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CHAPTER 3

PAYING FOR HEALTH SERVICES

**THEME SET-UP:** BIG SKY'S REVENUE SOURCES

Big Sky Dermatology Specialists is a small group practice in Jackson, Wyoming. The city is located in the scenic Jackson Hole Valley and is a major gateway to the Grand Teton and Yellowstone National Parks. In addition, it is home to the world's largest ball of barbed wire. (It is amazing what you learn when studying healthcare finance!)

Jen Latimer, a recent graduate of Idaho State University's healthcare administration program, was just hired to be Big Sky's practice manager. One of her first tasks was to review the group's payer mix. (Payer mix is a listing of the individuals and organizations that pay for a provider's services, along with each payer's percentage of revenues.) After all, revenues are the first step (of many) needed to ensure the financial success of any business.

To understand Big Sky's revenues more thoroughly, Jen focused on two questions. First, who are the payers? In other words, where does Big Sky's revenue come from? Second, what methods do the payers use to determine the payment amount? By gaining an appreciation of the group's revenues, Jen believed she could accurately judge the financial riskiness of the practice. Furthermore, she would be able to identify possible steps toward increasing the practice's revenues and reduce the riskiness associated with those revenues.

By the end of the chapter, you will have a better understanding of healthcare-provider revenue sources and how the specific payment method influences provider behavior. Specifically, you, like Jen, will know more about how these issues affect Big Sky.

LEARNING OBJECTIVES

*After studying this chapter, you will be able to do the following:*

* List the key features of insurance.
* Describe the major types of third-party payers.
* Discuss, in general terms, the reimbursement methods used by third-party payers, and the associated incentives and risks for providers.
* Explain how clinical and procedural coding affects reimbursement.
* Define the specific reimbursement methods used by Medicare.
* Describe the key features of healthcare reform.

3.1 INTRODUCTION

In most industries, the consumer of the product or service (1) has a choice among many suppliers, (2) can distinguish the quality of competing goods or services, (3) makes a (presumably) rational decision regarding the purchase on the basis of quality and price, and (4) pays for the full cost of the purchase.

The provision of healthcare services does not follow this general model, as healthcare is delivered under unique circumstances. First, often only a few individuals or organizations provide a particular service. Second, judging the quality of competing providers is difficult, if not impossible. Third, the decision (or at least recommendation) on which provider to use for a particular service typically is not made by the consumer but rather by a physician or some other clinician. Fourth, the bulk of the payment to the provider is not normally made by the user (the patient) but by an insurer. Finally, for most individuals, the purchase of health insurance is paid for (or heavily subsidized) by employers or government agencies, so many patients are insulated from the true cost of healthcare services.

This highly unusual marketplace significantly influences the supply of and demand for healthcare services. To gain a better understanding of the unique payment mechanisms involved, we must examine the healthcare reimbursement system.

3.2 BASIC INSURANCE CONCEPTS

Because insurance is the cornerstone of healthcare reimbursement, an appreciation of basic insurance concepts will help you better understand the marketplace for healthcare services.

A SIMPLE ILLUSTRATION

Assume that no health insurance exists and that you face only two medical outcomes in the coming year:

What is your expected healthcare cost (in the statistical sense) for the coming year? To find the answer—$500—multiply the cost of each outcome by its probability of occurrence and then sum the products:

Now, assume that everyone else faces the same medical outcomes and hence faces the same odds and costs associated with healthcare. Furthermore, assume that you, and everyone else, make $60,000 a year. With this salary, you can easily afford the $500 expected healthcare cost. The problem, however, is that no one's actual cost will be $500. If you stay healthy, your cost will be zero; if you get sick, your cost will be $50,000, and this amount could force you, and most people who get sick, into personal bankruptcy, which is a ruinous event. (Do not forget that you have to pay all of your living expenses out of your $60,000 annual income in addition to any healthcare costs.)

Now, suppose an insurance policy that pays all of your healthcare costs for the coming year is available for $600. Would you take the policy, even though it costs $100 more than your “expected” healthcare costs?

Most people would, and do. Because individuals are risk averse (see “[Critical Concept: Risk Aversion](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter03.xhtml#CC016)”), they are willing to pay $100 more than their expected benefit to eliminate the risk of financial ruin. In effect, policyholders are passing the costs associated with the risk of getting sick to the insurer who, as you will see, is spreading those costs over a large number of subscribers.

Would an insurer be willing to offer the policy for $600? If the insurer could sell enough policies, it would know its revenues and costs with some precision. For example, if the insurer sold a million policies, it would collect 1,000,000 × $600 = $600 million in health insurance premiums; pay out roughly 1,000,000 × $500 = $500 million in claims; and have about $100 million to cover administrative costs. It could provide a reserve in case claims are greater than predicted and make a profit. By writing a large number of policies, the financial risk inherent in medical costs can be spread over a large number of people, reducing the risk for the insurance company (and for each individual).

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|  | **CRITICAL CONCEPT** |
| Risk Aversion |

Risk aversion is the tendency of individuals and businesses to dislike financial risk. Risk-averse individuals and businesses are motivated to use insurance and other techniques to protect against risk. For example, a favorite tool to control risk is diversification, which in the context of revenues means lowering risk by having different sources of income. By not depending on one source—say, Medicare patients—a provider can reduce the uncertainty (riskiness) of its revenue stream. Insurance is another way to limit risk. Individuals buy insurance on the houses they own to limit the consequences of calamitous events, such as fires or hurricanes.

BASIC CHARACTERISTICS OF INSURANCE

The simple example discussed earlier illustrates why individuals seek health insurance and why insurance companies are formed to provide such insurance. Next, we will dig a little deeper into insurance basics.

Insurance typically has four distinct characteristics:

1. *Pooling of losses*. The [**pooling**](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/glossary.xhtml#BB145) (sharing) of losses is the heart of insurance. Pooling means that losses are spread over a large group of individuals so that each individual realizes the average loss of the pool rather than the actual loss incurred. In addition, pooling involves the grouping of a large number of homogeneous exposure units (people or things having the same risk characteristics). Thus, pooling implies (a) the sharing of losses by the entire group and (b) the prediction of future losses with some accuracy based on the law of large numbers. (The law of large numbers implies that predicting outcomes is easier when many identical trials are involved. For example, if a coin is flipped only once, you do not know whether the results will be heads or tails. However, if the coin is flipped 1,000 times, the result will be very close to 500 heads and 500 tails. In other words, you cannot predict the results of a single toss with any confidence, but you can predict the aggregate results if you have a large pool of tosses.)
2. *Payment only for random losses*. A [**random loss**](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/glossary.xhtml#BB166) is unforeseen and occurs as a result of chance. Insurance is based on the premise that payments are made only for losses that are random. We discuss the moral hazard problem, in which losses are not random, in a later section.
3. *Risk transfer*. An insurance plan almost always involves [**risk transfer**](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/glossary.xhtml#BB183). The sole exception to the element of risk transfer is self-insurance, whereby an individual or a business does not buy insurance. (Self-insurance is discussed in a later section.) Risk transfer means that the risk is shifted from the insured to the insurer, which typically is in a better financial position to pay the loss than is the insured because of the premiums collected. In addition, because of the law of large numbers, the insurance company is better able to predict its losses.
4. *Indemnification*. [**Indemnification**](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/glossary.xhtml#BB104) is the reimbursement of the insured if a loss occurs. In the context of health insurance, indemnification occurs when the insurer pays, in whole or in part, the insured or the provider for the expenses related to an insured's illness or injury.

In summary, we applied these four characteristics to our insurance example: (1) The losses are pooled across a million individuals, (2) the losses on each individual are random (unpredictable), (3) the risk of loss is passed to the insurance company, and (4) the insurance company pays for any losses.

REAL-WORLD PROBLEMS

Insurance works fine when the four basic characteristics are present. However, if any of these characteristics is violated, problems arise. The two most common problems are adverse selection and moral hazard.

Adverse Selection

Adverse selection occurs because those individuals and businesses likely to incur losses are more inclined to purchase insurance than are those less likely to incur losses (see “[Critical Concept: Adverse Selection](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter03.xhtml#CC017)”). For example, an otherwise healthy individual without insurance who needs a costly surgical procedure is more apt to get health insurance if she can afford it, whereas an identical individual without the threat of surgery is less likely. Similarly, consider the health insurance purchase likelihood of a 20-year-old versus that of a 65-year-old. All else the same, the older individual, with much greater health risk because of age, will probably obtain insurance. (Individuals aged 65 or older consume, on average, more than three times the dollar amount of healthcare services that younger individuals do.)

If the tendency toward adverse selection goes unchecked, a disproportionate number of sick people, or those most likely to become sick, will seek health insurance, causing the insurer to experience higher-than-expected claims. This increase in claims will trigger a premium increase, which worsens the problem, because healthier members of the plan will either pursue cheaper rates from another company (if available) or forgo insurance.

One way health insurers attempt to control adverse selection is by instituting [**underwriting**](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/glossary.xhtml#BB219)provisions. Thus, smokers may be charged a higher premium than nonsmokers. Another way is by including preexisting condition clauses in contracts, although this strategy was disallowed by the passage of the Affordable Care Act in 2010. (A preexisting condition is a physical or mental condition of the insured individual that existed before the issuance of the policy.) A typical clause might state that preexisting conditions are not covered until the policy has been in force for some period—say, one or two years. Preexisting conditions present a true problem for the health insurance field because an important characteristic of insurance is randomness. If an individual has a preexisting condition, the insurer no longer bears random risk but rather assumes the role of payer for the treatment of a known condition.

Because insurers tend to avoid paying large predictable claims, the US Congress passed the Health Insurance Portability and Accountability Act (HIPAA) in 1996. Among other actions, HIPAA set national standards, which could be modified within limits by the states, regarding what provisions could be included in health insurance policies. For example, under a group health policy—say, one that covers employees of a furniture manufacturer—coverage to individuals cannot be denied or limited, and employees cannot be required to pay more in premiums if they suffer from poor health.

HIPAA also limited insurers’ ability to impose preexisting condition clauses and how long they could delay before beginning coverage. It allowed time credit for preexisting conditions under one plan to be counted toward a second plan should the employee change jobs, provided no break in coverage occurs. Under the Affordable Care Act (ACA), preexisting condition clauses are banned for health plans after 2014. (See [section 3.8](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter03.xhtml#sub34) for a discussion of the ACA; also see “[For Your Consideration: Adverse Selection and Healthcare Reform](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter03.xhtml#CC018).”)

Finally, health insurance cannot be canceled if the policyholder becomes sick, and if a policyholder leaves the company, he has the right to purchase insurance (for a limited time) from the insurer that provided the company's group policy. All in all, the provisions of HIPAA and the ACA protect individuals against actions by insurers when their health status changes for the worse or when they leave the employer.

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|  | **CRITICAL CONCEPT** |
| Adverse Selection |

Adverse selection, in its simplest form, means that individuals most likely to need healthcare services are most likely to buy health insurance. This tendency creates a problem for insurers because it drives the costs of healthcare for a defined population to higher-than-anticipated levels.

