



## PART II

# Budget Principles

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CHAPTER 5	Budgeting.....	109
CHAPTER 6	Budget Development and Evaluation.....	131
CHAPTER 7	Budget Variances .....	159
CHAPTER 8	Comparing Reimbursements with Costs of Services Provided.....	173





## CHAPTER 5

# Budgeting

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### OBJECTIVES

- Understand a high-level overview of the budgeting process.
- Describe how variable costs and fixed costs impact an organization's budget.
- Discuss the impact of productive and non-productive hours.
- Demonstrate the steps in budget preparation for a nursing department.

## ► An Introduction to Budgeting

Budgets are an organization's formalized financial plans, and planning is an important activity in budgeting. The budget represents the organization's goals that focus on operations improvement through defining specific, quantifiable financial performance measures. Budget planning involves making predictions for next year's volume, revenue, and expenses that are routinely based on (1) prior years' historical, or actual, performance and (2) projected estimates for growth. Budget planning is also a way to introduce and reinforce budget control by setting financial performance targets that require reporting and efficient management throughout the organization's fiscal year. Unfortunately, until recently most nursing leaders have had low influence on the budgets in the departments under their purview with the exception of monitoring expenses and explaining variances.

For most nurse leaders, budget information and activities are involved with spending, whereas having revenue information is not as common. In recent years, nurse leaders have become more accountable for all aspects of their budget management, as well as the influence they play in the budget planning processes. This is one reason why it is important for the nurse leader to understand the vital link between the amounts of money received from all payer sources (e.g., Medicare, Medicaid, insurance, and private pay) and the critical role of balancing that revenue with incurred expenses at the unit level (e.g., equipment, supplies, staffing).

Another budget responsibility of the nurse leader is to be an advocate for patients, ensuring that the patient receives the best and safest services possible. As the level of management closest to the services at the point of care, a nurse leader with a sound knowledge of relevant budget information influences patient care. All nurse leaders are most effective when they are able to make sound decisions and defend those decisions by having the skills and the vocabulary to (1)

determine what financial information is available, (2) acquire that information, (3) interpret its impact on patient care, and (4) communicate that to others within the organization. The budget management terms and techniques discussed in this chapter provide the nurse leader with a high-level overview of the budgeting process.

## ► Budgeting Principles and Terminology

Understanding the budgeting process requires first an understanding of the terminology commonly used. Stepping into the world of finances can be intimidating for a nurse leader, but a familiarity with basic finance and budgeting language makes this transition more seamless. While this chapter does not intend to prepare the nurse leader to fully comprehend the many intricacies of financial budgeting, or to become fully proficient at the budgeting process that occurs in every healthcare organization, it will provide an appreciation of the process and the important role of the nurse leader.

## Capital Budgeting Versus Operational Budgeting

While there are many types of budgets that comprise an organization's annual budget, the two primary types of budgets the nurse leader will most often work with include an operating budget and a capital budget. Operating budgets cover the day-to-day costs of a unit, including such things as wages for regular and per diem staff, supplies, equipment, repair and maintenance, travel and education, and dues and subscriptions. Like all budgets, operating budgets represent the "best guess" for costs over a coming period. Historical data are most often the starting point for developing future budgets.

The capital budget, on the other hand, covers the purchase of long-term investments that are often referred to as capital assets. These assets, or investments, include such purchases as land,

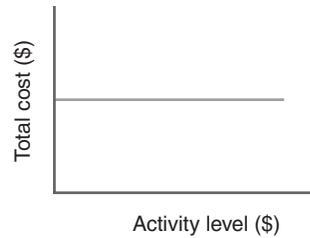
buildings, and, most appropriate to the nurse leader, equipment (e.g., IV pumps, patient beds, point of care equipment). The capital budget is developed separately from the operating budget and is often funded through separate funding sources, or accounts. Nurse leaders are most involved in capital budgeting when they request expensive, long-lived equipment for their units (this equipment may last 2 years, but it varies by organization). In most organizations, a financial rationale must be provided to support the capital spending request. This process is called *capital budgeting*. The rationale for purchasing capital assets may include replacing older or nonworking items, buying a newer and better piece of equipment that improves productivity or patient safety, or meeting the needs of a new line of service to generate new revenue. The threshold dollar limit for an item to be considered for the capital budget varies by organization; however, the only requirement for an asset to be deemed a capital asset is that it must provide useful service that extends beyond the year in which it is put into service.

## Cost Concepts

Expenses are the cost of doing business that decreases the equity of an organization. Thus, controlling the outflow of money from an organization requires a watchful eye to minimize excessive spending that negatively impacts the inflow of revenue. Because cost control is a major function in the role of the nurse leader, having basic knowledge of cost concepts and their behavior is key to successfully maneuvering through cost management. Fundamental to cost control is an understanding of the relationship of fixed and variable costs.

### Fixed Costs

Fixed costs are those that stay the same regardless of the level of activity. The first example of fixed costs is those costs that would exist even if the organization were shutdown: rent, insurance, taxes, depreciation, a minimal level of utilities,



**FIGURE 5.1** Fixed Costs: Cost for a Nurse Manager

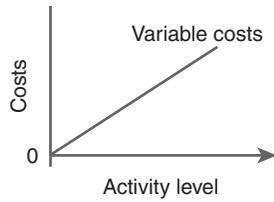
etc. From a nursing perspective, fixed costs include those minimum costs that are always paid regardless of the volume of activity. Regardless of patient activity—whether measured by patient visits, patient acuity, or patient minutes, hours, or days—certain costs are always present. Examples include minimum staffing requirements, the salary and benefits of the nurse leader, rent, telephone service, and other cost center supplies that do not fluctuate with volume. Some consider these costs to be *direct costs*, or the costs of resources that are necessary in order to provide direct care to patients. **FIGURE 5.1** depicts the nurse manager's salary as a fixed cost. Also to consider are what some would identify as the *indirect* (resource costs that are not directly related to providing patient care), or shared, *costs* related to patient care, such as administration, quality improvement/assurance, risk management, and infection control.

