

The economic consequences of a policy may last for years and may be argued equally eloquently by economists who fall on both sides of an issue. Because poverty (socioeconomic status) is the main determinant of poor health, shouldn't the government raise the minimum wage to fix this? This is an important example because it gets at the heart of a larger issue: Is the role that government plays in the United States economy too big, too small, or just right? If you lined up 10 economists, you would get 10 different answers. Economists disagree and present competing research findings over the consequences (intended and unintended) of raising the minimum wage. So, if you are a policymaker wanting to improve the health of Americans, what do you do?

What Makes the U.S. Healthcare System and Economy Strong?

The basis of a strong economy is good government. Good government makes markets possible by setting rules, regulating commerce and quality of essential products, protecting property rights, providing secure transportation and distribution systems, punishing those whose behavior endangers free trade (such as fraud or embezzling), keeping the peace, providing a strong banking system (the Federal Reserve banks), maintaining policies that strengthen the currency, educating the workforce, and maintaining basic sanitation for health. Much of the blame for poverty in the world can be placed on bad government. The primary reason for American ascendancy in pharmaceutical research and development is the protection of property rights—patents protect the investments of individuals and firms who develop new drugs.

Government can also wreak havoc on markets through overregulation or counterproductive policies. Economics may assist us in finding the right balance between growing the economy and providing for social programs.

Nurses must have a basic understanding of economics, especially the economics of provider practice. If advanced practice registered nurses want a bigger piece of the primary care pie, if schools of nursing want government support to fund building new facilities, they must know and provide the economic outcomes of these proposals. Conservative governments and groups advocate strongly that markets should be allowed to adjust themselves to reach equilibrium: market theory holding that wages will rise or fall to nudge the supply of nurses toward equilibrium with demand. However, from the overview you have just read, you know that information asymmetry, externalities, government regulation, and other forces contribute to, or interfere with, healthcare markets. To promote "good" health policy, nurses need to participate in discussion, debate, and hold their own in terms of general health economics.

Web Sites of Interest

A Student's Guide to *Freakonomics: A Rogue Economist Explores the Hidden Side of Everything* at http://www.freakonomics.com/pdf/StudentFREAKONOMICS.pdf

America's Health Insurance Plans at http://www.ahip.org

Economic history at http://www.frbsf.org/publications/education/unfrmd.great/greattimes.html

Elias, R. (2006). Financing long term care at http://www.kaiseredu.org/tutorials/longtermcare/longtermcare.html

Gladwell, M. (2005). The myth of moral hazard. *The NewYorker* at http://www.newyorker.com/printables/fact/050829fa_fact

Health Economics Information Resources: A Self-Study Course at http://www.nlm.nih.gov/nichsr/edu/healthecon/

Westmoreland, T. (2006, February). Health Policy and the Federal Budget Process at http://www.kaiseredu.org/tutorials/federalbudget/HPandFederalBudget.html

National Library of Medicine at http://www.nlm.nih.gov/nichsr/corelib/hecon.html

Alliance for Health Care Reform. Covering Health Issues 2006 at http://www.allhealth.org/sourcebook2006/toc.asp

The Need for a National Focus on Health Care Productivity at http://content.healthaffairs.org/cgi/reprint/9/1/107.pdf

Discussion Points and Activities

1. Discuss the role of economists in healthcare policy. Using Gail Wilensky, PhD, as a model of a health economist, watch clips of her presentations at http://www.gailwilensky.com/. Note that although she is not a clinician, she is a commissioner on the World Health Organization (WHO) Commission on the Social Determinants of Health. Why are economists so influential in health policy?
2. Read several issues of the journal *Health Affairs*. Access the blog at http://www.healthaffairs.org/blog/ and search keyword "economics" for the latest articles about healthcare economics. Discuss the gross national product in terms of healthcare expenditures.
3. Walter Williams is a Libertarian economist on the faculty at George Mason University. Discover his point of view on public health issues such as the ban on trans fats. How does his economic view reveal a Libertarian ideology?
4. What is a think tank and how do these organizations affect health policy and nurses? Explore the Council on Economics and Health Care Policy membership. Identify at least four think tanks and research (a) their political philosophy; (b) whom they influence; and (c) how they obtain information about nursing.
5. Read about the Medicare Part D "donut hole" and consider if this policy is based on sound economic theory.
6. Discuss the role of research in nursing. What has been the focus over the past decade? To what extent has nursing research had an influence on healthcare economics?
7. Read about the birth of health services research. Are nurses performing health services research? Provide examples.
8. Identify policies advocated by the American Nurses Association that reflect an influence on healthcare economic policies of the federal government.
9. Identify policies advocated by your state nurses association or specialty organization that have influenced healthcare economic policies in your state.
10. Construct a list of ways nurses can become more knowledgeable about health economics and influence policy.
11. Read about social capital. A good Web site is http://www.socialcapitalgateway. org/.