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|  | **FOR YOUR CONSIDERATION** |
| Adverse Selection and Healthcare Reform |

When the cost of health insurance is relatively low, such as in an employer-subsidized plan, most people to whom it is made available will opt in (take the insurance). However, when the cost of health insurance is relatively high, the choice is not as easy to make. Often, those who opt in will be more likely to have immediate healthcare needs and hence be more expensive to insure than the population as a whole. Thus, as Kay Lazar wrote in a June 30, 2010, *Boston Globe* article titled “Short-Term Insurance Buyers Drive up Cost in Mass.,” adverse selection is a factor in increased health insurance costs, and the higher the costs, the higher the premiums, which means even more individuals will do without coverage.

The traditional techniques used by insurers to mitigate adverse selection risk have included denying coverage to or charging higher premiums for individuals with preexisting health conditions or excluding those conditions from the individual's policy. While supporting the healthcare insurance system's viability, these techniques were one major reason health insurance was viewed in a negative light by many consumers. Now, however, healthcare reform (discussed in [section 3.8](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter03.xhtml#sub34)) has eliminated or limits most of the traditional adverse selection risk-management techniques. Instead, the legislation's aim is to maximize the number of healthy people who obtain coverage by offering subsidies to lower-income Americans and mandating penalties for those who refuse to take coverage. This “individual mandate” approach is intended to put almost everyone into the insurance pool, thereby eliminating adverse selection.

What do you think? Will the individual mandate eliminate adverse selection? What specific provisions are necessary for the mandate to work? Note that more than two dozen states, interest groups, and individuals sued the federal government, arguing that the individual mandate is unconstitutional. Ultimately, the US Supreme Court upheld the individual mandate in 2012.

Moral Hazard

The fact that insurance is based on the premise that payments are made only for random (unforeseen) losses creates the moral hazard problem (see “[Critical Concept: Moral Hazard](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter03.xhtml#CC019)”). The most common illustration of moral hazard is the owner who deliberately sets a failing business on fire to collect the insurance.

Moral hazard is also present in health insurance, but its form typically is not so dramatic—not too many people are willing to sustain injury or illness voluntarily for the purpose of collecting health insurance benefits. However, undoubtedly some people do purposely use healthcare services that are not medically required. For example, some people who live alone might visit a physician or a walk-in clinic for the social value of human companionship rather than to address a medical necessity.

Insurers attempt to protect themselves from moral hazard claims by paying less than the full amount of healthcare costs. Forcing insured individuals to bear some of the cost lessens their tendency to consume unneeded services or engage in unhealthy behaviors. One way to make patients pay out of pocket is to require a [**deductible**](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/glossary.xhtml#BB070). Medical policies usually stipulate a dollar amount that must be satisfied before benefits are paid.

Although deductibles help offset the moral hazard problem, their primary purpose is to eliminate the need for an insurer to pay a small claim, if that is the only healthcare expense for the year. In such cases, the administrative cost of processing the claim may be larger than the amount of the claim itself. To illustrate, a policy may state that the first $500 (or more) of medical expenses incurred each year will be paid by the individual. Once the deductible is met, the insurer will pay all eligible medical expenses (less any copayments and coinsurance) for the remainder of the year.

The primary weapons that insurers have against the moral hazard problem are copayments and coinsurance. A [**copayment**](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/glossary.xhtml#BB049) (or copay) is a fixed amount paid by the patient each time a service is rendered, such as $20 per office visit or $75 for each emergency department visit. [**Coinsurance**](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/glossary.xhtml#BB043) is the sharing of costs between the patient and insurer, typically on a percentage basis. For example, the patient bears 20 percent of the costs of a hospital stay.

Copays and coinsurance serve two primary purposes. First, these payments discourage overutilization of healthcare services and hence reduce insurance benefits. By extension, by being forced to pay some of the costs, insured individuals will presumably seek fewer and more cost-effective treatments and embrace a healthier lifestyle than they would otherwise. Second, because insured individuals pay part of the cost, premiums can be reduced. Health insurance premiums (the cost of the policy to the subscriber) have risen rapidly in the past ten years and now exceed $15,000 annually for family coverage. Employers, on average, pay about 75 percent of the premium costs. Because of this alarming trend in health premium costs, employers are seeking ways to reduce them; one way is to pass more of the costs on to employees through copays and coinsurance.

Some health insurance policies contain out-of-pocket maximums, whereby the insurer pays all covered costs, including coinsurance, after the insured individual pays a certain amount of costs—say, $2,000. Finally, prior to 2010, most insurance policies had policy limits, for example, $1 million in total lifetime coverage, $1,500 per year for mental health benefits, or $100 for eyeglasses. These limits were designed to control excessive use of certain services and protect the insurer against catastrophic losses. The ACA banned lifetime limits and is phasing out annual limits on most health plans.

Before we move on, we should briefly mention a newer type of health insurance that is gaining popularity: [**high-deductible health plans (HDHPs)**](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/glossary.xhtml#BB100). An HDHP typically has a lower premium but has a higher annual deductible (more than $2,000 for family coverage) than traditional plans do. However, it allows individuals to set up savings accounts for the sole purpose of paying healthcare costs. Furthermore, contributions to such accounts are tax deductible (up to a set limit) and can roll over from year to year. HDHPs are popular with executives and other highly paid workers because of the tax shelter benefit, and many employers are offering a HDHP option to their employees to help control healthcare costs.

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|  | **CRITICAL CONCEPT** |
| Moral Hazard |

Moral hazard is the risk to an insurer that excess healthcare services are being consumed because individuals do not bear the full cost of the services provided. For example, a patient may be quick to agree to an expensive test, even though that test is not medically necessary, because most of the cost is covered by insurance.

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|  | **SELF-TEST QUESTIONS** |
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1. Briefly explain the concept of health insurance.
2. What is adverse selection, and how do insurers deal with the problem?
3. What is moral hazard, and how do insurers handle it?

3.3 THIRD-PARTY PAYERS

As mentioned earlier, a large proportion of provider revenues does not come directly from patients (the users of healthcare services) but from insurers, known collectively as *third-party payers* (see “[Critical Concept: Third-Party Payers](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter03.xhtml#CC020)”). Because a healthcare organization's revenues are key to its financial viability, we first discuss the sources of most revenues in the healthcare sector. In [section 3.5](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter03.xhtml#sub31), we examine the types of reimbursement methods employed by these payers.

Health insurance originated in Europe in the early 1800s when mutual benefit societies were formed to reduce the financial burden associated with illness or injury. Today, health insurers fall into two broad categories: private insurers and public programs.

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|  | **CRITICAL CONCEPT** |
| Third-Party Payers |

Third-party payers are the insurers that reimburse health services organizations and hence are the major source of revenues for most providers. Third-party payers include private insurers, such as Blue Cross Blue Shield, and public (government) insurers, such as Medicare and Medicaid. Third-party payers use several reimbursement methods to pay providers, depending on the specific payer (e.g., the Blues vs. Medicare) and the type of service rendered (e.g., inpatient vs. outpatient).

PRIVATE INSURERS

In the United States, the concept of public, or government, health insurance is relatively new, while private health insurance has been in existence since the early twentieth century. In this section, we discuss the major private insurers.

Blue Cross and Blue Shield

Blue Cross Blue Shield organizations trace their roots to the Great Depression, when both hospitals and physicians were concerned about their patients’ abilities to pay healthcare bills. Blue Cross originated as a number of separate insurance programs offered by individual hospitals. At that time, many patients were unable to pay their hospital bills, but most people, except the poorest, could afford to pay small monthly premiums to purchase some type of hospitalization insurance. Thus, the programs were initially designed to benefit both patients and hospitals.

The programs were all similar in structure: Hospitals agreed to provide a certain number of services to program members who made periodic payments to the hospitals whether services were used or not. In a short time, these programs were expanded from single-hospital programs to community-wide, multihospital plans that were called hospital service plans. The American Hospital Association (AHA) recognized the benefits of such plans to hospitals, so a close relationship was formed between the AHA and the organizations that offered hospital service plans.

In the early years, several states ruled that the sale of hospital services by prepayment did not constitute insurance, so the plans were exempt from regulations governing insurance companies. However, the legal status of hospital service plans clearly would be subject to future scrutiny unless their status was formalized. Thus, the states, one by one, passed legislation that provided for the founding of not-for-profit hospital service corporations that were exempt both from taxes and from the capital requirements (reserves) mandated for other insurers. However, state insurance departments had (and continue to have) oversight of most aspects of the plans’ operations. The Blue Cross name was officially adopted by most of these plans in 1939.

Blue Shield plans developed in a manner similar to that of the Blue Cross plans, except that the providers were physicians instead of hospitals and the professional organization involved was the American Medical Association instead of the AHA. Today, 36 Blue Cross Blue Shield (the Blues) organizations exist, some of which offer only one of the two plans (most offer both). The Blues are organized as independent corporations, but all belong to a single national association that sets the standards required for using the Blue Cross Blue Shield name. Collectively, the Blues provide healthcare coverage for about 1 in 3 Americans across all 50 states, the District of Columbia, and Puerto Rico.

Historically, the Blues have been not-for-profit corporations that enjoyed the full benefits accorded to that status, including freedom from taxes. However, in 1986, Congress eliminated the Blues’ tax exemption on the grounds that they engaged in commercial-type insurance activities. However, the plans were given special deductions, which resulted in taxes that are generally less than those paid by commercial insurers.

In spite of the 1986 change in tax status, the national association continued to require all Blues organizations to operate entirely as not-for-profit corporations, although they were allowed to establish for-profit subsidiaries. In 1994, the national association lifted its traditional ban on member plans becoming investor-owned companies, and several Blues have since converted to for-profit status.

Commercial Insurers

Commercial health insurance traditionally was issued by life insurance and casualty insurance (home and auto) companies. Today, however, most health insurance is provided by companies that exclusively write health insurance. Examples of commercial insurers include Aetna, Humana, and UnitedHealth Group. Most commercial insurance companies are shareholder owned, and all are taxable entities.

Commercial insurers moved strongly into health insurance following World War II. At that time, the United Auto Workers negotiated the first contract with employers in which fringe benefits were a major part of the contract. Like the Blues, the majority of individuals with commercial health insurance are covered under [**group policies**](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/glossary.xhtml#BB096) with employee groups, professional and other associations, and labor unions.

Self-Insurers

An argument can be made that all individuals who do not have some form of health insurance are self-insurers, but this statement is not accurate. Self-insurers make a conscious decision to bear the risks associated with healthcare costs and then set aside (or have available) funds to pay for costs they may incur in the future. Individuals, except the very wealthy, are not good candidates for self-insurance because, as discussed earlier, individuals who do not pool risks face much uncertainty in future healthcare costs.

On the other hand, large organizations, especially employers, are good candidates for self-insurance. In fact, most large companies, and many midsized companies, are self-insured. The advantages of self-insurance include the potential to reduce costs (cut out the middleman) and the opportunity to offer plans tailored to meet the unique characteristics of the organization's employees. Organizations that self-insure typically pay an insurance company to administer the plan. For example, employees of the State of North Carolina are covered by health insurance, the costs of which are paid directly by the state, but the plan is administered by Blue Cross Blue Shield of North Carolina.

