

Planning is bringing the future into the present so that you can do something about it now. —Alan Laiken

## CHAPTER OBJECTIVES

Upon completion of this chapter, the reader will be able to do the following:

- » Develop an understanding of patient care delivery models, patient classification systems, and scheduling and staffing.
- » Provide an overview of the complexities and interconnectedness of the components of workforce management systems.
- » Understand the importance of evidence-driven processes, integration of research, and their impact on nurse satisfaction, patient quality, and organizational outcomes.
- » Describe the current measures of staffing effectiveness.
- » Gain an appreciation of the challenges in addressing inadequacies or problems of staffing and scheduling.



# Staffing, Scheduling, and Patient Care Assignments: Models, Components, and Measures of Effectiveness

## Chapter

# 5

Workforce management in health care requires an understanding of the nature and complexities of the dynamics involved in providing the right nurse for the right patient at the right time. Providing the right nurse for the right patient at the right time involves more than just assigning available nurses to the current list of patients on a unit. It requires an understanding of the critical elements and dynamics of workforce management processes and the translation of these elements into a staffing plan that supports the achievement of the highest quality outcomes. Staffing is not about the tools and technologies available, it is about using those tools alongside professional nursing judgment and critical thinking to achieve safety, quality, and satisfaction.

In this chapter, the importance of the patient care delivery model; basics of **staffing** and **scheduling**; regulatory, accrediting, and research standards for staffing effectiveness; evaluation of the measures of staffing effectiveness; challenges in managing variances in resources; and the role of the clinical leader in ensuring optimal staffing practices are discussed.

The nurse leader must coordinate patient workforce management to include five highly interconnected and interrelated components (**Figure 5-1**):

1. Establishment of a patient care delivery model
2. Patient needs and nurse interventions identification
3. Creation of a core staffing schedule to support patient needs
  - a. Knowledge of staff competencies and abilities
  - b. Integration of staffing and research evidence
  - c. Skill mix
  - d. Registered nurse (RN) competencies
  - e. Educational levels

Workforce management includes distinct processes with special characteristics, processes, and goals.

Caveat: Continuing to attempt to amalgamate patient classification, scheduling, staffing, retention, and recruitment into one process serves only to decrease system validity and frustrate workers with additional unproductive tasks.

|                                 |   |   |
|---------------------------------|---|---|
| Patient Care Delivery Model     | → | Describes the infrastructure, roles, accountabilities, and processes for patient care   |
| Patient Classification          | → | Patient care needs are identified using a valid and reliable system   |
| Core Scheduling                 | → | Medical/surgical 12-1 patient/nurse ratio/2 LPN/1 CNA<br>Tele 4-1 RN<br>ICU 2-1 RN<br>Women's & Infants 2 RN PER UNIT<br>MINIMUM (L and D AP/PP, Nursery) |
| Staffing Assignments            | → | Daily adjustments based on actual patient care needs, activity from last shift, and anticipation of admissions, discharges, and transfers for next shift  |
| Evaluate Staffing Effectiveness | → | Assess the relationship between staffing and outcomes and make appropriate adjustments  |

**Figure 5-1 Workforce Management**

4. Daily staffing process to match available staff with identified patient care needs
  - a. Interpreting and managing the adequacy of the staffing
  - b. Variance between actual staffing and patient care needs
  - c. Staffing adequacy indicators/effectiveness
  - d. Capacity determination
5. Evaluation of value and outcomes
  - a. Qualitative and quantitative assessment of patient, caregiver, and organization outcomes
  - b. Nurse retention, satisfaction, and turnover
  - c. Productivity monitoring
  - d. Financial performance
  - e. Modification or updating of budget and performance targets for staffing effectiveness

A **workforce management** or staffing plan describes the structure and processes by which the nurse assigns responsibilities for patient care and how the work is coordinated among caregivers. In addition, it describes the mechanism for documenting and reporting staffing concerns. This integrated set of processes begins with the patient care delivery model.

## The Foundation: Patient Care Delivery Model

Prior to determining how many nurses are needed for patient care, a clearly thought-out model or framework for delivering patient care is needed. A **patient care delivery model** is defined as a method or system for organizing and delivering nursing care. It includes the manner in which nursing care is organized so as to deliver care that meets the needs of the patient. The delivery system encompasses work delegation, resource utilization, communication methodologies, clinical decision-making processes, and management structure (Hall, 2005).

The patient care model emerges from the organization's mission, vision, values, and structure, which identify the desired outcomes, decision-making authority, and span of control. Thus, the model has a direct and significant impact on the number and levels of nursing staff allocated to provide nursing care. Patient care delivery models are necessarily dynamic because the healthcare environment, needs of the patients, and available technology are continually changing. The mission, vision, and values remain the stabilizing and focusing forces for the patient care delivery model. Further, the adequacy and effectiveness of the patient care delivery model are essential in supporting a positive practice environment for nurses (Drenkard & Swartwout, 2011).

An effective care delivery system is designed so that the needs of patients are matched to competent caregivers, the caregivers' roles are clearly delineated, the quality care provided contributes to the outcomes, and documentation is created to reflect the care provided and outcomes obtained. Specifically, the delivery model is designed to ensure that the right caregiver is with the right patient at the right time. This aspect of care is necessarily linked to the next phase of a workforce management system—a valid and reliable **patient classification system**, which is essential in the planning and evaluation of the patient care delivery model. The American Organization of Nurse Executives, in its document *AONE Guiding Principles for Future Patient Care Delivery* (2010), has identified the following assumptions regarding patient care delivery:

- A systems approach is needed with all disciplines, focusing on continuity of care service.

- Emerging accountable care organizations will define healthcare reform provisions and influence the delivery venues.
- Patient safety, experience improvement, and quality outcomes will remain a public, payer, and regulatory focus driving the workflow process as it responds to the demands of an increasingly informed public.
- Healthcare funding will focus on achieving the desired outcomes of improved quality, efficiency, and transparency.
- Interdisciplinary education of health professionals will become the norm, promoting shared knowledge that enables safer patient care and funding for advanced practice nurse (APN) residencies and related clinical education.

Numerous patient care delivery models have been implemented with varying levels of success. They include models based on functional nursing (work is assigned by tasks), primary nursing (a nurse is assigned as the lead caregiver to plan and coordinate care), team nursing (similar to functional nursing, in that a team provides care based on tasks and skills levels and competence), modular nursing (a two-person team provides care to groups of patients), and case management nursing (a nurse coordinates care using clinical pathways and quality criteria) (Sportsman, 2011; Sullivan & Decker, 2009). More recently, interdisciplinary models of care have emerged and include practice partnerships, patient-centered care, and primary care partnerships.