### Variable Costs

Variable costs are those that change, or fluctuate, depending on the level of activity or volume. In the healthcare environment, volume is a complex concept because volume not only includes the census numbers but also patient acuity, patient minutes/hours/days, and patient visits. Variable costs occur in addition to fixed costs to yield the organization's total costs:

$$\text{TOTAL COSTS} = \text{FIXED COSTS} \\ + \text{VARIABLE COSTS}$$

Staffing, beyond the minimum staffing requirements, is a variable cost based on the



**FIGURE 5.2** Variable Costs: Cost for Supplies as Unit Volume Increases

variable patient census and acuity. Other typical variable costs are medical and surgical supplies, linen, and food costs. Variable costs vary in direct proportion to fluctuations in activity levels, as depicted in **FIGURE 5.2**.

**TABLE 5.1** illustrates variable and fixed costs for a nursing department’s budget.

### Revenue Concepts

Revenue is the amount of money that is earned by an organization and is most easily explained as the charges billed to patients when services are provided for which the organization expects to be paid. There are two types of revenues: actual (paid at the time services are rendered) and

expected (payment that is expected sometime after the services are rendered). The largest portion of healthcare reimbursement is based upon expected revenue.

Gross revenue is the sum of all charges for the care provided to the patient for all services provided during an episode of care.

$$\text{NET REVENUE} = \text{GROSS REVENUE} - \text{DEDUCTIONS FROM REVENUE}$$

However, healthcare organizations can no longer expect, in most situations, to be reimbursed for full charges. Net revenue is calculated by deducting projected reductions in payment, such as fixed payments (e.g., diagnosis-related group (DRG) payments from Medicare), contractual allowance (e.g., a negotiated amount contracted by insurance companies), and charity care (e.g., patients with no healthcare benefits who cannot afford to pay for charges) from the gross revenue (expected amount of payment). **TABLE 5.2** illustrates the calculation of projected net revenue based on a contractual allowance with an insurance payer source.

There are three primary revenue sources for health care in the United States: Medicare,

**TABLE 5.1** Variable and Fixed Costs for a Nursing Department’s Budget

Account	Total	Fixed	Variable
Salary: nurse manager	\$100,000	\$100,000	
Office supplies	\$15,000		\$15,000
Telephone	\$24,000	\$24,000	
Travel expense	\$10,000		\$10,000
Medical supplies	\$58,000		\$58,000
Rent	\$85,000	\$85,000	
Total costs	\$292,000	\$209,000	\$83,000

**TABLE 5.2** Illustration of Net Revenue Calculation

Type of Procedure	Payer Source	DRG Reimbursement	Contractual Allowance	Projected Net Revenue
DRG 209 – Major Joint Procedure Lower Extremity	Insurance Company A	\$10,034	10% below DRG	\$9,030.60

DRG, diagnosis-related group.

Medicaid, and other programs/self-pay. (For more information on the history of Medicare and Medicaid in the United States, see Chapter 1 or visit [www.cms.gov](http://www.cms.gov).)

### Medicare

Currently, there are some 44 million beneficiaries—some 15% of the U.S. population—who are enrolled in the Medicare program, with enrollment expected to rise to 79 million by 2030 ([http://assets.aarp.org/rgcenter/health/fs149\\_medicare.pdf](http://assets.aarp.org/rgcenter/health/fs149_medicare.pdf)). Total spending from Medicare grew to \$626.2 billion in 2015.

### Medicaid

While the Medicaid program is state specific, the program is both a federal and state matching entitlement program. Now, more than 70 million people in the United States receive their healthcare benefits through this program, with total spending reaching \$545.1 billion in 2015 (<http://www.usnews.com/news/articles/2015/02/24/medicaid-enrollment-surges-across-the-us>).

### Other Programs/Self-Pay

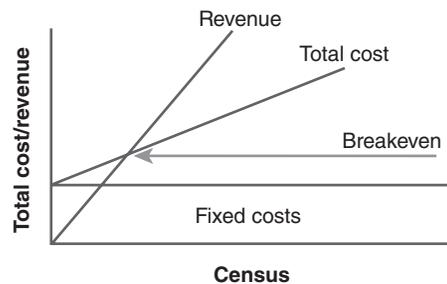
Commercial payers make up the largest revenue stream for U.S. health care, although each individual market might see different payer mixes (or, sources for reimbursement of healthcare services identified by payer type). In 2015, Centers for Medicare and Medicaid Services (CMS) reported that more than \$1.072 trillion of healthcare revenue, or more than 33% of the national healthcare

dollars spent, comes from private healthcare spending. Out-of-pocket spending, sometimes categorized as “Self Pay” constitutes \$338 billion of total healthcare spending in 2015.

### Break-Even Analysis

To stay in operation, the *minimum* long-term goal of any organization must be to at least *break even*. When one breaks even, the costs of operations exactly equal the revenues. There is no profit and no loss. More revenues result in a profit, and fewer revenues (or more costs) result in a loss. When an entity operates below the break-even point, it must borrow or pull from savings from earlier periods when profits were made. Clearly, these are short-term solutions, and when they are exhausted, the entity will be forced to close.