PUBLIC INSURERS

Government is both a major insurer and a direct provider of healthcare services. For example, the government provides healthcare services directly to qualifying individuals through Department of Veterans Affairs, Department of Defense, and Public Health Service medical facilities. In addition, it either provides or mandates a variety of insurance programs, such as workers’ compensation and Tricare (health insurance for military members, their families, and uniformed services retirees). In this section, however, we focus on the two major government insurance programs—Medicare and Medicaid—that fund roughly one-third of all healthcare services provided in the United States.

Medicare

Medicare was established by Congress in 1965, primarily to provide medical benefits to individuals aged 65 or older (see “[Critical Concept: Medicare](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter03.xhtml#CC022)”). According to the Centers for Medicare & Medicaid Services (CMS), about 54 million people have Medicare coverage, which pays for about 20 percent of all US healthcare expenditures.

Over the decades, Medicare has evolved to include four major types of coverage:

1. Part A provides hospital and some skilled nursing home coverage.
2. Part B covers physician services, ambulatory surgical services, outpatient services, and other miscellaneous services.
3. Part C is managed care coverage offered by private insurance companies. It can be selected in lieu of Parts A and B.
4. Part D covers prescription drugs.

In addition, Medicare covers healthcare costs associated with selected disabilities and illnesses (such as kidney failure) regardless of age.

Part A coverage is free to all individuals eligible for Social Security benefits. Individuals who are not eligible for Social Security benefits can obtain Part A medical benefits by paying monthly premiums. Part B is optional to all individuals who have Part A coverage, and it requires a monthly premium from enrollees that varies with income level. According to the Kaiser Family Foundation's fact sheet on Medicare, about 93 percent of Part A participants purchase Part B coverage, while about 31 percent of Medicare enrollees elect to participate in Part C, also called [**Medicare Advantage plans**](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/glossary.xhtml#BB120), rather than Parts A and B. Part D offers prescription drug coverage through plans offered by private companies. Each Part D plan offers somewhat different coverage, so the cost of Part D coverage varies widely.

Because Parts A and B do not cover all costs of care and the remaining out-of-pocket costs can be significant, many Medicare participants purchase additional coverage from private insurers to help cover the gaps in Medicare coverage. Such coverage is called [**Medigap insurance**](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/glossary.xhtml#BB122).

The Medicare program falls under the purview of HHS, which writes the regulations (i.e., the specific rules of the program) based on enabling legislation passed by Congress. Medicare is administered by the [**Centers for Medicare & Medicaid Services (CMS)**](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/glossary.xhtml#BB038), which is an agency in HHS. CMS's eight regional offices oversee the Medicare and Medicaid programs and ensure that regulations are followed. Medicare payments to providers are not made directly by CMS but by contractors for 16 Medicare administrative contractor jurisdictions.

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|  | **CRITICAL CONCEPT** |
| Medicare |

Medicare is a federal health insurance program that primarily covers elderly individuals (those aged 65 or older). It consists of four major parts: Part A covers inpatient services, Part B covers outpatient services, Part C is managed care coverage that replaces Parts A and B, and Part D covers prescription drugs. Medicare is administered by CMS, which is an agency of the US Department of Health and Human Services (HHS).

Medicaid

Medicaid began in 1965 as a modest program jointly funded and operated by the individual states and the federal government (see “[Critical Concept: Medicaid](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter03.xhtml#CC021)”). The idea was to provide a medical safety net for low-income mothers and children and for elderly, blind, and disabled individuals.

Congress mandated that state programs, at a minimum, cover hospital and physician care but encouraged states to provide additional benefits either by increasing the range of benefits or extending the program to cover more people. States with large tax bases were quick to expand coverage to many groups, while states with limited revenues were forced to establish more restrictive programs. In addition to state expansions, a mandatory nursing home benefit was added in 1972. As a consequence, Medicaid is now the largest payer of long-term care benefits and the largest single budget item for many states. In total, Medicaid covers roughly 70 million individuals and pays for about 17 percent of all healthcare expenditures in the United States, according to Statista's information on Medicaid enrollment and CMS.

Over the years, Medicare and Medicaid have provided access to healthcare services for many low-income individuals who otherwise would have no health insurance coverage. Furthermore, these programs have become an important source of revenue for healthcare providers, especially for nursing homes and other providers that treat large numbers of low-income patients. However, Medicare and Medicaid expenditures have been growing at an alarming rate, forcing federal and state policymakers to search for more cost-effective ways to provide healthcare services.

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|  | **CRITICAL CONCEPT** |
| Medicaid |

Medicaid is a joint federal–state health insurance program that primarily covers low-income individuals and families. The federal government funds about half of the costs of the program, while the states fund the remainder. Although general guidelines are established by CMS, the program is administered by the individual states. Thus, each state, as long as it follows basic federal guidelines, can set its own rules regarding eligibility, benefits, and provider payments.

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|  | **SELF-TEST QUESTIONS** |
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1. What are the different types of private insurers?
2. Briefly, what are the origins and purpose of Medicare?
3. What is Medicaid, and how is it administered?

3.4 MANAGED CARE ORGANIZATIONS

Managed care organizations (MCOs) strive to combine the provision of healthcare services and the insurance function into a single entity (see “[Critical Concept: Managed Care Organizations: HMOs and PPOs](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter03.xhtml#CC023)”). Typically, MCOs are created by insurers that either directly own a provider network or create one through contractual arrangements with independent providers. Occasionally, however, MCOs are created by integrated delivery systems that establish their own insurance companies.

Historically, the most common type of MCO was the health maintenance organization (HMO). HMOs were developed to thwart the perverse incentives created by traditional insurer–provider relationships whereby providers were rewarded for treating patients’ illnesses but given little incentive to provide prevention and rehabilitation services. By combining the financing and delivery of healthcare services into a single system, HMOs theoretically have as strong an incentive to prevent as to treat illnesses. However, because their organizational structures, ownership, and financial incentives differ from plan to plan, HMOs can vary widely in cost and quality.

HMOs use a variety of methods to control costs. These include limiting patients to particular providers, called the [**provider panel**](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/glossary.xhtml#BB163), and using primary care physicians as [**gatekeepers**](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/glossary.xhtml#BB091) who authorize all specialized and referral services. In general, services are not covered if beneficiaries bypass their gatekeeper physician or use providers that are not part of the HMO panel.

The federal Health Maintenance Act of 1973 encouraged the development of HMOs by providing federal funds for HMO operating grants and loans. In addition, the act required larger employers that offer healthcare benefits to their employees to include an HMO as one alternative, if one was available in the area, in addition to traditional insurance plans.

Although the number and sizes of HMOs grew rapidly during the 1980s and 1990s, since that time they have lost some of their luster because healthcare consumers have been unwilling to accept access limitations, even though such limitations might reduce costs. To address consumer concerns and falling enrollments, another type of MCO—the preferred provider organization (PPO)—was developed. These organizations do not wield as much control as HMOs but combine some of the cost-saving strategies of HMOs with features of traditional health insurance plans.

PPOs do not mandate that beneficiaries use specific providers. They do, however, offer financial incentives to encourage members to use providers that participate in the plan. That panel of providers typically negotiates discounted price contracts with the PPO. Furthermore, PPOs do not require plan members to use preselected gatekeeper physicians. Finally, PPOs are less likely than HMOs to provide preventive services, and they do not assume any responsibility for quality assurance because enrollees are not constrained to use only the PPO panel of providers.

In an effort to achieve the potential cost savings of MCOs, health insurers are now applying managed care strategies, such as preadmission certification, utilization review, and second surgical opinions, to their conventional plans. Thus, the term *managed care* now describes a continuum of plans that can vary significantly in their approaches to providing combined insurance and healthcare services. The common feature in MCOs is that the insurer has a mechanism to control, or at least influence, patients’ consumption of healthcare services. Today, most employer-sponsored health coverage is provided by some type of MCO.

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|  | **CRITICAL CONCEPT** |
| Managed Care Organizations: HMOs and PPOs |

Managed care organizations (MCOs) combine insurer and provider functions into a single administrative organization. The idea here is not only to pay for care but also to manage the care provided. MCOs come in different types, and their primary difference is in how tightly the care is managed. Health maintenance organizations (HMOs) tend to exercise the most control over the types and amount of care provided, while preferred provider organizations (PPOs) tend to be less controlling. In all managed care plans, the goal is to provide only services that are medically required in the lowest-cost setting.

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|  | **SELF-TEST QUESTIONS** |
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1. What is meant by the term *managed care organization* (MCO)?
2. What are two different types of MCOs?

3.5 ALTERNATIVE REIMBURSEMENT METHODS

Regardless of payer, only a limited number of payment methods are used to reimburse providers for healthcare services. Payment methods fall into two broad classifications: fee-for-service and capitation. In this section, we discuss the most frequently used reimbursement methods.

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|  | **CRITICAL CONCEPT** |
| Fee-for-Service Reimbursement |

Under fee-for-service reimbursement, health services organizations are paid on the basis of the amount of services provided. The term *service* can be defined several ways. For example, a physician may be paid for each procedure performed, such as conducting an office visit or reading a CT (computed tomography) scan. A hospital may be reimbursed for costs incurred, for each admission, or for each patient day; a clinical laboratory may be paid for each test performed. Regardless of the specific definition of a service, in fee-for-service reimbursement the greater the amount of services provided, the greater the revenues. Thus, the risk of utilization (volume of services) uncertainty is borne by the insurer rather than by the provider.

FEE-FOR-SERVICE

In *fee-for-service* payment methods, of which many variations exist, the more services provided, the higher the reimbursement (see “[Critical Concept: Fee-for-Service Reimbursement](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter03.xhtml#CC024)”). The three primary fee-for-service methods of reimbursement are cost based, charge based, and prospective payment.

Cost-Based Reimbursement

Under cost-based reimbursement, the payer agrees to reimburse the provider for the costs incurred in providing services to the insured population. Cost-based reimbursement is retrospective in the sense that reimbursement is based on what has happened in the past. This type of reimbursement is limited to allowable costs, usually defined as costs directly related to the provision of healthcare services. For all practical purposes, cost-based reimbursement guarantees that a provider's costs will be covered by revenues generated from the delivery of those services.

Charge-Based Reimbursement

Under a charge-based reimbursement system, when payers pay billed charges, they pay according to a rate schedule, called a [**chargemaster**](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/glossary.xhtml#BB039), established by the provider. To a certain extent, this reimbursement system places payers at the mercy of providers, especially in markets where competition is limited. In the very early days of health insurance, all payers reimbursed providers on the basis of charges. Now, the trend is shifting toward other, less generous reimbursement methods, and the only payers expected to pay the full amount of charges are self-pay (private-pay) patients. Even among those consumers, low-income uninsured patients often are given discounts from charges or not required to pay at all.