Traditionally, caregivers are assigned to work from a task perspective, a process or teamwork perspective, and/or an interdisciplinary perspective. Recently, it has become apparent that more considerations need to be incorporated into the care perspective for a delivery model to be effective. As the environment for care and clinical work becomes more specialized, additional skills are needed to blend the specialization or division of labor with the expectations for a continuum of care that integrates all disciplines involved in providing services. The importance of an effective, multidisciplinary hand-off process is now well recognized as a means to assure the desired continuity of services. Notably, facilitating knowledge work has become an important work process, as information generation and communications technology trends steadily build and form essential components of the contemporary delivery model. According to Malone, Laubacher, and Johns (2011), four areas of focus must be addressed to get work done in a complex, digital world: division of knowledge work into discrete, assignable tasks; recruitment of specialized workers based on their contributions; assurance of work quality; and integration of the work pieces. The situation is similar for healthcare workers: they

face a very complex and dynamic system that requires clear delineation and **assignment** of work based on skills, licensure and competence, recruitment and retention of competent caregivers, assurance of values-based outcomes, and integration of the work of all caregivers into a whole that meets the needs of patients. Indeed, this provides a new lens for viewing the patient care delivery model expectations and reflects the expectations for continuity of care in the era of healthcare reform.

The optimal delivery model for the future is one that is driven by principles and assumptions and ensures coordination of efforts and the achievement of value-based outcomes. How that work is organized and assigned requires team focus, with each caregiver being clear about his or her work, contributions, and value to the outcome.

## Identifying Patient Care Needs

After the patient care delivery model is established, the next step is to identify the needs of the patients being cared for and the required caregiver interventions to meet these needs. Time standards and levels of caregivers are then derived from the types of interventions that are performed for patients. The overall goal is to quantify the needs of the patient and family as well as the nurse interventions required to meet those needs. The needs and interventions identified in this way can then be translated into hours of work for caregiver RNs, licensed practical nurses (LPNs)/licensed vocational nurses (LVNs), technicians, and certified nurse assistants (CNAs) caregivers. In addition, the integration of hospitalists, social workers, respiratory therapists, and other professionals into the healthcare team will further increase healthcare providers' ability to determine comprehensive patient care needs.

Many healthcare organizations have considered adopting some type of work measurement technique to determine the appropriate number and type of staff for patient care units. A variety of approaches are used in health care, including historical usage, staffing grids, legislated staffing ratios, and/or patient classification systems. Many organizations use a combination of approaches. Recent technology advances have resulted in automated systems for calculation and documentation of patient care needs.

The selected technique is then either customized by the facility with a manual or a computerized patient classification system. Some organizations do not use traditional workload measurement systems but rather rely primarily on ratio or grid staffing. Historically, staffing for patient care has been based on what was actually used for staffing in the previous year rather than on an analysis of current patient care needs and projections from these data. The assumption is that patient care needs remain relatively stable over time and that the staffing levels

**Table 5-1 Staffing Grid**

| Census | RN | Tech | Support | Clerk |
|--------|----|------|---------|-------|
| 24     | 5  | 2    | 2       | 1     |
| 22     | 5  | 2    | 2       | 1     |
| 20     | 4  | 2    | 2       | 1     |
| 18     | 4  | 1    | 2       | 1     |
| 16     | 4  | 1    | 2       | 1     |
| 14     | 3  | 1    | 1       | 1     |
| 10     | 3  | 1    | 0       | 0.5   |
| 8      | 2  | 1    | 0       | 0.5   |
| < 8    | 2  | 1    | 0       | 0.5   |

of the previous year produced the desired quality outcomes. For many organizations, the more staff who were used in the previous year, the more staff who are budgeted for the next year. These allocations are then used to create a graduated staffing grid identifying how many nurses will be allocated based on the number of patients (**Table 5-1**).

The underlying assumption of a staffing grid or ratio-based staffing is that all patients are similar in needs and that care fluctuations can be handled within these allocations of staff hours. The grid is directly linked to the budgeted staffing. In contrast, legislated staffing ratios identify nurse-to-patient ratios based on experiences and perceptions of nurses and are not directly linked to budgeted staffing. New research continues to emerge specific to recommended nurse-to-patient ratios (Douglas, 2010; Serratt, 2013). Advantages of nurse-to-patient ratios include the following:

- Considers the historical average **patient acuity**
- Provides incentives for nurses to return to the bedside
- Uses simple-to-regulate numbers
- Increases nurse satisfaction because nurses traditionally support equal numbers of patients
- Alleviates nurse stress
- Is marginally supported by evidence
- Provides a short-term solution for a complex problem

Disadvantages of the nurse-to-patient ratio staffing methods are as follows:

- Does not fix the problems in the workplace environment
- Does not consider evidence for effective staffing
- May become maximum staffing levels rather than intended minimum staffing levels
- Does not consider the variation in patient care needs, complexity of care, unit geography, and available equipment
- Does not consider the variations in staff competence and experience
- Assumes that nurses are available to meet the legislated ratios
- Will force closure of some hospitals
- Devalues the role of nurse critical thinking and judgment
- Assumes a manufacturing model is appropriate for patient care
- Shifts staffing accountability from the organization to the government

With recent healthcare reform legislation (e.g., the Patient Protection and Affordable Care Act of 2010), the emphasis has shifted from an event-based model to a continuum accountability model that integrates all settings in which patient care is provided (Day, 2010). Patient care metrics and payment are now based on the provision of integrated care processes for each patient.

The creation and use of patient classification systems as a tool to improve the clarity and objective identification of patient care needs emerged in the 1960s along with the adoption of the **diagnosis-related group (DRG)** payment system (Malloch & Meisel, 2013). See **Box 5-1**. Multiple models for classifying and measuring patient care needs were introduced that included the *International Classification of Diseases* (ICD), DRG, case mix index, ambulatory payment classification

### BOX 5-1 DRG SYSTEM

The DRG system was developed by a group of researchers at Yale University in the late 1960s as a tool to help clinicians and hospitals monitor quality of care and utilization of services. It has since been used by Medicare in the United States to pay hospitals. This system categorizes the types of patients a hospital treats based on diagnoses, procedures, age, sex, and the presence of complications or comorbidities. Briefly, DRGs work by taking more than 10,000 ICD-CM codes and grouping them into a more manageable number of meaningful patient categories. Patients within each category are similar clinically in terms of resource usage.



(APC), resource utilization groups (RUGs), Outcome and Assessment Information Set (OASIS), and home health resource groups (HHRGs) (Dunham-Taylor & Pinczuk, 2006; Shi & Singh, 2004). These models identified procedures primarily for billing purposes.