12. Read about cost shifting in health care. Identify policies that use this method. Argue the benefits and losses of cost shifting.
13. Examine two economic indicators that you have never understood before. Look for these indicators in newspaper articles and analyze how they apply to health care.
14. Watch videos by experts on healthcare systems at http://www.kaiseredu.org/picks/documentary_search.aspx. Most of these videos include economic or cost information. Discuss with your colleagues the impact on health care.
15. What are the economics of decriminalizing marijuana for use as a medicine? Trace the history of this debate in terms of economics. Argue the benefits and harm in economic terms.
16. Who finances long-term care in the United States? Take a poll of your colleagues prior to researching this question. Are nurses well informed about this economic issue and does this meet your expectation?

Case Study: The Economics of End-Stage Renal Disease

(This case is provided in conjunction with Dr. John D. Sullivan.[1])

End-stage renal disease (ESRD) is defined as permanent kidney failure and is generally covered by Medicare for the usual beneficiaries and for individuals younger than 65. Students are often baffled that other serious, chronic illnesses such as cancer are not covered by Medicare (for people less than 65 years old) while ESRD is. The 1972 policy decision to cover ESRD was spurred by both politics and economic forecasts, including the belief that transplant was soon to become routine and would replace dialysis. In 1972, federal costs for ESRD beneficiaries were expected to be manageable because transplant technology would ensure that patients would receive transplants; however, in 2006 there were 65,000 covered individuals waiting for a kidney transplant and the expectation was not met.

[1]Dr. Sullivan is presently an associate professor at Boston University teaching mergers and acquisitions, and healthcare strategy. Prior to Boston University, Dr. Sullivan worked for Fresenius Medical Care and W. R. Grace providing the analysis for and constructing the acquisitions and joint ventures of almost $4 billion in healthcare companies throughout the United States, Latin America, and Asia. While at Fresenius Medical Care, Dr. Sullivan laid plans for a new transplant business and participated in the divestiture of two non-core lines of business. An active consultant, Dr. Sullivan has assisted in the valuation of several healthcare businesses and served as an expert witness in several lawsuits concerning business valuation. Dr. Sullivan holds a BA from Regis University in Denver, Colorado, an MBA from Northeastern University, an AM from Harvard University, and a PhD from Northeastern University.

Two basic forces govern the economics of ESRD treatment: (1) patient and provider choice of treatment option; and (2) government reimbursement policies. With reimbursement assured, in the 1970s the dialysis industry's challenge was to meet the demand and provide access to services. In the 1980s, the industry focused on cost containment and improving quality of care. In the 1990s, there was a movement toward consolidation of so-called Mom and Pop treatment centers to mega providers with large chains of treatment centers (see Figure 10–1). For example, with at least 27% of the market, in 2007 Fresenius National Medical Care (FNMS) is North America's largest provider of dialysis treatments. It provides these services to 85,500 patients with ESRD in North America (and a total of 124,400 worldwide). In North America alone, FNMS provides care at 1,130 dialysis centers where in 2004 it provided 12,908,788 dialysis treatments. In this role, it has been in an enviable position to negotiate with payers and vendors. Although the majority of its revenue comes from Medicare and Medicaid, which offer just so much leeway in negotiating payments for ESRD treatments, FNMS also has third-party payers. Its size also gives it some market clout in negotiating with vendors such as Amgen the sole provider of erythropoietin, which is essential to ESRD patients.

In the 2000s, reimbursement is the challenge: The Medicare Modernization Act of 2003 provided the first change in reimbursement for dialysis since 1973. The dialysis industry is considered to have a strong U.S. market growth potential of 5–6% annually.