*Breakeven* can be shown graphically and calculated mathematically. Both the visual and mathematical approaches are based on the definitions of costs. Remember that there are two kinds of costs: fixed costs and variable costs. **FIGURE 5.3** provides a graphical representation of



**FIGURE 5.3** Graphical Breakeven

breakeven. Notice that the *variable* costs begin to rise from the base of fixed costs—costs that continue even when activity drops to zero. The revenue line begins at zero—*no activity, no billing*. Thereafter, it climbs at a steady rate toward the upper right corner of the graph. The slope of the revenue line (the rate at which it climbs) is dependent on the rate of billing—the bigger the bills, the steeper the climb. Our revenue slope would be based on the total revenue as it related to the average census or patient day. That is a crude measure, and many other measures could be used. Nevertheless, at best, the break-even chart is a tool that will give you a rough idea of the activity level needed to remain solvent.

Remember, the more detailed your cost analysis, the better this tool will work for you. A break-even analysis for a procedure will be more accurate than a break-even analysis for a unit or department. Similarly, a break-even analysis for a unit or department will be more accurate than a break-even analysis for an entire healthcare institution. Unfortunately, at some point, the break-even point for the organization as a whole becomes the issue in question.

Mathematically, breakeven is calculated using the formula that follows. It indicates that one breaks even when the revenues equal the expenses. Because both revenues and variable costs are a function of activity level—in this case, patient days—we must know both the average cost and the average revenues as we add patients to the census. Given that, breakeven occurs when revenues per patient day equal fixed costs plus variable costs per patient day. The question we want to answer is this: *How many patients do we need in house, on average, to break even?* What is the break-even census?

$$\begin{aligned} &\text{Breakeven occurs when Revenues} \\ &\text{/Patient day} \times \text{Census} \\ &= \text{Fixed costs} + \text{Variable costs} \\ &\text{/Patient day} \times \text{Census} \end{aligned}$$

Assume the following data:

Revenues per patient day	\$ 2,000
Variable cost per patient day	\$ 110
Fixed costs per year	\$ 1,000,000

$$\begin{aligned} &\text{Revenues per Patient day} \times \text{Census} \\ &= \text{Fixed costs} + \text{Variable costs per} \\ &\text{Patient day} \times \text{Census} \\ &\$2,000 \times \text{Census} = \$1,000,000 \\ &\quad + \$110 \times \text{Census} (2,000 - 110) \\ &\quad \times \text{Census} = \$1,000,000 \\ &\text{Census} = \$1,000,000 / 1,890 \\ &\text{Census} = 529 \text{ per year} \end{aligned}$$

You can verify your answer:

$$\begin{aligned} &\text{Revenues/Patient day} \times \text{Census} \\ &= \text{Fixed costs} + \text{Variable costs/} \\ &\text{Patient day} \times \text{Census} \\ &\$2,000 \times 529 = \$1,000,000 + \$110 \times 529 \\ &\$1,058,190 = \$1,000,000 + \$58,190 \end{aligned}$$

Your answer may not be exact. First, these are estimated numbers. You cannot be certain that your fixed costs will be \$1,000,000, or that your average daily patient revenue will be \$2,000, or that your average daily variable cost will be \$110. What the break-even analysis has given you is a rough estimate. If, as you move into the year, you find your estimates of revenues or costs are badly off target, or you find your average census is only 475, you can go back to the drawing board and change the underlying realities.

Similarly, *if your variable revenues do not exceed your variable costs, you can never break even*. If, in this example, the revenues per patient day had been \$2,000 but the variable costs per patient day had been \$2,001, no amount of activity will result in a break-even situation. You will lose \$1 per patient day, and the harder you work, the deeper in a hole you will find yourself. This understanding of the fact that variable revenues must exceed variable costs leads to an alternative way to think about the break-even calculation. This is not a change in either the concept or the calculation. It is simply an approach that avoids the manipulation of an algebraic equation and is easier for some people to remember.

Start with your fixed costs. They exist *whether or not* there are patients in the beds. To cover your fixed costs, you must make more revenues on the patients than you have costs

caused by the patients. This “extra” revenue can then be used to cover your fixed costs.

Next, think about the revenues and the variable costs. These elements change with activity. In essence, if there were no patient in the bed, neither the revenue nor the variable cost exists. So, a patient, in a bed, creates both a variable revenue and a variable cost. The term for the difference between these two is *contribution margin*. Contribution margin is the amount available to *contribute* toward covering fixed costs. When you have just enough contribution margin to cover fixed costs, you arrive at breakeven:

$$\text{Breakeven} = \frac{\text{Fixed costs}}{\text{Revenues / patient day} - \text{variable costs / patient day}}$$

$$\text{Breakeven} = \frac{\$1,000,000}{\$2,000 - \$110}$$

$$\begin{aligned} \text{Breakeven} &= \frac{\$1,000,000}{1,890} \\ &= 529 \text{ patients per year} \end{aligned}$$

If one approach to calculating break-even works, so will the other. Perhaps the most important concept of breakeven is the understanding that some costs and most revenues are a function of activity. Some costs, however (perhaps most costs in a typical small health-care institution), are fixed and continue even after the shutdown point. When you consider actions that will improve profitability or reduce a loss situation, you must clearly identify which elements of cost and revenue you can best affect to improve profitability.

## ► Budgeting Implications for Nurse Leaders

The process of budgeting, both in annual preparation and in ongoing monitoring, consumes a large portion of the nurse leader’s time. The two

primary components of a budget are costs and revenues. It is a clear expectation that variable costs are well budgeted, closely monitored, and any variances are quickly adjusted to positively impact an organization’s overall financial health status. And while revenue and fixed costs are often considered less vital to the role of the nurse leader, as healthcare organizations realign to provide a more patient-centric healthcare model, nurse leaders will be required to have a better understanding of the patient’s payer source and the impact this has on the revenue side of the budget.