Patient classification systems for nursing care also emerged because the previously mentioned systems did not address a significant portion of nurse work—namely, patient education, family support, and interdisciplinary collaboration—that is necessary to support procedural work. Patient care needs are best identified using a framework specific to patient needs that can be translated into nursing work. The Nursing Interventions Classification (NIC), Nursing Outcomes Classification (NOC), and North American Nursing Diagnosis Association—International (NANDA-I) classification are commonly used to delineate nursing work. Examples of patient care need categories include the following (Malloch & Conovaloff, 1999):

- Cognitive needs: patient level of consciousness and decision-making capacity
- Self-care needs: support for activities of daily living—bathing, ambulating, eating, skin care, and safety
- Emotional, social, and spiritual needs: support for stress, anxiety, depression, relationships, and spiritual status
- Pain and comfort needs: support for varying levels of discomfort from acute to chronic, intractable pain levels
- Family information and support needs: intentions to assist family and support members with knowledge and information to assist the patient
- Treatments and interventions: assessments, procedures, medications, fluids, and monitoring through patient care
- Interdisciplinary collaboration needs and patient information needs: multidisciplinary communication and collaboration among team members to ensure optimal coordination of care
- Transition needs: support for the transfer of the patient from one level of care to a higher or lower level of care across multiple settings

These eight categories include the majority of nurse interventions for all clinical patient types, including acute inpatient, intensive care, women's and infants, pediatrics, rehabilitation, behavioral health, and ambulatory care. The goal of a patient classification system is to provide the most valid and reliable information specific to work that needs to be done for patients. The nature of valid and reliable systems is straightforward; however, it is difficult to achieve in a human work system. A basic understanding of the techniques and challenges in measuring

## BOX 5-2 KEY CONCEPTS

*Classification:* The ordering of entities into groups or classes based on their similarity, minimizing within-group variance and maximizing between-group variance (Gordon, 2001).

*Forecasting:* planning for operational needs through analysis of staffing data alongside organizational and operational data. (American Nurses Association, n.d.).

*Patient acuity (intensity):* The level of need or dependency of an individual patient, measured in hours of care needed by skill level.

*Patient classification:* A process of grouping patients into homogeneous, mutually exclusive groups to determine their dependency on caregivers or to determine patient acuity (Dunn et al., 1995; Finkler, 2001).

*Scheduling:* The long-range plan that combines the organization's goals, legislation, regulation, and accreditation requirements and planned patient demand.

*Staffing:* The real-time adjustment of the schedule based on census, acuity, and the mix of available resources.

*Workforce management:* The comprehensive system that includes patient classification, scheduling, staffing, and budgeting systems.

human work is helpful in supporting the processes to achieve the highest degree of validity and reliability. As previously noted, this model can be used for other disciplines, such as hospitalists, respiratory therapists, social workers etc. To be sure, there is increasing interest and documentation worldwide that seeks a means to best determine the amount of services expected and needed by patients (van Oostveen, Ubbink, Huis in het Veld, Bakker, & Vermeulen, 2014). See

**Box 5-2.**

## Measuring Human Work

Measuring human work, particularly in health care, to determine what is done and how long it takes is a complex process that requires a basic understanding of the techniques available to determine work quantity. See **Box 5-3**. Several techniques are available to quantify the time associated with tasks performed by workers, as well as at least 25 techniques that assist in the study and measurement of work (Myers & Stewart, 2002). These techniques are used to understand the



## CRITICAL THOUGHT

Why we need a patient classification system:

- To understand the relationship among patient care needs, interventions, desired outcomes, and the skill level of caregivers as a prerequisite to determine the appropriate type and number of caregivers and support staff needed to provide safe and effective patient care
- To define the amount of staff needed for a particular situation
- To create a valid and reliable system that defines and defends the work of professionals, increases visibility of the role of professional healthcare practice, protects patients from complications, and decreases the vulnerability of professional caregiver staff to budget cuts
- To account for the constant changes in the healthcare system and subsequent adaptations that are necessary to meet patient care needs.

## BOX 5-3 NURSING WORKFORCE MANAGEMENT SYSTEM: VALIDITY AND RELIABILITY

*Validity* can be defined as the extent to which a workforce management system measures what it is designed to measure—that is, the ability to quantify and/or predict patient needs for nursing care. *Reliability* refers to the extent to which data are reproducible. Three major types of reliability are distinguished: stability, homogeneity, and equivalence. The most important for workforce management systems is equivalence. *Equivalence* refers to the extent to which different nurses use the same workforce system to measure the same individual, at the same time, to derive consistent results (Alward, 1983; Giovanetti, 1979; Hernandez & O'Brien, 1996a, 1996b).

nature and true cost of work processes and to address the ongoing challenges of reducing costs, effort, and improving the work environment.

Five of the more common techniques often used in health care are provided to better understand the strengths and limitations of each technique as they relate to measuring healthcare work. Motion and time studies, work sampling, self-reporting, standard data setting, and expert opinion are each discussed briefly.

*Motion and time studies* involve continuous timed observations of a single person during a typical time period or shift of work (Burke et al., 2000). An observer

measures primary task occurrences and the length of time to perform the task. Motion studies are undertaken for cost reduction, and time studies are performed for cost control reasons. Motion studies focus on design, whereas time studies focus on measurement.

A motion study is designed to determine the best way to complete a repetitive job. Examples of techniques to study motion include process charts, flow diagrams, multiactivity charts, operation charts, workstation design, motion economy, and predetermined time standards systems. Workload measurement using motion and time studies has been applied to a number of military and industrial problems. Interestingly, while time and motion studies are often referred to by healthcare professionals, this technique is rarely used in health care to identify time standards.

A time study measures the length of time it takes an average worker to complete a task at a normal pace and includes predetermined time standards systems, stopwatch time studies, standard data formula time standards, work sampling time standards, expert opinions, and historical data time standards. In health care, using worked hours per patient-day (HPPD) or procedures per year to budget or staff for the next year would be consistent with the standard data set approach. These techniques are problematic for healthcare work in that while many tasks are repeated (e.g., medication administration, bathing, and teaching), each task is unique for the individual patient and the context in which the care is provided.

The technique of *work sampling* is used to study work activities at systematic or random intervals. It involves the process of randomly observing people working to determine how they spend their time. The type and percentage of observations are assumed to represent the typical workload at any given point in time. Such studies do not, however, determine the duration of a particular activity.

In health care, work sampling has been the foundation for some computerized patient classification systems. The caregiver's work is examined for the entire shift or event of care for a selected number of times to achieve a representative range of services. After representative data are collected, the percentage of time spent on specific activities (e.g., taking and recording vital signs, performing assessments, administering medications, procedures, and discharge planning) is determined. These amounts then create the time standards for determining future patient acuity on a daily or shift basis.