Most insurers that still base reimbursement on charges now pay negotiated, or discounted, charges. Insurers that offer managed care plans, as well as conventional insurers, often hold bargaining power because they have the capacity to bring a large number of patients to a provider, which allows them to negotiate discounts that generally range from 20 percent to 50 percent (or more) of charges. The effect of these discounts is to create a system similar to hotel or airline pricing, whereby few people pay the listed rates (rack rates or full fares, respectively). Many people argue that chargemaster prices have become meaningless, and hence the entire concept should be abandoned. However, old habits die hard, and chargemaster prices still play a role in some reimbursement methods, so we expect they will be in use for some time.

Prospective Payment Reimbursement

In a [**prospective payment**](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/glossary.xhtml#BB162) system, the rates paid by payers are determined by the payer before the services are provided. Furthermore, payments are not directly related to either costs or charges. Here are the common units of payment used in prospective payment systems:

* *Per procedure*. Under per-procedure reimbursement, a separate payment is made for each procedure performed on a patient. Because of the high administrative costs associated with this method when applied to complex diagnoses, per-procedure reimbursement is primarily used in outpatient settings.
* *Per diagnosis*. In the per-diagnosis reimbursement method, the provider is paid a rate that depends on the patient's diagnosis. Diagnoses that require higher use of resources, and hence are more costly to treat, have higher reimbursement rates. Medicare pioneered this basis of payment in its diagnosis-related group (DRG) system, which it first used for hospital inpatient reimbursement in 1983. (See “[Healthcare in Practice: How Medicare Pays Providers](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter03.xhtml#CC025)” for examples of per-procedure and per-diagnosis reimbursement.)
* *Per diem* (per day). Some insurers reimburse institutional providers, such as hospitals and nursing homes, on a per diem (per day) basis. In this approach, the provider is paid a fixed amount for each day that service is provided. Often, per diem rates are stratified, which means that different rates are applied to different services. For example, a hospital may be paid one rate for a medical/surgical day, a higher rate for a critical care unit day, and yet a different rate for an obstetric day. Stratified per diems recognize that providers incur widely varied daily costs for providing different types of inpatient care.
* *Bundled* (*global) reimbursement*. Under bundled reimbursement, payers reimburse providers a single prospective payment that covers all services delivered in a single episode, whether the services are rendered by a single provider or by multiple providers. For example, a bundled price may be set for all obstetric services associated with a pregnancy provided by a single physician, including all prenatal and postnatal visits and the delivery. For another example, a bundled price may be paid for all physician and hospital services associated with a cardiac bypass operation. Note that at the extreme, a bundled price could be set for all services provided to a single patient, which, in effect, is capitation reimbursement, as described in the [next section](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter03.xhtml#sub32).

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|  | **HEALTHCARE IN PRACTICE** |
| How Medicare Pays Providers |

Medicare uses different reimbursement methods to pay for hospital services and physician services. In this box, we briefly describe the method for each. Understanding the basics of Medicare reimbursement is important to healthcare managers because many other third-party payers have adopted these or similar systems.

**Hospitals**

From its inception in 1965 until 1983, Medicare hospital payments for inpatients were based on a retrospective system that reimbursed hospitals for all reasonable costs. In 1983, in an attempt to curb Medicare spending, Congress established the inpatient prospective payment system (inpatient PPS or IPPS) for acute care hospitals. Under the IPPS, a single payment for each inpatient stay covers the cost of routine inpatient care, special care, and ancillary services. The amount of the prospective payment is based on the patient's DRG.

The starting point in determining the amount of reimbursement is the DRG itself. Potential patient diagnoses have been divided into 334 base DRGs (base diagnoses). These base diagnoses are split into subgroups (Medicare severity [MS]-DRGs) on the basis of complications or comorbidities. (A comorbidity is the presence of one or more diseases or disorders in addition to the primary diagnosis.) In all, Medicare has established approximately 760 total MS-DRGs.

To illustrate, consider the MS-DRGs for heart failure. DRG 293 is the base DRG (no complications or comorbidities [CC]), DRG 292 represents heart failure with CC, and DRG 291 is heart failure with major CC. Each MS-DRG is assigned a relative weight that represents the average resources consumed in treating that particular diagnosis relative to resources consumed in treating an average diagnosis. The greater the weight, the greater the reimbursement amount. The weights and sample payment amounts for the three heart failure DRGs are as follows:

The amount of resources required to treat an average inpatient is 1.0. As can be seen from the data, the DRG with no CC (293) has a lower weight than the DRG with CC (292), which, in turn, has a lower weight than that with major CC (291). In fact, the amount of hospital resources consumed to treat a patient with DRG 293 (basic heart failure) is less than that required to treat an average inpatient. An inpatient diagnosed with heart failure with CC (DRG 292) is about average in resource consumption, while a heart failure patient with major CC (DRG 291) uses roughly 53 percent more resources than the average inpatient.

The translation from DRG weight to payment amount (the actual dollar reimbursement) depends on several factors, such as hospital location and teaching status, and hence is somewhat complex. In essence, the DRG weight is multiplied by an adjusted base rate (dollar amount) that incorporates several factors unique to the hospital and its geographic location. In the table shown earlier in this section, see representative payment amounts calculated using an adjusted base rate of $4,964. For example, the reimbursement for a typical hospital for DRG 292 would be 0.9707 × $4,964 = $4,818. The bottom line is that the greater the amount of resources needed to treat the diagnosis, the greater the DRG weight and hence the reimbursement amount.

Note that the single DRG payment reimburses the hospital for all inpatient costs. To provide some cushion for the high costs associated with severely ill patients in each diagnosis, Medicare includes a provision for outlier payments. Such payments are designed to compensate hospitals for treating patients who consume resources that fall outside of normal bounds. Outliers are classified into two categories: length of stay (LOS) outliers and cost outliers. Medicare makes additional payments when a patient's LOS or cost exceeds established cutoff points.

Also, note that hospital outpatient visits are reimbursed on a prospective payment system that is similar in concept, but different in structure, to the inpatient MS-DRG system. The outpatient prospective payment system categorizes outpatient visits into groups called ambulatory payment classifications (APCs), which are clinically similar and tend to consume a similar amount of resources. As with MS-DRGs, Medicare multiplies each APC's weight by a hospital-specific payment rate to obtain the reimbursement amount.

**Physicians**

Through 1991, Medicare reimbursed physicians on the basis of the reasonable charge concept. In essence, Medicare defined a reasonable charge as the lowest of (1) the actual charge for the service performed, (2) the physician's customary charge, or (3) the prevailing charge for that service in the community.

Medicare changed its physician payment system in 1992 to a resource-based relative value scale (RBRVS) system. Under RBRVS, reimbursement is based on three resource components: physician work, practice (overhead) expense, and malpractice insurance expense. Each of roughly 8,000 procedure codes is assigned relative value units (RVUs) for the three resource components, which, after adjustment for geographic cost differentials, are summed to arrive at the total number of RVUs per procedure performed. The total RVUs are then multiplied by a conversion factor that equals the dollar value of one unit to obtain the dollar reimbursement amount.

For example, consider code 99213, which represents one category of office visit. The national average physician work RVU is 0.97, the practice expense RVU is 0.40, and the malpractice insurance RVU is 0.07. For a physician practicing in Marco Island, Florida, the adjusted RVU values are 0.97, 0.38, and 0.09, respectively. (The overhead costs associated with a practice in Marco Island are slightly less than the national average, but malpractice insurance is slightly more.) Assuming the 2016 Medicare conversion factor is $35.80, the Medicare reimbursement amount for the Marco Island physician would be (0.97 + 0.40 + 0.09) × $35.80 = 1.46 × $35.80 = $52.27.

Like Medicare's MS-DRG system for inpatients, the more complicated the patient treatment, the greater the reimbursement amount. However, because the codes used for physician reimbursement are specific to the services rendered, no provisions for outlier payments are given to physicians. In [section 3.7](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter03.xhtml#sub33) of this chapter, we explain medical coding, which provides the framework for most reimbursement methods.

CAPITATION

*Capitation* is an entirely different approach to reimbursement from fee-for-service (see “[Critical Concept: Capitation](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter03.xhtml#CC026)”). Under capitated reimbursement, the provider is paid a fixed amount per covered life per period (usually a month), regardless of the amount of services provided. For example, a primary care physician might be paid $15 per member per month to serve 100 members of a managed care plan. Capitation payment, which is used mostly by managed care organizations to reimburse primary care physicians, dramatically changes the financial environment of healthcare providers. Its implications are addressed in [section 3.6](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter03.xhtml#sub32)and as needed throughout the remainder of this book. (For additional information about capitation, see online chapter 15, which is available at [ache.org/books/FinanceFundamentals3](http://ache.org/books/FinanceFundamentals3).)

Before closing our discussion of reimbursement, we should note that many insurers are now creating reimbursement systems that explicitly reward providers for achieving certain benchmarks. These reimbursement systems, which are really modified fee-for-service or capitation systems, are called [**pay-for-performance (P4P)**](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/glossary.xhtml#BB142) systems.

In most P4P reimbursement schemes, insurers pay providers an “extra” amount if certain standards, usually related to quality of care, are met. For example, a primary care practice may receive additional reimbursement if it meets specified goals, such as administering mammograms to 85 percent of female patients older than 50 or placing 90 percent of diabetic patients on appropriate medication and administering quarterly blood tests. A hospital may receive additional reimbursement if it falls in the lower 10 percent of hospitals experiencing medical errors and hospital-acquired infections.

The idea behind P4P is to create financial incentives for providing high-quality care, which may incur higher costs for insurers in the short run but will lead to lower overall medical costs in the long run. In some P4P plans, insurers reduce payments to poor performers and use the savings to increase payments to high performers, forcing some providers to bear the cost of the plan (see “[For Your Consideration: Value-Based Purchasing](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter03.xhtml#CC027)”).

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|  | **CRITICAL CONCEPT** |
| Capitation |

With capitation, providers are paid a set amount on the basis of the number of members (patients) assigned to that provider. Thus, the reimbursement amount is fixed on the basis of the population served, regardless of the amount of services provided to that population. In effect, the provider, rather than the insurer, faces utilization risk, because higher per-member utilization means higher provider costs with no additional revenues. Critics of capitation contend that it creates the incentive to withhold needed services, while proponents argue that it discourages unneeded services and hence reduces costs.

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|  | **FOR YOUR CONSIDERATION** |
| Value-Based Purchasing |

Value-based purchasing, a form of pay-for-performance reimbursement, is founded on the concept that buyers of healthcare services should hold providers accountable for quality of care as well as costs. In April 2011, Medicare launched the Hospital Value-Based Purchasing program, which marked the beginning of a historic change in how Medicare pays healthcare providers. For the first time, 3,500 hospitals across the country were paid for inpatient acute care services based on care quality, not just the quantity of the services provided.