Budget responsibilities usually include an evaluation of the adequacy of the budget and, at times, the development of a new budget. Budget evaluation is an important activity because a cost center budget may not have been thoroughly evaluated for some time. What has been appropriate for the past 10 years is not necessarily what is needed presently. This chapter is designed to help the nurse leader determine whether the overall budget—in particular, the staffing budget—is appropriate and adequate to meet present patient needs.

## ► An Introduction to Nursing-Specific Budgeting Principles

At its most fundamental level, budgeting comes down to a predetermined amount of funding that is allocated for a particular “cost center.” A nursing department, for example, represents a cost center for the organization. The funding allocated each year for the nursing department is the department’s budget. The nurse leader is expected to staff the department with an appropriate skill mix of nursing staff, while staying within the allocated budget.

Depending on the clinic setting, a variety of nursing staff may be required to meet patient care needs. In health care, these positions are calculated as full-time equivalents (FTEs). An

**TABLE 5.3** FTE Hours

FTEs	Hours Per Week*	Hours Per Year*
0.1	4	208
0.2	8	416
0.3	12	624
0.4	16	832
0.5	20	1,040
0.6	24	1,248
0.7	28	1,456
0.8	32	1,664
0.9	36	1,872
1.0	40	2,080

\*Based on an 8-hour day (this would need to be changed for a 12-hour day).  
FTE, full-time equivalents.

FTE is a unit of measurement that represents one person who works a full-time position. In other words, an FTE is essentially a calculation of a person working 2,080 hours per year. This number is derived from the premise of an employee working 8 hours per day, 5 days per week, 52 weeks per year ( $8 \times 5 \times 52 = 2080$ ).

**1 FTE = 40 hours per week  $\times$  52 weeks  
per year = 2,080 hours per year**

However, more than one person can fill one FTE. For example, multiple part-time employees who work less than full time can combine to equate to one FTE. To calculate hours worked, let's consider that an employee works 32 hours per week. What is that employee's FTE status?

**32 hours/week worked/40 hours (1 FTE)  
= 0.8 FTE**

See **TABLE 5.3** for a table of FTE hours.

## Units of Service

Units of service is used by healthcare organizations to measure specific services a patient uses within a specific time frame (i.e., patient minutes, hours, days, visits, births, treatments, operations, or other patient encounters). Patient days, for example, are the number of inpatients present on any given day at midnight. One patient day is given for each day the patient is present on an inpatient unit.

## Nursing Workload

Using the same various units of services causes a problem in that all patients do not require the same amount of nursing care. For instance,

one treatment could take a half hour, whereas another could take 2 hours. Or one patient requires intensive care, whereas another needs only the stepdown unit. Or a home care nurse could drive 30 miles to make a visit, whereas other visits require only a 5-mile drive. Therefore, further unit-of-service specification is needed to accurately reflect nursing workload, or the volume of work performed by nurse caregivers.

## Developing a Nursing Department Budget and Staffing Plan

In order to develop a budget and staffing model, we must first gather data that stand to influence staffing workloads. This section provides an overview of the development of a staffing model and the projected financial impact. In the next chapter, we will dissect each of these key areas to develop staffing models and budgets for specific clinical settings.

## Establish Volume

Our first step will be establishing expected patient volume. Depending on the setting, this information can be collected from various sources, including average patient days, the percentage of direct admits from emergency room (ER) visits, or the number of outpatient visits. It is important to recognize that various factors can influence volume and to be cognizant of these potential influencers. Examples of potential factors include medical staff admission trends, increases or decreases in the number of medical staff, market share (are new hospitals being built or existing hospitals closing in the area? are new free-standing emergency departments being introduced into the market?), patient satisfaction, and the percentage of visits from the ER that are converted to inpatients.

## Determine Nurse–Patient Ratio

Once volume is established, the nurse leader can begin the calculations to determine the appropriate

nursing workload. In this instance, the workload is defined as the nurse–patient ratio. This ratio is necessary in order to determine how to optimally provide the minimum standard of care. Hospital policy, accreditation standards, community standards, and clinical outcomes will drive this ratio. It is also important to note that specific clinical settings will have different nurse-to-patient ratios (Med/Surg versus intensive care unit [ICU], for example).

## Establish Skill Mix Necessary to Meet Patient Needs

The percentage of staff comprised of each job class is referred to as a *skill mix*. In addition to organization policy, which can direct specific skill mixes of nursing staff, community standards and trends should be observed and incorporated into skill mix calculations if your organization wants to stay competitive with local healthcare organizations. For example, healthcare organizations in many areas are moving toward Registered Nurse (RN)-only patient care models. If your organization does employ RNs exclusively for licensed nursing care, you may want to consider whether there exists a defined need for non-RN licensed staff and unlicensed assistive personnel (UAP), and if the budget will allow for such positions.

While larger metropolitan hospitals are moving toward this RN-only patient care model, smaller community hospitals in rural areas depend on Licensed Practical/Vocational Nurses, as well as UAP to make up a portion of their nursing workforce. In these cases, the nurse leader will need to carefully consider the skill mix of RNs and these other roles. A review of staffing models of healthcare organizations in similar markets will give insight into community standards.

## ► Non-Productive Time

### Personal Time Off

Once volume, nurse–patient ratio, and skill mix are established, the nurse leader will need to factor the annual personal time off (PTO) per employee.

Annual PTO is generally the combination of vacation, holiday, and sick leave afforded to an employee each year. Organizational Human Resource policies often govern the percentage of total work hours to be factored for PTO.

## Overtime

The nurse leader will need to project the percentage of total work hours that will be accrued and paid as overtime. Historical information and future forecasts, including increases in average daily census and staff vacancies, are important determining factors.