*Self-reporting* is another technique used to determine the amount of time associated with activities. Generally, the individual is asked to log the work performed using a data collection tool with start and stop times of each activity recorded. Self-reporting is subjective, but it has been shown to have high face validity (Burke et al., 2000).

*Standard data setting* uses time standards developed from past experiences. Such a collection of time values includes a catalog of basic time standards developed from a database collected over years of motion and time study. These time standards are specific to the individual environment and not readily transferable to another environment without further validation. Standard data are typically the most accurate and least costly to determine for manufacturing settings.

*Expert opinion* (also known as an expert panel) is yet another technique used to determine time standards. A panel of experts or individuals with experience identify time requirements for certain work. This consensus approach uses professional judgment to determine the staff required and provides a flexible approach that focuses on a critical review of nursing practice (Dunn et al., 1995).

Patient care or service work and one-of-a-kind tasks tend to make setting time standards with the more traditional techniques cost prohibitive. Some workers never do the same thing twice, but goals are needed. An expert is needed to estimate every job and to maintain a log of estimates. The best estimation technique is a low-cost, fast, and initially acceptable way of quantifying information using estimation and self-reporting techniques. The expert opinion technique attempts to remedy the criticism levied against the work sampling technique's inability to capture professional judgment required in health care (Dunn et al., 1995). Because it can easily become biased and not always reflect current conditions, expert opinion is reliable only if the results obtained approximate the results generated by experts, and the estimates are valid and reliable.

Many of these techniques are difficult to use in health care, where both the worker and the work to be done are highly variable. Health care is very different from the manufacturing assembly-line model in which the majority of variation relates to the activities of the worker, while the machine remains stable. The time required to determine specific time standards for the range of patient care profiles and combinations of needs in health care is overwhelming and cost prohibitive to determine using motion, time, and standard data techniques.

Most recently, the expert panel approach has been used to create a comprehensive unit of service as the foundational nursing workload unit of measure for patient care (Malloch & Conovaloff, 1999). Experienced nurses develop workload standards from a comprehensive or shift perspective of the work performed, and expert nurses compile the nurse interventions provided to a patient for an entire shift or event. Collectively, they identify the time required to provide this care as a unit rather than as a summation of individual tasks. This approach is useful because it integrates the multitasking nature of caregiver work and caregiver interruptions and minimizes the risk of double-counting tasks. Typically, an expert panel consists of nurses who practice in clinical, educational, research, and administrative roles, such as experienced staff nurses, clinical nurse specialists,

nurse managers, and associate nurse executives. The expert panel then collaborates using a specific nursing intervention framework to estimate the amount of time and caregiver level required to provide the total care in the comprehensive unit of service.

## Patient Classification Systems: Limitations and Challenges

In addition to the challenges of measuring human work, patient classification systems are limited for other reasons. Skepticism about patient classification systems has existed since their introduction. Given the variety of patient classification systems available, and even with years of testing new and innovative ways of capturing time estimation, the nursing profession continues to struggle with the lack of credible workforce management system (Brennan & Daly, 2014).

Five common reasons for the current mistrust of a patient classification system include low validity, misuse of the tool, difficulty in projecting future staff needs, failure to use the data generated, and lack of tool simplicity. Each is discussed briefly in this section.

### Low Validity

Failing to account for the full scope of nursing practice—specifically, the relational work of nursing—is common in task-based patient classification systems. Failure to consider the relational work of professional nursing care practices, such as patient education, interdisciplinary collaboration, family support, and delegation and supervision of other caregivers, decreases the validity of the system. Because much of nursing is mind work rather than hand work, it is not surprising that the task-based methods of some systems are quickly manipulated and declared invalid.

At present, no single agreed-on patient classification system exists that adequately represents the full range of nursing interventions. Because there is no agreed-on system, few, if any, empirical data sets are available that describe nursing practice across clinical settings and client populations. In turn, this lack of standardized clinical language, which makes it difficult to know with any degree of accuracy which type of patient classification system provides the most valid and reliable data for workload management decisions, further marginalizes system validity.

One solution for improving the validity and reliability of caregiver work measurement is to attach time and skill mix standards to clinical interventions in an electronic documentation system. With documentation driving the calculations for patient needs, the issues of reliability would be decreased significantly.

## Misuse of the Tool

The lack of trust between healthcare administrators and caregivers stems in part from the belief that patient classification systems are a vehicle to increase or decrease staffing levels inappropriately. This lack of trust has serious implications for the ability of hospitals and other healthcare organizations to make the fundamental changes essential to providing safer patient care (Page, 2004). Coupled with low validity, poor reputation, and expectations for the patient classification to do more than simply identify patient care needs, trust in general is minimal in many organizations. The phenomenon of acuity creep, identified by Shaha (1995), is present when the reported patient acuity increases slowly over time but the actual care does not change. In other words, with this trend acuity levels creep to higher levels to justify higher resources use. Creep represents a problem because it assumes there is an ever-increasing need for patient care resources and labor in an industry where financial resources continue to decrease (Shaha, 1995). Further, the use of a system with low validity makes it difficult to distinguish inappropriate acuity creep from real changes in patient care. Thus the validity and reliability of the patient classification used by an organization collectively constitute a critical attribute for effective use of resources.

## Difficulty in Projecting Future Staff Needs

Projecting patient care needs for the next shift or time period is highly desirable for ensuring staffing adequacy. However, the amount of staff and the appropriate skill mix have proved nearly impossible to determine without an acceptable error range without using a computerized solution. Computerized applications are becoming increasingly useful in assessing current nursing work and projecting demand from a point in time; however, regardless of the sophistication and accuracy of the calculations of current work, it remains nearly impossible to accurately predict patient condition changes, new admissions, and discharges. Experts continue to work on complex mathematical **forecasting** models to project patient activities and associated caregiver support into the future. Fitzpatrick and Brooks (2010), for example, analyzed the challenges of predicting patient volumes, needs, and resources and identified the role of clinical leader as logistician. This approach integrates the science of logistics management, including systems theory, mathematical optimization modeling, and human capital planning, and results in significant improvement in outcomes. The value of reconceptualizing the planning and deployment of staff as a logistics problem is readily evident: staff preferences are maximized, coverage is adequate, skill mix is appropriate, regulations are met, and staffing costs are minimized. Indeed, this approach presents opportunities for all staffing offices.



Patient classification system data are useful for both retrospective review of what actually occurred and for projection for next shift staffing. Attempts have been made to classify patients based on the care provided for the current shift or based on what the current caregiver believes the care needs will be for the next shift. To plan for the next shift, the nurse leader requires not only information about the patient needs but also information about the oncoming staff members' competencies; the previous, similar shift staffing (yesterday's afternoon shift compared to the upcoming afternoon shift); facility support for housekeeping, pharmacy, transportation, and teaching staff; and anticipated admissions, discharges, and transfers.