Figure 10-1

Dialysis Treatment Facilities by Ownership Type

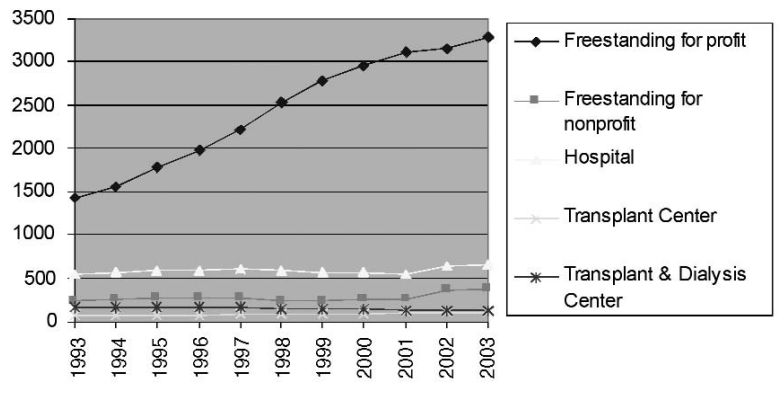
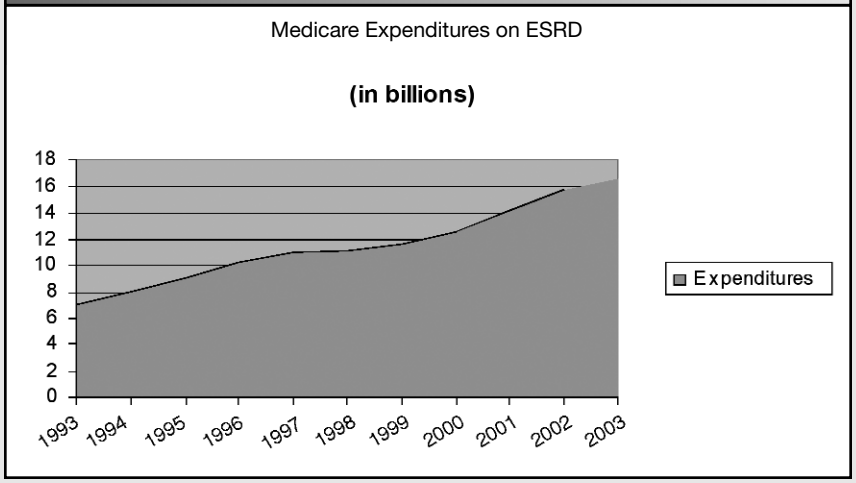


Figure 10-2



Despite the Centers for Medicare and Medicaid Services (CMS) close monitoring of ESRD expenditures, costs for the program increased to more than $18 billion in 2005, consuming a higher and higher percentage of the budget ($500 billion total budget for federal Medicare and Medicaid expenditures) while covering fewer and fewer of the Medicare beneficiary population (see Figure 10–2). Expenditures will continue to rise as a result of the new technology and drugs, aging population, increasing survival on dialysis, the growth of minority populations, increasing incidence of obesity and diabetes as well as hypertension. To control costs, the federal government has historically eroded the payment structure through inflation and continuously revising and delaying the ESRD coverage for patients not previously of Medicare age. This strategy, known as *cost shifting*, will continue to reduce government expenditures on a per-treatment basis so long as commercial carriers continue to bear the financial burden not covered by the federal government.

Treatment options for ESRD include hemodialysis, peritoneal dialysis, and kidney transplant. To provide treatments in outpatient clinics requires a high initial capital investment and a high capacity and volume of patients to break even or be profitable (and remain open). Treatment of ESRD with peritoneal dialysis requires low investment but also has high variable costs. The government reimbursement rate for dialysis has remained unchanged since 1973, which has resulted in cost shifting.

Prior to the Medicare Modernization Act of 2003, reimbursement provided bundled rates for treatments (example of a bun-

dle: dialysis, EPO, Vitamin D, disease management). CMS's goal is to drive toward breakeven where reimbursement rates equal the cost of providing the services. Earnings before interest, taxes, depreciation, and amortization (EBITDA) is a standard financial indicator of a firm's success. Currently, the range of EBITDA facility breakeven is from $199.45 per treatment, assuming three patient shifts per week and no patients holding commercial insurance, to $138.99 based on 15% of the patients holding commercial insurance. Publicly held companies (i.e., has stockholders) usually seek an EBITDA of approximately 15%. If CMS accomplishes its policy goal of reaching breakeven, there may be unintended consequences such as loss of investment in the industry, facility closings (especially for smaller competitors in the industry), and decreased quality. If this is the result, we could be back to the challenge of the 1970s: providing access to treatment.

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