## Education and Orientation

With PTO and overtime established, the nurse leader determines the amount of time each job class will require for education and orientation. The Joint Commission, if applicable, and an organization's policies govern the frequency of required staff meetings and education requirements. The nurse leader must identify the number of hours by job class for each role necessary to achieve required educational offerings. These hours include the time necessary to accomplish required annual competencies or educational programs offered to promote excellence and innovation in clinical practice.

The nurse leader is required to determine the non-productive hours of each job class while orienting to a specific clinical setting. Non-productive hours for orientation are defined as those hours where the employee is not given an independent assignment. This can vary by department or specialty. For example, a med-surg RN may require 6 weeks (240 hours) of non-productive orientation time to their unit of assignment, as compared to an ICU RN, who may require 12 weeks (480 hours) of non-productive orientation time. **TABLE 5.4** demonstrates an example of the number of education, meeting, and orientation hours a nurse leader may allot for each job class in specified clinical settings. Remember, these are examples and may differ from your organization's requirements.

## Facility Overview

Establishing a Facility Overview is a helpful step in defining key components of the department that stand to influence staffing and budgeting.

**TABLE 5.5** represents the information required to complete the facility overview.

*Facility*—This is the name of the facility.

*Time Period*—This number should represent the fiscal year for which you are planning your staffing budget. If the organization's fiscal year begins September 1 and ends on August 31 of the following year, that period will generally be referred to by the year in which the fiscal year ends.

*Cost Center*—The accounting number provided by the Department of Finance that incorporates the unit's budget parameters and associated expenses.

*Unit Type*—This section represents the clinical setting (ICU, Med/Surg, Pediatrics, etc.).

*ADC*—The average daily census. This can also represent the average number of patient visits expected in an emergency department, outpatient clinic, etc.

*Total Patient Days*—The average daily census multiplied by days of the year that the clinical entity is operational. For example, clinical entities that are open 7 days per week, 24 hours per day (365 days), multiply 365 by your average daily census to obtain the annualized total patient days (Total Patient Days = ADC × Number of Operational Days per Year). Units open Monday through Friday, such as recovery rooms and operating rooms, multiply the average number of daily visits by 260 days. The number 260 represents the number of days that a 5-day-per-week clinical entity is operational in a year (5 days per week multiplied by 52 weeks = 260). For those clinical entities that do not provide services on holidays, subtract 8 hours per holiday from 260 hours. For example, in a case where a hospital does not schedule surgery on Thanksgiving, Christmas Eve,

**TABLE 5.4** Education and Orientation Summary

Skill Mix		Required Education and Meetings (hours)			Orientation (hours)		
Title	Abbreviation	Med/Surg	Stepdown	ICU	Med/Surg	Stepdown	ICU/ED
Manager	MGR	Exempt	Exempt	Exempt	Exempt	Exempt	Exempt
Asst. Nurse Manager	ANM	Exempt	Exempt	Exempt	Exempt	Exempt	Exempt
Charge Nurse	CHG	36	52	76	240	320	480
Registered Nurse	RN	36	52	76	240	320	480
Licensed Vocational Nurse	LVN	20	20	20	240	320	N/A
Nursing Technician/ Nursing Assistant	NT/NA	8	8	8	80	80	80
Monitor Tech	MT	8	8	8	80	80	80
Unit Secretary	US	8	8	8	80	80	80

ED, emergency department; ICU, intensive care unit.

Christmas Day, New Year's Eve, New Year's Day, Memorial Day, Labor Day, and 4<sup>th</sup> of July, the nurse leader subtracts 64 holiday hours from 260 to obtain the total number of patient days of 196.

*PTO*—Represents the percent of average paid time off per FTE. This figure is usually provided by the Finance Department or Human Resources.

*Incidental Overtime*—The percent of total work hours worked in an overtime capacity.

**TABLE 5.6** represents a breakdown of nursing job classes in the clinical entity's budget and their corresponding abbreviations. We will use these

abbreviations as we progress through developing our staffing plan.

## ► Building a Staffing Model

With the necessary historical and projective data collected, we can begin to build a staffing model for the department. **FIGURE 5.4** represents an example of a staffing model template. This template will be referred to as Schedule 1 of 4.

Notice the top left-hand corner of Schedule 1. Information from the Facility Overview is listed here, including the facility name, time period, unit

**TABLE 5.5** Facility Overview

Facility:	St. Elsewhere
Time period:	2017
Unit name:	Urgent Care Clinic
Cost center:	1000
Unit type:	ED
	Volume
ADC:	24
Total patient days:	8,760
PTO%	10.0%
Incidental overtime	5.0%

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ADC, average daily census; ED, emergency department; PTO, personal time off.

**TABLE 5.6** Job Classes with Abbreviations

Skill Mix Name	Abbreviation
Manager	MGR
Asst. Manager	ANM
Charge Nurse	CHG
RN	RN
LVN	LVN
NT/NA	NT
Monitor Tech	MT
Unit Secretary	US
Other	OTH

**Schedule 1: Staffing by ADC**

Facility: St. Elsewhere	Unit name: 2West
Time period: 2010	Cost center: 1000
Unit type: Med/surg	
Using ADC (midnight census)	
ADC: 24	Total pat days: 8,760 Direct HPPD:
Using conversion factor (what goes into PLUS)	
Total USO:	Direct Hrs/UOS:

Shift distribution			SKILL MIX TABLE									
Days	Eve	Night	MGR	ANM	CHRG	RN	LVN	NT	MT	US	Other	TOT
			FTEs	-	-	-	-	-	-	-	-	-
			%									