The severity of patient illness, need for specialized equipment and technology, intensity of nursing interventions required, and complexity of clinical nursing judgment needed to design, implement, and evaluate the patient's nursing plan are often not predictable. However, when nurse interventions are reframed to focus on patient care needs, the degree of accuracy increases in tandem with clear descriptions of the patient needs.

Despite its name, which implies measurement of severity of illness or patient acuity, **patient classification** is in truth more concerned with determining the time required for care; the patient acuity level is secondary information. There is some correlation between acuity and amount of care required, but this correlation is not absolute. A chronic, ventilator-dependent, paraplegic patient, for example, may score high in severity of illness yet not require many care hours because of the stability of his or her condition and the well-established plan of care.

## Failure to Use the Data Generated

Too often the data generated from a patient classification system are not used in staffing allocation, particularly if the projections call for more staff hours. The lack of trust in the process and data generated is often not addressed, and the generated projections may be disregarded in favor of the staffing grid or ratio allocations. Unfortunately, when a real and valid need for additional staff hours exists, that need is often disregarded by both nurses and support leaders. The basic trustworthiness of the system may be questioned by non-nursing hospital leaders, and, in response, the system is merely tolerated or ignored.

## Lack of Tool Simplicity

To address the credibility gap, and with the expectation of increasing validity, clinical experts have worked to develop all-inclusive, objective lists of interventions to create a more valid system. Some systems require the user to review and select from 100 or more intervention-related items for each patient. **Classification** systems that try to list every possible intervention become overwhelming,





## CRITICAL THOUGHT

The imposition of mandatory hospital nurse staffing ratios is among the more visible public policy initiatives directed toward the nursing profession. Although this practice is intended to address problems in hospital nurse staffing and quality of patient care, such staffing ratios may lead to negative consequences for nurses involving the equity, efficiency, and costs of producing nursing care in hospitals (Buerhaus, 2009).

time consuming, and quickly abandoned. Systems that are easily misused, mismanaged, or generate inaccurate data cannot be used by managers to defend their staffing decisions.

Whenever possible, direct care or interventions specific to patient care that can be directly attributed to the patient, as well as supportive daily planning and documentation, should be included in the patient classification system. Patient care work should include work that is directly attributed to the patient, whether it takes place at the bedside, in family conferences, or in shift reports supporting the planning process. After patient needs are determined and validated, the department director can then determine the core staffing hours and skill levels necessary to meet patient care needs. The next step in workforce management is creating the core schedule.

## Core Schedule

**Core schedules** represent an aggregated average number and skill mix required for patient care. A core schedule template for each unit includes caregivers, shift length, and calendar days. Based on the identified historical patient care needs for the unit, patient projection volume is used to create the core schedule.

## Considerations in Creating the Core Schedule

The nurse leader must consider the following considerations in constructing the basic core schedule: anticipated patient needs volume, caregiver categories, shift length, licensure requirements, experience, education, regulatory minimum level requirements, contextual factors (planned and unplanned staff absences, changes in patient volume or acuity), and available research evidence for staffing effectiveness.

## Anticipated Patient Needs Volume

Projected volume can be obtained from both historical trend data and budget projections and can be organized by season, day of the week, and time or hour of

the day. Adjustments for fluctuations in patient care volumes resulting from vacations, seasonal variations, and time of day can be forecasted and modeled, much as Hollabaugh and Kendrick (1998) have done. These authors developed a pyramid with five differing levels of activities and seasons, a hiring plan that varied by census, a more equitable cancellation policy, and active staff involvement, all of which collectively resulted in increased continuity of care, increased job satisfaction, fewer patient and physician complaints, and cost savings.

## Caregiver Categories

Caregiver categories include advanced practice nurse providers, direct care workers or knowledge workers, preceptors, technical staff, support staff, and clerical staff. Roles can also include a person who is in charge or serves as a resource person during a shift. This person provides leadership, makes assignments, and deals with unusual incidents or difficult situations. He or she supports the leadership on issues as they occur during a shift or for a specified length of time.

Staff categorization is often identified as direct, administrative, or indirect. These concepts are defined in each organization and categorize direct patient care hours, unit support hours, or hours away from the unit, such as education, vacation, or sick hours, for cost analysis and payment purposes. The core schedule focuses on identifying those caregivers available to provide care for a specified time period.

The role of the patient observer, sitter, or companion is often difficult to integrate into scheduling systems and daily staffing for several reasons; nevertheless, the hours and costs of such personnel must be accounted for. One challenge is that the level of surveillance ranges from licensed staff to support staff to family to volunteer. Allocating the hours to the patient can be further confounding if the same observer serves more than one patient. Allocating a special status and hours for observer hours requires a unique approach within existing electronic workforce management systems (Laws & Crawford, 2013). Centralized patient monitoring allows for increased surveillance of patients who are at risk for self-harm, falls, or unable to adhere to a plan of care due to confusion or disorientation. This program allows for one member of the healthcare team, often a nursing assistant, to monitor multiple patients at one time. When patient safety concerns arise, the monitor can intervene verbally with the patient and/or alert the primary caregiver when concerns arise, based on an established algorithm for urgency (Jeffers et al., 2013). The nurse leader may need to build the business case for the purchase, upkeep, and ongoing licensing fees for patient classification systems and centralized patient monitoring. The business case should include a return on investment financially as well as projected benefits to patients and staff.

The skill mix, or numbers of licensed and nonlicensed staff, is determined based on the work that needs to be done—specifically, the patient care needs. The

specific interventions that are needed by patients are categorized based on which level of caregiver can meet those needs, such as RNs being required for work authorized by the state's nurse practice act and the organization. One anecdotal advantage noted with high RN levels is that less time is needed to communicate with less skilled workers. Determining the ideal skill mix is challenging considering the multifaceted nature of patients and caregivers.

### Advanced Practice Nurse Providers and Clinical Experts

In some delivery models, a nurse practitioner or hospitalist is a member of the team. These providers write orders and provide general patient care oversight. Other practice experts include clinical nurse specialists, clinical nurse leaders, and nurse educators. These nurses provide care and assist staff in the care of patients requiring more complex care using the latest evidence in a cost-effective approach.

### Direct Caregivers or Knowledge Workers: Registered Nurses

The work of the RN will continue to be the foundational and primary role in the healthcare system. Optimizing the role of the RN requires continually advancing this role to that of knowledge worker at the point of care (Marshall et al., 2014). An overview of the practice of nursing from a national perspective is provided in **Box 5-4**.