“Changing the way we pay hospitals will improve the quality of care for seniors and save money for all of us,” said HHS Secretary Kathleen Sebelius. “Under this initiative, Medicare will reward hospitals that provide high-quality care and keep their patients healthy. It's an important part of our work to improve the health of our nation and drive down costs. As hospitals work to improve quality, all patients—not just Medicare patients—will benefit.” The measures to determine quality focus on how closely hospitals follow best clinical practices and how well hospitals enhance patients’ care experiences. The better a hospital performs on its quality measures, the larger its reimbursement from Medicare. Hospitals are no longer paid solely on the quantity of services they provide. HHS set a goal of tying 90 percent of all Medicare fee-for-service to quality or value by 2018.

What do you think? Should providers be reimbursed on the basis of quality of care? How should quality be measured? Should the additional reimbursement to high-quality providers be obtained by reductions in reimbursement to low-quality providers?

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and this is chapter 4 -

CHAPTER 4

ESTIMATING COSTS

**THEME SET-UP:** COST STRUCTURE

As you know from [chapter 3](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter03.xhtml), Big Sky Dermatology Specialists is a small group practice located in Jackson, Wyoming. Jen Latimer, a recent health administration graduate and newly hired manager for the group, completed her review of Big Sky's revenue sources. Now she wants to take a closer look at Big Sky's cost structure—that is, the way Big Sky's total costs change as volume changes.

Jen remembers from her healthcare finance courses that a business's costs can be classified in several ways. The major classifications are (1) the relationship of the cost to the amount of services offered (does the cost increase as volume increases?) and (2) the relationship of the cost to the subunit being analyzed (does the cost go away if the subunit is abolished?).

As she thought about these classifications, she breathed a sigh of relief. Big Sky was not formally divided into departments (subunits), so she would not have to develop a system to allocate overhead costs, such as billing expenses, to separate departments in the practice. Still, she had to identify the costs that are unrelated to volume (fixed costs) and the costs that are tied to volume (variable costs). By identifying these two types of costs, Jen would be able to forecast Big Sky's profit potential under different assumptions about volume (number of visits).

By the end of this chapter, you will have an appreciation for the costs inherent to healthcare businesses and how those costs are classified. Then you, like Jen, will be able to apply this knowledge to estimate the cost structure of Big Sky Dermatology Specialists.

LEARNING OBJECTIVES

*After studying this chapter, you will be able to do the following:*

* Discuss the nature and purpose of managerial accounting.
* Explain how costs are classified according to their relationship with volume.
* Describe how costs are classified according to their relationship with the unit being analyzed.
* Explain why proper cost allocation is important to healthcare organizations.
* Define the terms *cost pool* and *cost driver*, and describe the characteristics of a good cost driver.
* List the three primary methods used to allocate overhead costs among revenue-producing (patient services) departments.
* Describe three methods used to cost individual services: the cost-to-charge ratio (CCR), relative value units (RVUs), and activity-based costing (ABC).
* Articulate the differences between traditional costing and ABC.

4.1 INTRODUCTION

Healthcare managers have many responsibilities. The more important ones include planning for the future, overseeing the day-to-day activities of line employees, and establishing policies that control the operations of the organization.

For example, the practice manager of a primary care practice must estimate future demand (volume) and see to it that the practice has the facilities, staff, and supplies necessary to meet this demand. He does so primarily by creating budgets that use forecasted future volume to estimate the resources needed to meet expected patient demand. As the future unfolds, the practice manager must monitor operations to see if the volume estimates were correct. If not, supplies and staffing requirements must be adjusted to reflect variations from forecasts. Finally, he must constantly review the resources used to ensure that they are being used appropriately and efficiently and are being acquired at the lowest possible costs.

All of these activities require information—a great deal of it. Furthermore, it has to be compiled in a format that facilitates analysis, interpretation, and decision-making. Without timely and relevant information, healthcare managers would be making decisions essentially in the dark. Of course, accurate information does not ensure good decision-making, but without it, the chances of making good decisions are almost nil.

The foundation of a good information system is the manager's ability to estimate costs with confidence. This task is not easy. You may be able to precisely estimate the cost of your college education—just add up the costs of tuition, books and supplies, room and board, and so on—but what about the costs of healthcare organizations? Their overall (total) costs can be measured with some precision, such as the total costs of running a hospital or a medical practice. However, what about the costs of running the emergency department, or the costs associated with Medicare patients, or the costs of treating patients who have had heart attacks? Estimating these costs with confidence is essential to sound management, yet many factors complicate the estimation process.

Although cost estimation comes with a multitude of problems, it is far too important to the financial well-being of healthcare providers to do in a sloppy way. Thus, organizations put a lot of time and effort into doing the best possible job.

4.2 THE BASICS OF MANAGERIAL ACCOUNTING

Cost estimation is an accounting function, so our coverage begins with some accounting basics. Accounting is split into two primary areas: managerial accounting and financial accounting. Whereas financial accounting (discussed in chapters [11](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter11.xhtml) and [12](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter12.xhtml)) focuses on the reporting of operational and financial results to outsiders, managerial accounting focuses on the development of information used internally for managerial decision-making (see “[Critical Concept: Managerial Accounting](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter04.xhtml#CC030)”).

Managerial accounting information is used in routine budgeting processes, to allocate managerial bonuses, and to make pricing and service decisions, all of which deal with subunits of an organization. In addition, managers can use managerial accounting data for special purposes, such as assessing alternative modes of delivery or projecting the profitability of a particular reimbursement contract.

Because managers are more concerned with what will happen in the future than with what has happened in the past, managerial accounting is for the most part forward-looking. However, because most of the future is unknown, compiling managerial accounting information requires making many assumptions about future events. For example, as managers create budgets, they often must make assumptions regarding utilization (volume), reimbursement rates, and costs.

A critical part of managerial accounting is the measurement of costs. One issue that makes this task difficult is the fact that no single definition of the term [**cost**](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/glossary.xhtml#BB051) exists. Rather, different costs exist for different purposes. As a general rule, for healthcare providers, a cost involves a resource use associated with providing, or supporting, a specific service. However, the cost per service identified for pricing purposes can differ from the cost per service used for management control purposes. Also, the cost per service used for long-range planning purposes may differ from the cost per service defined for short-term purposes. Thus, when dealing with costs, managers have to understand the context so that the correct cost is identified. To complicate matters further, costs do not necessarily reflect actual cash outflows.

Costs are classified in two primary ways: by their relationship to the volume (amount) of services provided and by their relationship to the unit (i.e., department) being analyzed. This chapter focuses on these two cost classifications. In [chapter 5](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter05.xhtml), we add revenues to the mix and show how to convert cost estimates into profit estimates.

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|  | **SELF-TEST QUESTIONS** |
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|  | **CRITICAL CONCEPT** |
| Managerial Accounting |

The accounting function in businesses is broken down into two major areas: managerial accounting and financial accounting. Financial accounting, which is covered later in the book, involves the creation of financial statements that report what has occurred at the organization. Managerial accounting concerns the creation and use of data needed to manage an organization's current and future operations. Thus, managerial accounting produces reports used at various levels in an organization, such as department operations, contract negotiations, or specific services delivery, to enhance financial performance.

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|  | **SELF-TEST QUESTIONS** |
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1. What is the primary purpose of managerial accounting information?
2. What is meant by the term *cost*?
3. What are the two primary ways that costs can be classified?

4.3 COST CLASSIFICATION 1: FIXED VERSUS VARIABLE COSTS

One way to classify costs is on the basis of their relationship to the amount of services provided, often referred to as [**volume**](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/glossary.xhtml#BB225) or *utilization*. Future volume—the number of patient days, visits, enrollees, laboratory tests, and so on—is almost always uncertain.

Volume may be forecasted in a number of ways. One way is to review historical trends, say, over the past five to ten years. In many situations, the past is a good predictor of the future. If the manager believes this to be the case, then she can apply statistical analysis (linear regression) to the historical data to predict future volumes. If past data are not available or if significant changes in the operating environment are taking place, then volume forecasting becomes more difficult. In that situation, the manager must evaluate population and disease trends in the service area, actions of competitors, pricing strategies, the impact of new contracts with insurers, and a whole host of additional factors that influence future volume.

If a provider's volume forecast turns out to be inaccurate, the consequences can be severe. First, if the market for any particular service expands more than expected and planned for, the provider will not be able to meet its patients’ needs. Potential patients will go elsewhere, and the provider will lose market share and perhaps miss a major opportunity to maintain or increase its business. On the other hand, if projections are overly optimistic, the provider could end up with excess equipment, supplies, and staff, and hence costs that are higher than necessary.

In spite of the difficulties in forecasting volume with precision, managers typically have some idea of the potential range. For example, the manager of Northside Clinic, a small walk-in clinic, might estimate that the total number of patient visits for next year will likely range from 12,000 to 14,000 or from about 34 to 40 per day. If utilization is not likely to fall outside of these bounds, then the range of 12,000 to 14,000 annual visits defines the clinic's [**relevant range**](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/glossary.xhtml#BB173). Note that the relevant range pertains to a particular period—in this case, next year. For other periods, the relevant range might differ from this estimate.

FIXED COSTS

Some costs, called *fixed costs*, are more or less known with certainty, regardless of the level of volume in the relevant range. For example, Northside Clinic's labor force would be increased or decreased only under unusual circumstances. Thus, as long as volume falls within the relevant range of 12,000 to 14,000 patient visits, labor costs at the clinic are fixed for the coming year. The actual number of visits might turn out to be 12,352 or 13,877, but labor costs will remain at their forecasted level as long as volume falls in the relevant range (see “[For Your Consideration: Cost Structure and Relevant Range](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter04.xhtml#CC031)”). Other examples of the clinic's fixed costs include expenditures on facilities (e.g., rent, property taxes, utilities), diagnostic equipment, and information systems. After an organization has acquired these assets, it typically is locked into them for some period regardless of volume fluctuations, so these costs are known beforehand.

Of course, no costs are fixed over the long run or over large volume changes. At some level of increasing volume, healthcare businesses must incur additional fixed costs for new facilities and equipment, additional staffing, and so on. Likewise, if volume decreases by a substantial amount, an organization likely would reduce fixed costs by shedding some of its facilities and parts of its equipment and labor base.

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|  | FOR YOUR CONSIDERATION |
| Cost Structure and Relevant Range |

In general, an organization's underlying cost structure is defined for a specified relevant range. For example, assume that Atlanta Clinic's underlying cost structure is given as follows:

Assume that the expected number of visits next year is 75,000 and the relevant range for this cost structure is 70,000 to 80,000 visits. Now, assume that a new payer makes a proposal to the clinic that would increase next year's volume by 10,000 visits, which would increase the expected number of visits to 85,000. The financial staff presents you, the CEO, with an analysis of the costs under the new proposal that was calculated as follows:

What is your initial reaction to the analysis? Is it valid or must it be redone? What variable in the underlying cost structure is most likely to change at a volume of 85,000 visits?