	SUN			MON			TUE			WED			THU			FRI			SAT			ALL SHIFTS			TOT HRS	FTE
<b>7A-7P, 7A-3P</b>	8HR	10HR	12HR	8HR	10HR	12HR	8, 10, 12	8, 10, 12																		
Manager																									-	-
ANM																									-	-
Charge nurse																									-	-
RN																									-	-
LVN																									-	-
NT/NA																									-	-
MT																									-	-
Unit secretary																									-	-
<b>TOTAL</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SUN			MON			TUE			WED			THU			FRI			SAT			ALL SHIFTS			TOT HRS	FTE
<b>3P-11P</b>	8HR	10HR	12HR	8HR	10HR	12HR	8, 10, 12	8, 10, 12																		
Manager																									-	-
ANM																									-	-
Charge nurse																									-	-
RN																									-	-
LVN																									-	-
NT/NA																									-	-
MT																									-	-
Unit secretary																									-	-
<b>TOTAL</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SUN			MON			TUE			WED			THU			FRI			SAT			ALL SHIFTS			TOT HRS	FTE
<b>7P-7A, 11P-7A</b>	8HR	10HR	12HR	8HR	10HR	12HR	8, 10, 12	8, 10, 12																		
Manager																									-	-
ANM																									-	-
Charge nurse																									-	-
RN																									-	-
LVN																									-	-
NT/NA																									-	-
MT																									-	-
Unit secretary																									-	-
<b>TOTAL</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>UNIT TOTAL</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

**FIGURE 5.4** Staffing model

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type, unit name, and cost center (or department identification number). Additionally, the average daily census and the annual total patient days are transferred to this document. While not required to be included on the staffing template, it is helpful to have this information available on a single page.

Our next step will be to determine the job classes that will be required on each shift. Abbreviations for each job class are listed along the left column. Three rows of columns, referred to herein as “shift sets,” are provided in this example, allowing for day, evening, and night shift staffing patterns. Depending on the clinical setting and hours of operation, only one or two shift sets may be required.

The nurse leader should next determine the number of licensed staff necessary to provide

the standard of care for a selected patient population. The number and type of UAP should then be determined to assist licensed staff in meeting patient care needs.

*Scenario:* We are required to have one RN (not classified as Charge Nurse) during all clinic hours (12 hours/day). Additionally, we have a manager who works 8 hours per day Monday through Friday, and two LVNs working 12 hours per day Monday through Friday. Fill in the staffing pattern template below using these known staffing resources. In each appropriate box, enter the number of staff allocated to each job class utilized. Focus only on the shaded areas at this time.

	SUN			MON			TUE			WED			THU			FRI			SAT			ALL SHIFTS			TOT	FTE
	8HR	10HR	12HR	8HR	10HR	12HR	8,10,12	8,10,12																		
Manager																										
ANM																										
Charge Nurse																										
RN																										
LVN																										
NT/NA																										
MT																										
Unit secretary																										
TOTAL																										

	SUN			MON			TUE			WED			THU			FRI			SAT			ALL SHIFTS			TOT	FTE	
	8HR	10HR	12HR	8HR	10HR	12HR	8,10,12	8,10,12																			
Manager				1			1			1			1			1											
ANM																											
Charge nurse																											
RN		1		1			1			1			1			1			1								
LVN				2			2			2			2			2											
NT/NA																											
MT																											
Unit secretary																											
TOTAL																											

With the information provided, your scheduling template should look similar to the one below. Notice that, at a glance, the nurse leader can quickly determine the number and skill mix of licensed staff working each day, as well as the number of hours each job class is scheduled. In the following chapter, we will calculate total FTEs and hours per shift and show how these numbers stand to impact the organization from a financial perspective.

### PTO, Education, and Orientation

When nursing staff is required to attend educational offerings, they are being relieved of their direct patient care obligations. Therefore, time away from the bedside must be anticipated and allotted for in the budget. **FIGURE 5.5** shows Schedule 2 of 4.

In Schedule 2, we need to calculate the FTEs necessary to allow for budgeting secondary resources to offset the loss of productive time due to PTO, orientation, and education. The first section deals with Replacement FTEs. Using Schedule 1 as a reference, determine the number of FTEs that are essential for each shift. Those FTEs are reflected in the subtotal PTO line. Remember that the PTO percentage has already been identified on the Facility Overview. This is the percent of time an average FTE is paid to take paid benefit time away from the workplace. In most institutions, an average FTE receives benefit time equating to approximately 10% of their regularly scheduled hours. This number is reflected in the Hours section. The FTE multiplied by the hours gives the total hours. Total hours reflect the number of hours that employees will be away from the workplace during the year.

Recognizing that there are seasonal fluctuations in the census (higher than average in winter, lower than average on holidays and during summer), the nurse leader must project what percent of those hours are necessary to be replaced. To determine the number of replacement hours that are necessary, multiply the replacement percent by the total hours.

Refer to the Education and Orientation Summary previously completed to determine the hours of required education and attendance

Schedule 2: PTO, Education, and Orientation

Facility: St. Elsewhere	Unit name: 2West
Time period: 2010	Cost center: 1000
Unit type: Med/surg	
Using ADC (midnight census)	
ADC: 24	Total pat days: 8,760
Using conversion factor (what goes into PLUS)	
Total USO: -	

Replacement FTEs	FTEs	Hours	Total hours
Subtotal PTO		208.57	-
PERCENT (%) OF REPLACEMENT			
Subtotal PTO replacement	-		-

Education/meetings	FTEs	Hours	Total hours
Manager			
Asst. manager			
Charge nurse			
RN			
LVN			
NT/NA			
Monitor tech			
Unit secretary			
Other			
Subtotal education/meeting	-	-	-

Orientation	Head count	Hours	Total hours
Manager			
Asst. manager			
Charge nurse			
RN			
LVN			
NT/NA			
Monitor tech			
Unit secretary			
Other			
Subtotal orientation	-	-	-

**FIGURE 5.5** PTO, Education, and Orientation

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at meetings. Document this in the Education/Meeting section by job class.