In addition to the practice of nursing from a national perspective, information specific to the evolving role of the RN as knowledge worker is identified in **Box 5-5**. Understanding and integrating these values and behaviors into the practice of nursing serve to encourage and support the full scope of RN practice.

### LPN/LVN

The LPN/LVN continues to fill an important role in care delivery; however, this role is more commonly used in more stable environments, such as long-term care, than in acute care settings. The challenges of delegation and communication between the RN and the LPN have proved particularly challenging for new nurses. The LPN/LVN role is beneficial in highly functioning teams where the scope of practice of each role is clearly understood.

### Unlicensed Assistive Personnel

Unlicensed assistive personnel (UAPs) assist the RN with carrying out professional activities. Healthcare organizations use these workers in a variety of roles, including some that are more focused on supporting the patient care environment than on caring for the patients themselves. The goal in using assistive personnel is to provide the highest quality patient care at the lowest cost. Thus, if support personnel can safely provide certain aspects of patient care under the supervision of an RN, then integration of these roles into the team is the prudent approach.

## **BOX 5-4 THE PRACTICE OF NURSING: NATIONAL COUNCIL OF STATE BOARDS OF NURSING MODEL PRACTICE ACT**

Nursing is a scientific process founded on a professional body of knowledge; it is a learned profession based on an understanding of the human condition across the lifespan and the relationship of a client to others and to the environment; and it is an art dedicated to caring for others. The practice of nursing entails assisting clients to attain or maintain optimal health, implementing a strategy of care to accomplish defined goals within the context of a client-centered healthcare plan, and evaluating responses to nursing care and treatment. Nursing is a dynamic discipline that increasingly involves more sophisticated knowledge, technologies, and client care activities.

Practice as an RN encompasses the full scope of nursing, with or without compensation or personal profit. It incorporates caring for all clients in all settings and is guided by the scope of practice authorized in this section of the National Council of State Boards of Nursing's (NCSBN) model practice act, through nursing standards established or recognized by the board of nursing.

The practice of registered nurses includes the following tasks:

- 1.** Providing comprehensive nursing assessment of the health status of patients
- 2.** Collaborating with the healthcare team to develop and coordinate an integrated patient-centered healthcare plan
- 3.** Developing the comprehensive patient-centered healthcare plan, including establishing nursing diagnoses, setting goals to meet identified healthcare needs, and prescribing nursing interventions
- 4.** Implementing nursing care through the execution of independent nursing strategies and the provision of regimens requested, ordered, or prescribed by authorized healthcare providers
- 5.** Evaluating responses to interventions and the effectiveness of the plan of care
- 6.** Designing and implementing teaching plans based on patient needs
- 7.** Delegating and assigning nursing interventions to implement the plan of care

*(continued)*

- 8.** Providing for the maintenance of safe and effective nursing care rendered directly or indirectly
- 9.** Advocating for the best interest of patients
- 10.** Communicating and collaborating with other healthcare providers in the management of health care and the implementation of the total health-care regimen within and across care settings
- 11.** Managing, supervising, and evaluating the practice of nursing
- 12.** Teaching the theory and practice of nursing
- 13.** Participating in development of healthcare policies, procedures, and systems
- 14.** Wearing identification that clearly identifies the nurse as an RN when providing direct patient care, unless wearing identification creates a safety or health risk for either the nurse or the patient
- 15.** Other acts that require education and training consistent with professional standards as prescribed by the board of nursing and commensurate with the RN's education, demonstrated competencies, and experience

Source: Courtesy of the National Council of State Boards of Nursing.

### **BOX 5-5 THE KNOWLEDGE WORKER**

The contemporary clinical knowledge worker focuses on a new level of accountability for moving forward to informed, evidence-based decisions. No longer does the clinical knowledge worker rely on past practices, individual experiences, and tradition. Rather, the knowledge worker emphasizes conceptual synthesis of knowledge and experiences for practice. Such workers rely on principles and values for decision making rather than on processing policies and procedures. The focus is on the product (not the processes) of work and the value produced. Responsibility derives from how well the work is done and is based on knowledge, evidence, competence, and efficiency. It is about doing the work well and doing it right. Knowledge workers own the tools and capacities necessary to do patient care work and to be responsible and accountable for this work. Knowledge workers cannot transfer the locus of control for their patient care work accountability to institutions, organizations, or supervisors.

UAPs have been used in a variety of roles, in addition to the traditional primary support functions at the bedside. Some perform simple housekeeping or secretarial tasks, whereas others perform higher level clinical or technical tasks, such as performing electrocardiograms and phlebotomy. Because no one accrediting body certifies all types of UAPs, and because state laws vary regarding their use, hospitals have been relatively free to experiment with different care models under the guidance of their internal nursing leadership (McClung, 2000).

The nurse leader must be aware of changing legislation and regulation related to UAPs. The state of Arizona recently mandated changes that affect nursing assistants. Nursing assistants now may be either certified or licensed. While there are no differences to the training and testing requirements to be either certified or licensed, there are other implications. Unlike a certified nursing assistant (CNA), the licensed nursing assistant (LNA), must submit fingerprints for a criminal background check on initial licensure and falls under the jurisdiction of the board of nursing for any type of unprofessional conduct (Dahn, 2016). The nurse leader must carefully consider the implications of these changes and be informed as to the best option for the organization in providing safe, high quality care.

## Shift Length

Variations in shift length are much easier to manage with use of computerized scheduling and mathematical calculations of the impact of shift-length ranges from 2-hour shifts to 12-hour shifts. The selection of traditional 8-hour or 12-hour shifts must necessarily be done within the context of the type of patient care provided—specifically, care for a short time interval or a longer interval. Continuity of care and consistency in caregivers in settings where care is provided for several hours or less can accommodate more flexible shift time lengths. The hand-off process and change of shift are less complicated with short-interval patient care. In areas where care is provided over several days, the challenges of care continuity and hand-offs increase in complexity because of the nature of the patient illness. Regardless of the shift length, its selection is best made by considering first the patient care needs and second the preferences of the caregivers.

## Licensure Requirements

Each state jurisdiction has established a nurse practice act that identifies the duties and responsibilities of the RN. While these standards are similar in most respects, the nurse must be aware of any differences that apply when he or she moves to a new practice setting. In general, the NCSBN's Model Practice Act clearly identifies the expectations of the role and practice of nursing.