VARIABLE COSTS

Whereas some costs are fixed regardless of volume (within the relevant range), other resources are more or less consumed as volume dictates. Costs that are related to (depend on) volume are called *variable costs* (see “[Critical Concept: Fixed Versus Variable Costs](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter04.xhtml#CC032)”). For example, the costs of the clinical supplies (e.g., rubber gloves, tongue depressors, hypodermics, bandages) used by Northside would be classified as variable costs. Also, some of the clinic's diagnostic equipment is leased on a per-use basis (a fixed payment each time the equipment is used), which converts the cost of the equipment from a fixed cost to a variable cost. Finally, some healthcare organizations pay their employees on the basis of the amount of work performed, which would convert labor costs from fixed to variable. The bottom line is that fixed costs are independent of the volume of services delivered (within the relevant range), while variable costs depend on volume.

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|  | **CRITICAL CONCEPT** |
| Fixed Versus Variable Costs |

One way to classify costs is by their relationship to volume. Fixed costs are known and predictable regardless of volume (within some relevant range). Conversely, variable costs depend on the volume of services supplied. Consider a clinical laboratory. The costs of the building, equipment, and personnel to run the lab are known with some certainty for the coming year. Furthermore, these costs are independent of the number of tests actually conducted. Such costs are fixed. However, the annual costs of reagents and other test supplies depend on the number (and type) of tests conducted—the greater the number of tests, the greater these costs. Thus, the accounting system would classify these costs as variable.

UNDERLYING COST STRUCTURE

Healthcare managers are vitally interested in how costs are affected by changes in the amount of services supplied. The relationship between costs and volume, called *underlying cost structure* (or just cost structure), is used by managers in planning, control, and decision-making (see “[Critical Concept: Underlying Cost Structure](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter04.xhtml#CC033)”). The primary reason for defining an organization's cost structure is to provide managers with a tool for forecasting costs (and ultimately profits) at different volume levels.

To illustrate the concept, consider the hypothetical cost data presented in [exhibit 4.1](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter04.xhtml#exh4.1) for a hospital's clinical laboratory. The cost structure consists of both fixed and variable costs—that is, some of the costs are expected to be volume sensitive and some are not. This structure of both fixed and variable costs is typical in health services organizations as well as most other businesses (see “[Healthcare in Practice: The Cost Structures of Medical Practices](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter04.xhtml#CC034)”). For illustrative purposes, let us assume the relevant range is from zero to 20,000 tests. (Of course, the actual relevant range might be from 15,000 to 20,000 tests.)

As noted in [exhibit 4.1](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter04.xhtml#exh4.1), the laboratory has $150,000 in fixed costs that consist primarily of labor, facilities, and equipment. (We have purposely kept the numbers unrealistically small for ease of illustration.) These costs will occur even if the laboratory does not perform one test. In addition to the fixed costs, each test, on average, requires $10 in laboratory supplies, such as glass slides, blood test tubes, and reagents.

The per-unit (per test, in this example) variable cost of $10 is defined as the [**variable cost rate**](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/glossary.xhtml#BB221). If laboratory volume doubles—for example, from 500 to 1,000 tests—total variable costs will double from $5,000 to $10,000. However, the variable cost rate of $10 per test remains the same whether the test is the first, the hundredth, or the thousandth. [**Total variable costs**](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/glossary.xhtml#BB212), therefore, increase or decrease proportionately as volume changes, but the variable cost rate remains constant.

Fixed costs, in contrast to total variable costs, remain unchanged as the volume varies. When volume doubles from 500 to 1,000 tests, fixed costs remain at $150,000. Because all costs in this example are either fixed or variable, [**total costs**](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/glossary.xhtml#BB209) are merely the sum of the two. For example, at 5,000 tests, total costs are Fixed costs + Total variable costs = $150,000 + (5,000 × $10) = $150,000 + $50,000 = $200,000. Because variable costs are tied to volume, total variable costs, and hence total costs, increase as the volume increases, even though fixed costs remain constant.

The rightmost column in [exhibit 4.1](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter04.xhtml#exh4.1) contains [**average cost**](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/glossary.xhtml#BB016) per unit of volume, which in this example is average cost per test. It is calculated by dividing total costs by volume. For example, at 5,000 tests, with total costs of $200,000, the average cost per test is $200,000 ÷ 5,000 = $40. Because fixed costs are spread over more tests as volume increases, the average cost per test declines as volume increases. For example, when volume doubles from 5,000 to 10,000 tests, fixed costs remain at $150,000, but fixed cost per test declines from $150,000 ÷ 5,000 = $30 to $150,000 ÷ 10,000 = $15.

With fixed cost per test declining from $30 to $15, the average cost per test goes down from $30 + $10 = $40 to $15 + $10 = $25. The fact that higher volume reduces average fixed cost, and therefore average cost per unit of volume, has important implications for profitability related to volume changes. (In economics, the state of declining average cost as volume increases is called [**economies of scale**](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/glossary.xhtml#BB076).)

The cost behavior presented in [exhibit 4.1](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter04.xhtml#exh4.1) in tabular format is presented in graphical format in [exhibit 4.2](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter04.xhtml#exh4.2). Here, costs are shown on the vertical (*y*) axis, and volume (number of tests) is shown on the horizontal (*x*) axis. Because fixed costs are independent of volume, they are shown as a horizontal dashed line at $150,000. Total variable costs appear as an upward-sloping dotted line that starts at the origin (0 tests, $0 costs) and rises at a rate of $10 for each additional test. When fixed and total variable costs are combined to obtain total costs, the result is the upward-sloping solid line parallel to the total variable costs line but beginning at the *y*-axis at a value of $150,000 (the fixed costs amount). In effect, the total costs line is nothing more than the total variable costs line shifted upward by the amount of fixed costs.

Note that [exhibit 4.2](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter04.xhtml#exh4.2) is not drawn to scale. Furthermore, the relevant range is unrealistically large. The intent here is to emphasize the general shape of a cost structure graph and not its exact position. Also, note that total variable costs plot as a straight line (linear), because the variable cost rate is assumed to be constant over the relevant range. We assume throughout the book that the variable cost rate is constant, and hence total variable costs are linear, at least within the relevant range. For most healthcare organizations in most situations, such an assumption is not unreasonable.

Before we leave this illustration of underlying cost structure, we should mention that fixed and variable costs represent two ends of the volume classification spectrum. Here, in the relevant range, the costs are either independent of volume (fixed) or directly related to volume (variable). A third classification, [**semifixed costs**](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/glossary.xhtml#BB189), falls between the two extremes. To illustrate, assume that the actual relevant range of volume for the clinical laboratory is 15,000 to 20,000 tests. However, the laboratory's current workforce can only handle up to 17,500 tests per year, so an additional technician, at an annual cost of $35,000, would be required if volume exceeds that level. Now, labor costs are fixed from 15,000 to 17,500 tests and again at a higher level from 17,500 to 20,000 tests, but they are not fixed at the same level throughout the entire relevant range of 15,000 to 20,000 tests. Semifixed costs are fixed within ranges of volume, but multiple ranges of semifixed costs occur within the relevant range. To keep the illustrations manageable, we do not include semifixed costs in our examples in this book.

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|  | **CRITICAL CONCEPT** |
| Underlying Cost Structure |

The underlying cost structure of a business defines the relationship between volume and costs. To illustrate, assume you plan to sell customized pens to your classmates to make some extra money. To get started, you pay someone $50 to design the logo for the pens. Then, you pay $1.75 for each pen. The cost structure of your pen business consists of $50 in fixed costs and a variable cost rate of $1.75. Thus, the cost structure of the business can be written as:

If you sell 100 pens, your total costs are $225:

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|  | HEALTHCARE IN PRACTICE |
| The Cost Structures of Medical Practices |

Different healthcare organizations have different cost structures. Even in the same type of organization, cost structure differences occur. For example, medical practices that are hospital based, such as some radiology groups, tend to have low fixed costs (the hospital pays those). Other practices, such as cardiology, can have a great deal of diagnostic equipment and hence high fixed costs. In addition, the size of a practice influences its underlying cost structure.

Still, by examining the costs associated with a typical practice, we can get some feel for the cost structures involved. We have chosen a primary care practice to represent a typical medical practice. Because the costs involved in the practice are a function of the number of physicians in the practice, most of the data presented here are on a per-physician basis.

In 2011, the most recent data available, the average primary care practice employed roughly five full-time equivalent (adjusted to account for part-time staff) physicians. In addition, each practice, on average, employed two nonphysician providers, such as physician assistants and nurse practitioners, and a support staff of about 20. Thus, if we count the nonphysician providers as support staff for the physicians, each physician had about 4.4 individuals working to support her patient services activities.

The total operating cost to support each physician was about $325,000, not including physician compensation. Of these costs, about $160,000 were labor costs, with the remaining costs devoted to facilities, equipment, malpractice insurance, and supplies. Thus, practice costs (again, excluding physician compensation) were about evenly split between labor and nonlabor components. Taking a closer look at support staff costs, about 47 percent of the labor costs were for clinical staff, 34 percent for front-office staff (e.g., receptionists), and 19 percent for business office staff (e.g., coding, billing, collections).

On average, each primary care physician handled about 2,300 patients, who represented about 5,300 encounters (visits), during which the physician performed about 11,000 procedures. Thus, if we use patient visit as the unit of output (volume), the operating cost per visit averages out to be roughly $325,000 ÷ 5,300 = $61 per visit. The data do not break out fixed versus variable costs.

However, variable costs, which consist mostly of administrative supplies (e.g., forms, letterhead) and medical supplies (e.g., rubber gloves, needles, vaccines, dressings), were relatively small, say, $10 per visit. Thus, the underlying cost structure for an average primary care physician looked something like the following:

Total costs = $272,000 + ($10 × Number of visits),

where the $272,000 represents the fixed costs of the practice (primarily facilities and labor) and the $10 represents the average cost of supplies consumed on each visit.

With this information, the support costs (on a per-physician basis) could be estimated for different volumes. For example, the total cost to support 4,500 visits was $317,000, while the cost to support 5,500 visits was $327,000:

In the [next chapter](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter05.xhtml), we expand this industry practice discussion to include revenues.

*Note*: This Healthcare in Practice is based on information provided by the Medical Group Management Association, 2011, *Performance and Practices of Successful Medical Groups*, Englewood, CO: MGMA.

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|  | **SELF-TEST QUESTIONS** |
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1. Define the term *relevant range*.
2. Explain the features and provide examples of fixed and variable costs.
3. How does period affect the definition of fixed costs?
4. What is meant by underlying cost structure?
5. Sketch and explain a simple cost structure diagram similar to [exhibit 4.2](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter04.xhtml#exh4.2).
6. What are semifixed costs?

4.4 COST CLASSIFICATION 2: DIRECT VERSUS INDIRECT (OVERHEAD) COSTS

The second major cost classification is by relationship to the unit being analyzed. Some costs—about 50 percent of a large healthcare organization's cost structure—are unique to the reporting subunit and hence usually can be identified with relative certainty. To illustrate, again think in terms of a hospital's clinical laboratory. Certain costs are unique to the laboratory, for example, the salaries and benefits for the technicians who work there and the costs of the equipment and supplies used to conduct the tests. These costs, which would not occur if the laboratory were closed, are classified as the *direct costs* of the department.