In the Orientation section, estimate the number of new employees that will be hired in the fiscal year. Consider historical turnover rates and



Schedule 3: Productive Hours Overview

Facility: St. Elsewhere	Unit name: 2West
Time period: 2010	Cost center: 1000
Unit type: Med/surg	
Using ADC (midnight census)	
ADC: 24	Total pat days: 8,760
Using conversion factor	

Regular					
Skill mix	Job title	Hourly wage	FTE	Total hours	Total wages
Manager				-	\$ -
Asst. manager				-	\$ -
Charge nurse				-	\$ -
RN				-	\$ -
LVN				-	\$ -
NT/NA				-	\$ -
Monitor tech				-	\$ -
Unit secretary				-	\$ -
				-	\$ -
				-	\$ -
				-	\$ -
				-	\$ -
				-	\$ -
				-	\$ -
<b>Subtotal regular</b>			-	-	<b>\$ -</b>

FIGURE 5.6 Schedule 3

wage. For example, if the incumbent earns \$15 per hour and the bonus is \$2 per hour, only enter \$2 in the hourly wage column. Complete this for each effected job class to obtain the total hours and wages for this section.

Section 3 (Other Pay) is directing the nurse leader to project incidental overtime based on historical and anticipated occurrences. Financial statements will have a line item for overtime, usually provided in hours and dollars. Review the previous year’s actual overtime and make projections for the upcoming year. Also take into consideration the number of existing and projected vacancies when calculating the overtime hours. Document the total annualized hours for overtime. Convert those hours to FTEs by dividing by 2,080 and place this number in the FTE column. To determine the hourly wage for overtime, one method is to use the RN rate

of pay. Another method is to average the rate of pay for all job classes. If the nurse leader chooses to use the first method, and an RN earns \$35 per hour, then the hourly rate is half of that figure ( $\$35/2 = \$17.50$ ). This figure is placed in the hourly wage column. The rationale behind this is that the regular time has already been calculated in Section 1. Section 3 requires the half pay. Therefore, you have accounted for time-and-one-half. Take the hourly wage  $\times$  total hours = total wages for incidental overtime. If using the average method, take the sum of each skill mix with the propensity of working overtime, and then divide by the number of affected job classes.

The next element in Section 3 is calculating the charge pay. If the organization pays a differential for the nurse to be in charge, this is where you would put that amount.

Contract labor/bonus pay					
Skill mix	Job title	Hourly wage	FTE	Total hours	Total wages
				-	\$ -
				-	\$ -
				-	\$ -
				-	\$ -
				-	\$ -
				-	\$ -
Subtotal contract labor/bonus pay			-	-	\$ -
Other pay					
Skill mix	Job title	Hourly wage	FTE	Total hours	Total wages
Bonus pay	Incidental overtime		-	-	\$ -
Bonus pay	Charge differential			-	\$ -
Bonus pay	On call			-	\$ -
Bonus pay	Call back			-	\$ -
Subtotal other pay			-	-	\$ -

Replacement FTE					
Skill mix	Job title	Hourly wage	FTE	Total hours	Total wages
Total from schedule 2			-	-	\$ -
RN	PRN			-	\$ -
RN	Bonus			-	\$ -
RN	Agency			-	\$ -
Subtotal replacement FTEs			-	-	\$ -

For those nurses who are required to be on call and return to the physical site on demand, most organizations determine what their on-call differential is, and that amount should be entered in the hourly wage section. The number of FTEs that are on call should be multiplied by 2,080 and documented in the total hour column. Those total hours multiplied by the hourly wage will give the total wages for on call.

Callback hours are hours where the nurse is actually called back to the physical site while they are on call. Wages are usually time-and-one-half during callback, but this can vary.

### Replacement FTEs

Section 4 addresses data that have been pulled from Schedule 2, Section 1. The nurse leader must now determine from which resource pool these FTEs will be worked. Some organizations have

internal float pools, PRN (*pro re nata*, as needed) pools, and some rely heavily on supplemental staffing from nurse agency companies.

Of the FTEs calculated from Schedule 2, the nurse leader must determine how to allocate these FTEs based on secondary resources available. For example, if the organization has a float pool and contracts with freestanding nurse agency companies, the nurse leader will estimate the number of FTEs from each entity needed to meet secondary resource needs.

The hourly rate for each secondary resource is entered into the Hourly Wage column, alongside the FTE for that resource. The FTEs need to be converted to total hours by multiplying by 2,080. Hourly wage multiplied by total hours will give the Total Wages. The total replacement FTEs in Section 4 of Schedule 3 must be the same number as calculated in Section 1 of Schedule 2.

Replacement FTE					
Skill Mix	Job Title	Hourly Wage	FTE	Total Hours	Total Wages
Total from Schedule 2			1.76	3,669.12	
RN	PRN Pool			-	\$ -
RN	Float Pool			-	\$ -
RN	Agency		1.76	3,660.80	\$ -
				-	\$ -
Sub Total Replacement FTEs			1.76	3,660.80	\$ -

FTE, full-time equivalent.

Section 5 factors the education and meeting expenses that were determined in Section 2 of Schedule 2. Place the hourly wage by the appropriate skill mix, allocating the hours and FTEs.

Section 6 calculates the financial impact of orientation identified in Section 3 of Schedule 2 by entering the hourly wage of each skill mix.

We will now see the total financial impact of the staffing model you established (see **FIGURE 5.7**).

Schedule 4 of 4 provides totals of key areas of impact and are all carried over from Schedule 3.

### Productive Time

- Subtotal Regular includes subtotals of Section 1 of Schedule 3.
- Subtotal Bonus Pay is taken from Section 2 of Schedule 3.