## Education

The significance of educational preparation and continuing development is well recognized in the nursing community and by researchers. Indeed, having at least a baccalaureate degree in nursing is recognized as required entry-level competence for contemporary patient care situations. Notably, Goode and colleagues (2001) described the baccalaureate-prepared RN as having greater critical thinking skills, less task orientation, more professionalism, stronger leadership skills, more focus on continuity of care and outcomes, greater focus on psychosocial components, better communication skills, and greater focus on patient teaching. Baccalaureate-prepared nurses are also better equipped to provide care to an increasingly aging and diverse population. Preparation at the baccalaureate level will better equip the nurse as a knowledge worker for leadership, systems adaptation, and health policy.

## Experience/Competence

When a healthcare organization is creating its core schedule, a balance of experienced and less experienced, or learning nurses, is desirable. Such a mixture is necessary to support the highest quality care and to provide opportunities for new nurses to learn complex patient-care processes. Mentoring new nurses is a critical role of the professional nurse.

## Regulatory Minimum Requirements

In several cases, minimum staffing levels are defined by state, national, and professional agencies. Such staffing requirements, which are intended to ensure safety and to support caregiver vigilance, apply to most patient care units and in particular to those areas where unstable patient conditions are the norm. The core schedule identifies the minimum regulatory requirements. In addition, regulations specific to overtime must be honored. Given that regulations change regularly at the state level, it is important for nurses to keep up to date with both state and national requirements.

## Contextual Factors

Staffing effectiveness is influenced by an extensive list of contextual factors, such as facility leadership, nurse–physician relationships, available technology and supplies, and numbers of external nursing staff (Pinkerton & Rivers, 2001). In addition, Berkow and colleagues (2007) have identified wide fluctuations in patient volume, percentages of protocol-driven care, geographic locations, and teaching status of the facility as significant influences in workforce staffing.

## Staffing Effectiveness Research

Significant research is emerging in which the role of the RN is correlated to patient outcomes and cost. In general, the outcomes research indicates that having

## BOX 5-6 AMERICAN NURSES ASSOCIATION'S PRINCIPLES FOR NURSE STAFFING

The American Nurses Association supports regular and evidence-driven dialogue about staffing effectiveness (ANA, 2012). In particular, this organization emphasizes the importance of recognizing the complexity of effective nurse staffing and appreciating that a simple solution is not likely to produce the desired outcomes. In addition, several other considerations must be taken into account:

- The characteristics and considerations of the healthcare consumer
- The characteristics and considerations of the registered nurses and other interprofessional team members and staff
- The context of the entire organization in which the nursing services are delivered
- The overall practice environment that influences delivery of care
- The evaluation of staffing plans

Source: Data from American Nurses Association, Principles of Nurse Staffing.

a higher percentage of RNs on the nursing staff results in shorter lengths of stay, fewer complications, lower mortality, lower costs, increased nurse satisfaction, and increased patient satisfaction. While a growing body of evidence supports the positive relationship and impact of the role of the nurse on patient outcomes, the results are not generalizable nationally. Also, while specific nurse–patient ratios have been identified in some research studies, these numbers are not generalizable across the United States. Instead, numerous other variables need to be considered to achieve an optimal nurse assignment. See **Box 5-6**.

### Daily Staffing Process: Creating Equitable Nurse–Patient Assignments

Matching patient care needs to scheduled core staff on the day in which care is to be provided is the next step in developing the core schedule. The nurse leader evaluates the number of patient care staff, their skill mix, and the support staff needed to assist in providing the care in relation to identified patient needs. Thus daily staffing decisions are driven by informed decision makers who consider multiple factors (Cathro, 2013; Douglas & Kerfoot, 2011; Kidd, Grove, Kaiser, Swoboda, & Taylor, 2014).



### BOX 5-7 WILLING TO WALK: A NEW APPROACH TO FLOATING

To address the challenges of nurse floating, the team at Aultman Hospital created a “Willing to Walk” program to minimize stress and create a positive experience for both the receiving unit and the nurse who is floating or *willing to walk*. The Aultman program is proactive in that nurses are asked to sign up for the program to be considered for floating to selected areas within their realm of competence. Nurses meet the requirements for each of the units they agree to work. In addition, nurses are asked each time there is a need for floating. The program has resulted in increased autonomy, satisfaction, and lower turnover rates over a seven-year period (Good & Bishop, 2011).

Optimized staffing processes may be achieved by using approaches that are either centralized or decentralized, or a combination of both. See **Box 5-7**. Most recently a combination, or hybrid, staffing model has emerged as the preferred means to support unit involvement, decision making, and central records management. A hybrid model also allows for consideration of both the unit and organizational needs. Situations of overstaffing and understaffing are addressed to ensure a balanced staffing plan that meets patient needs, minimizes premium labor costs, and supports staff satisfaction (Crist-Grundman & Mulrooney, 2011; Staggs & He, 2013).

Variance management is an essential component of daily staffing. One of the most often ignored processes in workforce management is the identification and management of the variance between needed staff and available staff. **Figure 5-2** presents an example of essential data for variance analysis. Managing the difference between actual hours of staff time and required hours of care requires analysis of individual caregiver variances as well as total variance hours. Figure 5-2 presents a variance analysis data form that displays the actual hours, required hours, and variances. Once a significant variance is determined, variance actions are considered, implemented, and documented. These data provide valuable trend information for nurse leaders as they continually work to create effective workload management systems.

Addressing variances is a routine activity of nurse leaders that requires an examination of the staff needed for care and the actual staff. What is not routine is the systematic documentation of the difference between required and actual hours and the interventions implemented to address and mediate the variance or gap. Both positive and negative variances need to be addressed and documented.

| Variance Management: 016100 Evening Shift 02-10-2004   |              |                |          |           |              |           |           |           |           |  |
|--|--------------|----------------|----------|-----------|--------------|-----------|-----------|-----------|-----------|--|
| Actual Hours   | Actual Hours | Required Hours | A-R Var  |           | Budget Hours | R-B Var   |           | A-B Var   |           |  |
|  |              |                | Hours    | %         |              | Hours     | %         | Hours     | %         |  |
| RN   | 24           | 29             | -5       | -16       | 24           | 5         | 19        | 0         | 0         |  |
| LP/VN  | 16           | 28             | -12      | -43       | 8            | 20        | 251       | 8         | 50        |  |
| Licensed Total   | 40           | 57             | -17      | -29       | 32           | 25        | 77        | 8         | 20        |  |
| NA   | 40           | 16             | 24       | 155       | 16           |           | -2        | 24        | 60        |  |
| TECH   | 0            | 0              | 0        |           | 0            | 0         |           | 0         |           |  |
| Unlicensed Total   | 40           | 16             | 24       | 155       | 16           |           | -2        | 24        | 60        |  |
| INDIRECT   | 0            | 0              | 0        |           | 0            | 0         |           | 0         |           |  |
| <b>Total Evening Shift</b>   | <b>80</b>    | <b>72</b>      | <b>8</b> | <b>11</b> | <b>48</b>    | <b>24</b> | <b>51</b> | <b>32</b> | <b>40</b> |  |
| Variance Actions   |              |                |          |           |              |           |           |           |           |  |
| <ul style="list-style-type: none"> <li>NEG Called in additional help.</li> <li>NEG Used staff overtime.</li> <li>NEG Used resource nurse.</li> <li>NEG Reassessed for over estimation.</li> <li>NEG Redefined non-essential tasks.</li> <li>NEG Found missing or errors in scores.</li> <li>PCS Floated staff to another unit.</li> <li>PCS Cancelled staff.</li> <li>PCS Cancelled registry.</li> <li>PCS Sent staff home early.</li> </ul> |              |                |          |           |              |           |           |           |           |  |