Direct costs constitute only a portion of the laboratory's total costs. The remaining resources used by the laboratory are *not* unique to the laboratory; the laboratory shares many resources of the hospital. For example, the laboratory shares the hospital's physical space as well as its infrastructure, which includes information systems, utilities, housekeeping, maintenance, medical records, and general administration. The costs not borne solely by the laboratory but shared by all of the hospital's departments are called *indirect (overhead) costs* (see “[Critical Concept: Direct Versus Indirect [Overhead] Costs](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter04.xhtml#CC035)”).

Indirect costs, in contrast to direct costs, are more difficult to measure at the department level because they arise from shared resources—that is, if the laboratory were closed, the indirect costs would not disappear. Perhaps some indirect costs could be reduced, but the hospital still requires a basic infrastructure to operate its remaining departments. Note that the direct or indirect classifications have relevance only at the subunit level. When the entire organization is considered, all costs are direct.

The two cost classifications (fixed or variable and direct or indirect) overlay one another. That is, fixed costs typically include both direct and indirect costs, while variable costs generally include only direct costs. For example, the fixed costs of a hospital laboratory include both salaried labor (direct) and facilities (overhead) costs, but the variable costs (reagents and other supplies) are all direct costs. Conversely, direct costs usually include fixed and variable costs, while indirect costs typically include only fixed costs.

Although this mixing of cost classifications can give anyone a headache, the good news is that the classifications typically are used independently of one another.

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|  | **CRITICAL CONCEPT** |
| Direct Versus Indirect (Overhead) Costs |

In addition to their relationship to volume, costs can be classified by their relationship to the unit being analyzed. Those costs that are unique to a department, and hence would disappear if the department were abolished, are called direct costs. Costs incurred from the use of resources shared across the organization are classified as indirect (overhead) costs. For example, the costs of the supplies used by a hospital's emergency department are direct costs; they would disappear if the department were closed. The costs of facilities (the space used) remain, so they represent overhead costs to the emergency department.

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|  | **SELF-TEST QUESTIONS** |
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1. What is the difference between direct and indirect costs?
2. Give some examples of each type of cost for an emergency department.

4.5 COST ALLOCATION

A critical part of cost measurement at the department level is the assignment, or allocation, of overhead costs. [**Cost allocation**](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/glossary.xhtml#BB052) is a process whereby managers allocate the costs of one department to other departments. Because this process does not occur in a marketplace setting, no observable prices exist for the transferred services. Thus, cost allocation must, to the extent possible, establish prices that mimic those that would be set under market conditions.

What costs in a health services organization must be allocated? Typically, the costs associated with facilities and support personnel, such as land and buildings, administrators, financial staffs, and housekeeping and maintenance personnel, must be allocated to those departments that generate revenues for the organization (generally, patient services departments). The allocation of support costs to patient services departments is necessary because there would be no need for support costs if there were no patient services departments. Thus, decisions regarding pricing and service offerings by the patient services departments must be based on the [**total (full) costs**](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/glossary.xhtml#BB210) associated with each service, including both direct and overhead costs. Clearly, the proper allocation of overhead costs is essential to good decision-making in healthcare organizations.

The goal of cost allocation is to assign all of the costs of an organization to the activities that cause them to be incurred. Ideally, healthcare managers track and assign costs by individual patient, physician, diagnosis, reimbursement contract, and so on. With complete cost data available in the organization's managerial accounting system, managers can make informed decisions regarding how to control costs, what services to offer, and how to price those services. Of course, the more data needed, the higher the costs of developing, implementing, and operating the system. As in all situations, the benefits associated with more accurate cost data must be weighed against the costs required to develop such data.

COST POOLS

The first step in allocating costs is to identify the cost pools and the cost drivers. Typically, a cost pool consists of all the direct costs of one support department (see “[Critical Concept: Cost Pool](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter04.xhtml#CC036)”). However, if the services of a single support department differ substantially, and if the patient services departments use the different services in varying proportions, the costs of that support department may need to be separated into multiple pools.

To illustrate multiple cost pools, suppose a hospital's Financial Services Department provides two significantly different services: patient billing and managerial budgeting. Furthermore, assume that the Routine Care Department uses proportionally more patient billing services than the Laboratory Department does, but Laboratory proportionally uses more budgeting services than Routine Care does. In this situation, it would be best to create two cost pools for one support department. The total costs of Financial Services would be divided into a billing pool and a budgeting pool. Then, cost drivers would be chosen for each pool and the costs allocated to the patient services departments as described in the following sections.

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|  | **CRITICAL CONCEPT** |
| Cost Pool |

A cost pool is a group of overhead costs to be allocated to the patient services departments. Typically, a cost pool consists of all the direct costs of one overhead department. For example, the costs associated with the Housekeeping Department might constitute a cost pool. However, if an overhead department provides different types of support services, the direct costs of that department might be divided into several cost pools, one for each type of service supplied.

COST DRIVERS

One of the most important steps in the cost allocation process is the identification of proper cost drivers (see “[Critical Concept: Cost Drivers](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter04.xhtml#CC037)”). The theoretical basis for identifying cost drivers is the extent to which the costs from a pool actually vary as the value of the driver changes. A good cost driver provides the most accurate cause-and-effect relationship between the use of services and the costs of the department providing those services, so that more costs are allocated to departments that create the greatest need for support department resources. For example, does a department with 10,000 square feet of space use twice the amount of housekeeping services as a department with only 5,000 square feet of space? The closer the relationship (correlation) between actual overhead resource expenditures at each patient services department and the value of the cost driver, the better the cost driver is and hence the better the resulting cost allocations.

Effective cost drivers possess two primary characteristics. The first is fairness—that is, do the cost drivers chosen result in an allocation that is equitable to the patient services departments? The second, and perhaps more important, characteristic is cost reduction—that is, do the cost drivers chosen create incentives for departments to use fewer overhead services? For example, inpatient department managers can do little to influence overhead cost allocations if the cost driver for administrative support is patient days. In fact, the action needed to reduce the overhead allocation—reduction in patient days—would likely lead to negative financial consequences for the organization. An effective cost driver encourages patient services department managers to take overhead cost reduction actions that do not have negative implications for the organization.

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|  | **CRITICAL CONCEPT** |
| Cost Drivers |

A cost driver is the basis for allocating a cost pool. For example, if the cost pool consists of the direct costs of the Housekeeping Department, then the cost driver might be the amount of space occupied by each patient services department. The theory is that the greater the amount of square footage occupied by a patient services department, the greater the amount of housekeeping services required. Effective cost drivers have two important attributes: They are perceived by all involved as being fair, and they promote organizational cost reduction. Put another way, effective cost drivers allocate the greatest amount of overhead costs to those patient services departments that use the most overhead services and create incentives for department heads to use fewer overhead services.

THE ALLOCATION PROCESS

[Exhibit 4.3](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter04.xhtml#exh4.3) summarizes the steps involved in allocating overhead costs, illustrating how Prairie View Clinic allocated its housekeeping costs for the 2017 budget.

First, the cost pool must be established. In this case, the clinic is allocating housekeeping costs, so the cost pool is the projected total direct costs of the Housekeeping Department, $100,000.

Second, the most effective cost driver must be identified. After considerable investigation, Prairie View's managers conclude that the best cost driver for housekeeping costs is labor hours—that is, the number of hours of housekeeping services required by the clinic's departments is the measure most closely related to the actual cost of providing these services. The intent here, as explained earlier, is to pick the cost driver that (1) provides the most accurate cause-and-effect relationship between the use of housekeeping services and the costs of the Housekeeping Department and (2) creates an incentive to use fewer housekeeping services.

Third, the allocation rate must be calculated. For 2017, Prairie View's managers estimate that Housekeeping will provide a total of 10,000 hours of service to the departments that will receive the allocation. Now that the cost pool and cost driver have been defined and measured, the [**allocation rate**](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/glossary.xhtml#BB013) is established by dividing the expected total overhead cost (the cost pool) by the expected total volume of the cost driver: $100,000 ÷ 10,000 hours = $10 per hour of services provided. (Note that different allocation methods can identify different departments as the ones that will receive the allocation. In the example here, the relevant departments [the patient services departments] receive 10,000 hours of housekeeping service. If we had included the Financial Services Department in the allocation, the total amount of service received might be 10,500 hours.)

Fourth, the allocation must be made to each department. To illustrate the allocation, consider the Physical Therapy (PT) Department, one of Prairie View's patient services departments. For 2017, PT is expected to use 3,000 hours of housekeeping services, so the dollar amount of housekeeping overhead allocated is $10 × 3,000 = $30,000.

Other departments in the clinic will also use housekeeping services, and their allocations will be made in a similar manner (see “[For Your Consideration: Hospitals and Housekeeping Cost Drivers](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter04.xhtml#CC038)”). The $10 allocation rate per hour of services used is multiplied by the amount of each department's usage of housekeeping services to obtain the dollar allocation. When all patient services departments are considered, the entire clinic is projected to use 10,000 hours of housekeeping services, so the total amount allocated must be $10 × 10,000 = $100,000, which is the amount in the cost pool. For any department, the amount allocated depends on both the allocation rate and the amount of overhead services used.

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|  | **FOR YOUR CONSIDERATION** |
| Hospitals and Housekeeping Cost Drivers |

Many hospitals use square footage to allocate housekeeping costs. The rationale, of course, is that one patient services department that is twice as big as another will require twice the expenditure of housekeeping resources. The advantage of this cost driver is that it is easy to measure and typically remains constant for a relatively long period (department space allotments do not change very often).

The disadvantage of using square footage as the cost driver is that some patient services departments require more housekeeping support per square foot of occupied space because of the nature of the service that the department provides. For example, emergency departments require more intense housekeeping services than do neonatal care units, and surgical suites require more intense services than do routine care departments.

What do you think? Is a more effective cost driver available for allocating housekeeping costs than square footage? If so, what is it? Describe how the suggested cost driver might work.

COST ALLOCATION METHODS

Mathematically, cost allocation can be accomplished in a variety of ways, and the method used is somewhat discretionary. No matter what method is chosen, all support department costs eventually must be allocated to the departments (primarily patient services departments) that create the need for those costs.

The key differences among the methods are how support services provided by one department are allocated to other support departments. [Exhibit 4.4](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter04.xhtml#exh4.4) summarizes the three primary allocation methods as applied to Prairie View Clinic. To simplify the illustration, the clinic has only three support departments (Human Resources, Housekeeping, and Administration) and two patient services departments (PT and Internal Medicine).

Under the [**direct method**](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/glossary.xhtml#BB072), shown in the top section of [exhibit 4.4](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter04.xhtml#exh4.4), each support department's costs are allocated directly to the patient services departments that use the services. In the illustration, both PT and Internal Medicine use the services of all three support departments, so the costs of each support department are allocated to both patient services departments. The key feature of the direct method, and the feature that makes it relatively simple to apply, is that none of the costs of providing support services are allocated to other support departments. In effect, under the direct method, only the direct costs of the support departments are allocated to the patient services departments because no indirect costs have been created by intra–support department allocations.