Education						
Skill Mix	Job Title	Hourly Wage	FTE	Total Hours	FTEs Annualized	Total Wages
Manager	Nurse Manager		1.00	-	-	\$ -
RN	RN	\$ 35.00	14.70	529.2	0.25	\$ 18,522
Nurse Tech	Nurse Tech	\$ 15.00	10.50	84.0	0.04	\$ 1,260
Dept. Secretary	Dept. Secretary	\$ 14.00	2.10	16.8	0.01	\$ 235
Sub Total Education/Meeting			28.30	630.00	0.30	\$ 20,017

Schedule 4: Summary

Facility: St. Elsewhere	Unit name: 2West
Time period: 2010	Cost center: 1000
Unit type: Med/surg	
Using ADC (midnight census)	
ADC: 24	Total pat days: 8,760

Categories	FTEs	Total hours	Total wages
Subtotal regular	-	-	\$ -
Subtotal other pay	-	-	\$ -
<b>Total direct care FTEs</b>	-	-	\$ -
Subtotal replacement FTEs	-	-	\$ -
Subtotal bonus pay	-	-	\$ -
Subtotal education/meeting	-	-	\$ -
Subtotal orientation	-	-	\$ -
<b>Total</b>	-	-	\$ -

Note: other pay is not included in schedule 3 categories

	NHPPD
Total worked hours per patient day	-
Productive houes per patient day	-
Paid Hours	-

FIGURE 5.7 Schedule 4

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Orientation						
Skill Mix	Job Title	Hourly Wage	FTE	Total Hours	FTEs Annualized	Total Wages
Manager	Nurse Manager		-	-	-	\$ -
RN	RN	\$ 55.00	2.00	240.00	0.12	\$ 13,200
Nurse Tech	Nurse Tech				-	\$ -
Dept. Secretary	Dept. Secretary		-	-	-	\$ -
<b>Sub Total Orientation</b>			<b>2.00</b>	<b>240.00</b>	<b>0.12</b>	<b>\$ 13,200</b>

- Subtotal of Other Pay is derived from Section 3 of Schedule 3, which only reflects the overtime calculations because regular hours worked plus overtime hours worked equals total **direct care hours or FTEs**.

**Non-Productive Time**

- Subtotal Replacement FTEs is taken from Section 4 of Schedule 3.
- Subtotal Bonus Pay is taken from Section 2 of Schedule 3.

- Subtotal of Education and Meeting is taken from Section 5 Schedule 3.
- Subtotal of Orientation is taken from Section 6 Schedule 3.
- Add up the bottom lines that reflect TOTAL PAID HOURS, FTEs, and WAGES.

## Calculating Nursing Hours Per Patient Day

Take total direct care hours and divide by annualized patient days (shown as Total Patient Days at the top of Schedules 1–4).

Total paid hours per patient day (HPPD) is calculated by dividing total hours by total patient days. This figure is the direct HPPD plus all budgeted non-productive hours (replacement FTEs, Bonus Pay, education/meeting and orientation).

The direct nursing hours per patient day (NHPPD) is also listed at the top of Schedule 1 as Direct HPPD.

### ► Summary

Creating a staffing model and corresponding budget is a complex process that requires consideration of multiple influencing factors. This chapter was intended as an overview, an opportunity to gain exposure to key terminology and calculation methods. In the following chapter, we will design staffing plans and budgets for two different types of clinical settings: inpatient and outpatient. While these examples will not cover all of the types of nurse department budgeting you might encounter, with each exercise your ability to build these models will improve and your understanding of each component will expand. Using the same templates (Facility Overview and Schedules 1–4), you will gain familiarity with the flow of the staffing model development process.

### Discussion Questions

1. Why is it important for the nurse leader to provide a reasonable and fair operation budget?
2. Although budget figures are estimates of future projections, why and how should nurse leaders be prepared to explain short-term variations?
3. Nurse leaders have many responsibilities when it comes to the development of the budget. What issues would be considered most important for the nurse leader in this process?
4. How should a nurse leader prepare to handle minimum staffing requirement costs in the budget process in case this is challenged?
5. Besides a department budget approach, what other alternatives are available in the budgeting process?

## Glossary of Terms

**Breakeven** when the costs of operations exactly equal the revenues; there is no profit or loss.

**Capital Budget** covers the purchase of land, buildings, and long-lived (at least 2 years) equipment.

**Direct Labor** the labor that actually turns direct materials into a finished product.

**Fixed Costs** costs that stay the same regardless of the level of activity.

**Full-Time Equivalent (FTE)** unit of measurement that represents a person or people working 40 hours a week and 2,080 hours a year.

**Hours per Patient Day (HPPD)** the number of nursing staff hours needed to provide care to an inpatient in 24 hours.

**Indirect Labor** those persons who do not actually turn direct materials into a finished product; part of overhead.

**Minimum Staffing** needing at least two staff members on duty at all times to staff a unit.

**Non-Productive Time** time when an employee is paid but is not working, such as holidays, sick time, vacation time, and/or paid time off (PTO).

**Nursing Workload** the volume of work performed by nursing caregivers; better presented as NHPPD or HPPD.

**Operating Budgets** cover the day-to-day costs of a unit, including such things as wages

for regular and temporary workers, medical and office supplies, equipment rental, repair and maintenance, travel and education, and dues and subscriptions. Like all budgets, operating budgets represent the “best guess” for costs over a coming period.

**Productive Time** actual time worked.

**Revenues** charges made to patients or other clients.

**Staff Mix** marketing term that specifies which kind of direct care staff will provide care.

**Unit of Service** used by healthcare organizations to measure specific services a patient uses within a specific time frame that is, minutes, hours, days, visits, births, treatments, operations, or other patient encounters.

**Variable Costs** those costs that change depending on the level of volume.