As shown in the center section of [exhibit 4.4](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter04.xhtml#exh4.4), the [**reciprocal method**](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/glossary.xhtml#BB170) recognizes the support department interdependencies among Human Resources, Housekeeping, and Administration, and hence the reciprocal method generally is considered more accurate and objective than the direct method. The reciprocal method derives its name from the fact that it recognizes all services that departments provide to and receive from other departments. The good news is that this method captures all of the intra–support department relationships, so no information is ignored and no biases are introduced into the cost allocation process. The bad news is that the reciprocal method relies on the simultaneous solution of a series of equations representing the use of intra–support department services. Thus, it is relatively complex, which makes explaining it to department heads difficult and implementing it costly.

The [**step-down method**](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/glossary.xhtml#BB195), which is shown in the lower section of [exhibit 4.4](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter04.xhtml#exh4.4), represents a compromise between the simplicity of the direct method and the complexity of the reciprocal method. It recognizes some of the intra–support department effects that the direct method ignores, but it does not recognize the full range of interdependencies. The step-down method derives its name from the sequential, stairstep pattern of the allocation process, which requires that the allocation take place in a specific sequence.

Here is how it works. First, all the direct costs of Human Resources are allocated to both the patient services departments and the other two support departments. Human Resources is then closed out because all its costs have been allocated. Next, Housekeeping costs, which now consist of both the direct costs of Housekeeping and indirect costs (the allocation from Human Resources), are allocated to the patient services departments and the remaining support department—Administration. Finally, the direct costs of Administration and the indirect costs (the allocations from Human Resources and Housekeeping) are allocated to the patient services departments. The final allocation includes Human Resources, Housekeeping, and Administration costs because a portion of these support costs has been “stepped down” to Administration.

The critical difference between the step-down and reciprocal methods is that after each allocation is made in the step-down method, a support department is removed from the process. Even though Housekeeping and Administration provide support services back to Human Resources, these indirect costs are not recognized because Human Resources is removed from the allocation process after the initial allocation. Such costs are recognized in the reciprocal method.

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|  | **SELF-TEST QUESTIONS** |
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1. What is the goal of cost allocation?
2. Under what conditions should a single overhead department be divided into multiple cost pools?
3. On what theoretical basis are cost drivers chosen?
4. What two characteristics make an effective cost driver?
5. What are the four steps in the cost allocation process?
6. What are the three primary methods of cost allocation? How do they differ?

4.6 SERVICE LINE COSTING

While cost measurement at the department level can help managers make decisions about pricing and service offerings, the holy grail of cost estimation is costing at the individual service or patient level. Understanding costs at the microlevel allows managers to focus on cost containment and to make better decisions when negotiating contracts with payers. Several methods are used to estimate costs at the service or patient level. We start this section by discussing two traditional costing methods: [**cost-to-charge ratio (CCR)**](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/glossary.xhtml#BB058) and [**relative value unit (RVU)**](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/glossary.xhtml#BB171). Next, we discuss a bottom-up method called [**activity-based costing (ABC)**](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/glossary.xhtml#BB009).

THE SETTING

To illustrate costing at the service level, consider Tarheel Family Practice (TFP), a large physician group that provides multiple services to its patient population. TFP is organized into five departments, one of which is the Routine Services Department. For ease of discussion, we assume that the department provides only two services: X and Y. Data relevant to our illustrations are summarized in [exhibit 4.5](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter04.xhtml#exh4.5).

The department has 10,000 visits annually, split evenly between the two services (service X and service Y). The department's total annual costs come to $1,027,500. These costs include the following: $300,000 of department overhead (including both TFP overhead allocated to the department through a step-down cost allocation and department overhead that supports both services); $242,500 in direct costs of service X; and $485,000 in direct costs of service Y. The department's charges (based on chargemaster prices) total $2,100,000, while actual revenues (reimbursements) total $1,300,000, split between the two services, as shown in [exhibit 4.5](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter04.xhtml#exh4.5). Before we begin discussing the individual costing methods, we want to emphasize that this example is highly simplified. Its purpose is merely to give you a flavor of the alternative methods available for costing individual services.

COST-TO-CHARGE (CCR) METHOD

The cost-to-charge (CCR) method is the most basic of the three methods for costing individual services. The CCR method is based on two assumptions:

1. The indirect costs allocated to the services constitute a single cost that is proportional across all services provided. In other words, each service consumes indirect costs in the same proportion as the department as a whole.
2. Charges, or alternatively reimbursement rates, reflect the level of intensity of the service provided and hence the use of shared resources by each service, including both TFP and department overhead.

We will begin by focusing on charges. With indirect (overhead) costs of $300,000 supporting total charges of $2,100,000, the cost-to-charge ratio is CCR = Indirect costs ÷ Total charges = $300,000 ÷ $2,100,000 = 0.143 = 14.3%. Once the CCR has been calculated for the department, it is used to estimate the overhead costs for each individual service:

Service overhead costs = CCR × Service charges.

Thus, the overhead cost allocation for service X is 0.143 × $700,000 = $100,100. Similarly, the overhead cost allocation for service Y is 0.143 × $1,400,000 = $200,200. The total amount of overhead allocated to the two services is $100,100 + $200,200 = $300,300, which, except for a rounding error, equals the $300,000 in total indirect costs for the department.

Finally, to obtain the full costs of each service line, merely add the direct costs to the amounts allocated for overhead:

Full (total) service costs = Direct cost + Indirect cost.

The full costs of service X are $242,500 + $100,100 = $342,600 and the cost per one visit for service X is $342,600 ÷ 5,000 visits = $68.52. The full costs of service Y are $485,000 + $200,200 = $685,200 and the cost per one visit for service Y is $685,200 ÷ 5,000 visits = $137.04. As a check, the full costs of both services total $342,600 + $685,200 = $1,027,800, which once again equals the total costs of the department, except for a rounding error.

Note that revenues can be used as an alternative to charges in the CCR method (see “[For Your Consideration: Charges Versus Revenues in the CCR Method](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter04.xhtml#CC039)”). The procedure is the same as described earlier, but now revenues are used to calculate the CCR. With indirect (overhead) costs of $300,000 supporting total revenues (reimbursements) of $1,300,000, CCR = $300,000 ÷ $1,300,000 = 0.231 = 23.1%. Using this new value for the CCR, and revenues in lieu of charges, the overhead cost allocation for service X is 0.231 × $400,000 = $92,400. The overhead cost allocation for service Y is 0.231 × $900,000 = $207,900. Finally, to obtain the full costs of each service line, allocated overhead costs are added to the direct costs of each service. The resulting full costs of service X are $242,500 + $92,400 = $334,900 and the full costs of service Y are $485,000 + $207,900 = $692,900. As a check, the full costs of both services total $334,900 + $692,900 = $1,027,800, and except for a rounding error, this once again equals the total costs of the department.

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|  | **FOR YOUR CONSIDERATION** |
| Charges Versus Revenues in the CCR Method |

This chapter's illustration of the cost-to-charge ratio (CCR) method of costing at the service level presented two possible approaches: using charges as the basis of the allocation and using revenues (reimbursements) as the basis of the allocation.

Healthcare providers using the CCR method—and many do—must make a choice. (For some Medicare calculations, the use of charges is required. However, for internal use, providers may use either charges or revenues.) In theory, the choice should reflect the metric (charges or revenues) that best mimics the relationship to the amount of overhead resources consumed. Is that metric charges or revenues? Charges supposedly reflect the underlying costs of the service—the higher the charges, the higher the costs. However, much anecdotal evidence indicates that charges are not a good reflection of costs (for example, a charge of $25 for an aspirin administered in the hospital). On the other hand, are revenues a better reflection of costs? Private insurers, Medicare, and Medicaid often have large differences in reimbursement amounts for the same service.

What do you think? Should the CCR method use charges or revenues as the metric? What justification is there to support your answer?

RELATIVE VALUE UNIT (RVU) METHOD

In contrast to the CCR method, which ties overhead resource consumption to charges (or revenues), the [**relative value unit (RVU) method**](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/glossary.xhtml#BB172) ties the use of overhead resources to the complexity and time required for each service. In other words, this method uses the intensity of the service provided, as measured by RVUs, as the basis for allocating overhead. As we discussed in [chapter 3](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter03.xhtml) (in “Healthcare in Practice: How Medicare Pays Providers”), its use in healthcare pricing and reimbursement was influenced primarily by the resource-based relative value scale system, which uses RVUs to set Medicare payments for physician services.

To begin our illustration of the RVU method, assume that a study by the medical director of Tarheel Family Practice identified the number of RVUs required to perform each service. The result was the assignment of 10 RVUs for service X and 18 RVUs for service Y as shown in [exhibit 4.5](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter04.xhtml#exh4.5). (RVU estimates for many healthcare services are available from several sources including Medicare and professional associations.)

To calculate service-level costs using the RVU method, first, the RVUs for each service are multiplied by the annual volume for each service, and the products are summed to obtain the total RVUs for the department. For example, for service X, the total RVUs are 10 RVUs × 5,000 visits = 50,000 RVUs. Total RVUs for service Y are 18 RVUs × 5,000 visits = 90,000 RVUs. Total RVUs for the department = 50,000 + 90,000 = 140,000 RVUs.

Now with department overhead costs of $300,000 to support 140,000 RVUs, the overhead cost per RVU is $300,000 ÷ 140,000 = $2.143. The final step in the overhead cost allocation is to multiply the cost per RVU by the total number of RVUs of each service to obtain the overhead allocation. For example, the overhead allocated to service X is $2.143 × 50,000 = $107,150. The overhead allocated to Service Y is $2.143 × 90,000 = $192,870. As a check, the total allocated overhead equals $107,150 + $192,870 = $300,020, which, except for a rounding error, is equal to the total overhead of $300,000 shown in [exhibit 4.5](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/chapter04.xhtml#exh4.5).

Now, the total costs of each service are merely the direct costs of the service plus the overhead allocation. The total (full) costs of service X are $242,500 + $107,150 = $349,650, and the total costs of service Y are $485,000 + $192,870 = $677,870. The cost per visit for service X is $349,650 ÷ 5,000 visits = $69.93 and the cost per visit for service Y is $677,870 ÷ 5,000 visits = $135.57. As a final check, note that the total costs of each service sum to $1,027,520, which, except for a small rounding error, equals the total costs of the department, $1,027,500.

The goal of RVU costing is to reflect the cost of the overhead resources used to provide the service. Of course, the key to the fairness of RVU costing is how well the number of RVUs assigned to each service matches the cost of the overhead resources consumed. Because of the difficulties involved in initially assigning RVU values to services, this method is used most often when RVU values have already been estimated, such as for procedures performed by physicians.

ACTIVITY-BASED COSTING

Our discussion thus far has focused on [**traditional costing**](https://jigsaw.yuzu.com/books/9781567939750/epub/OEBPS/glossary.xhtml#BB214) methods. In essence, the traditional methods begin with aggregate costs, typically at the department level. Overhead costs are then allocated downstream, first to the patient services departments and then, using the CCR or RVU method, down to individual services. Thus, traditional methods can be thought of as top-down allocation. Although traditional costing works well for estimati