Figure 5-2 Variance Management

## CRITICAL THOUGHT

Expecting caregivers to “do one’s best” in an impossible situation continues to fuel the flames of caregiver dissatisfaction and ultimately leads to nurses’ premature exit from the workforce.



Examples of both short-term and long-term interventions to address the variance or gap between needs and actual staffing include the following:

- Reevaluating patient acuity ratings
- Postponing admissions
- Calling additional staff
- Postponing nonemergent patient care
- Floating existing staff to the unit in need
- Sending staff home early
- Eliminating non-value-added work
- Hiring contract staff

In today’s dynamic healthcare environment, the challenge of managing increasing workloads requires new strategies beyond working faster (Storfjell et al.,

2009). Rather than changing the speed of work, examining work to determine which work is not adding value to the outcome and eliminating this work becomes a more realistic option and strategy to manage the variance between required work and available staff. Wasteful, non-value-added work is often subtle and difficult to identify. Decreasing the waste in required work becomes a potential pathway to increased productivity and quality care.

## Evaluation of Workforce Management

Evaluation of staffing, scheduling, and patient classification systems considers the infrastructure, the processes, and the outcomes of the integrated workload management system. Assessment of these three areas includes evaluation of the presence of factors identified within each area.

### Infrastructure for Excellence Assessment

1. There is a clearly defined patient care delivery system that includes support for nursing participation in decision making at the point of service, expectation for professionalism, and shared decision making.
2. A valid and reliable system to determine patient care needs drives the staffing process. Specific consideration is given to the following:
  - Number of patients
  - Acuity of patients
  - Length of stay/intensity factor
  - Unit geography
  - Skills and experience of caregivers
  - Appropriate skill mix
  - Education and training of caregivers
3. Scheduling and staffing systems are developed collaboratively by leaders, managers, and direct caregivers/knowledge workers.
4. Consideration for unit functions that support the delivery of patient care is included in staffing hours (indirect time).
5. Staff clinical competencies are identified for differing patient populations.
6. Expert resources are available to support less-experienced staff.

### Process Excellence Assessment

1. Collaborative scheduling is the norm. Historical trend data, patient care needs, and staff preferences (in that order) serve as the basis for scheduling. Patient care needs are always the first priority.

2. Mandatory overtime is not used.
3. The fatigue factor is recognized; long stretches of 12-hour shifts are not considered safe practice. Nurses do not work more than three 12-hour shifts in a row. Nurses do not work more than 12 hours at a time unless there are extreme circumstances.
4. Leaders and staff work together to manage variances (staff shortages) between available staff and patient care needs.
5. Experienced clinical experts are available to assist less-experienced staff in organizing and providing patient care.

## Evaluation Excellence Assessment

1. Multiple indicators are used to evaluate staffing effectiveness. Indicators include patient outcomes, staff satisfaction, and organizational cost. Performance indicators do not focus solely on hours per patient day (HPPD).
2. The analysis includes individual patient care as well as aggregate analysis. Ranges as well as averages are evaluated.
3. The analysis includes both census averages and outliers (ranges).
4. Indicators that are sensitive to nursing scheduling and staffing are examined at least monthly. These include but are not limited to the following:
  - a. Patient satisfaction with response to call lights
  - b. Patient increased knowledge of clinical condition
  - c. Patient/family's increased ability to manage their care
  - d. Absence of adverse outcomes (e.g., dermal ulcers, nosocomial pneumonia, patient falls, and medication errors)

## Leading Versus Managing in Staffing and Scheduling: Concluding Thoughts

The complexity and dynamics of nurse scheduling cannot be understated. The initial work of the nurse is to understand the components of this complex system and process. The next step is for the professional RN to analyze and interpret the effectiveness of the workforce plan specific to his or her ability to provide value-based patient care. Immediate feedback to address quality concerns with proactive recommendations is critical for system success and effectiveness. Managing and adjusting current situations with a strong rationale necessarily supports

improvement of patient care and the system. To be sure, it is simple to identify what is not working. It is professional and courageous to figure out what needs to be done for improvement and to build a case that is so powerful that everyone agrees with the recommendations for more effective staffing.



## SCENARIO

The flaw of the averaging process for health care is that the average situation may never occur. According to Savage (2002), the averaging process distorts accounts, undermines forecasts, and dooms apparently well-thought-out projects to produce disappointing results. In healthcare staffing, average caregiver needs are often used to create monthly schedules. Although this process is efficient, it may create more challenges in the long run. Consider the situation in which the average number of staff per shift is five and the range for each day of the week is three to nine staff members, on the basis of patient activity. No shift requires five staff members, yet the core schedule calls for five personnel to be present every day.

Using the specific number within the range of relevant numbers—in this case a number between three and nine—rather than the average of five for each shift results in more accurate staffing. The wide range of time required for similar—but different—patient situations is often significant.

### Discussion Questions

1. Examine two to three four-week schedules and compare the projected core schedules with the actual numbers of staff worked.
2. What are the differences between scheduled and worked hours for personnel, including percentages over and under the core scheduled numbers?
3. What is the range (from lowest to highest) of differences?
4. What are the implications of examining both averages and ranges?
5. List three strategies to decrease the differences.

## SCENARIO



Eight common areas have been identified as sources of non-value-added work and result in wasted time (Jones, 2014; Storfjell et al., 2009):

- Admission, discharge, and transfer activity
- Shift report
- Supplies/equipment
- Pharmaceuticals
- Diagnostics
- Documentation
- Communication
- Staffing

Within each of these areas are opportunities to eliminate wasteful work. Examples of wasteful work include inefficient hand-offs in which information is incomplete, searching for information or reports, waiting for others to complete their work, fixing equipment, and repeating calls to fill requests. Select two areas from the previous list and brainstorm with a colleague to address the following issues and questions.

### Discussion Questions

1. In examining a recent experience, which areas of waste can you identify? How much time is involved?
2. Develop a plan to share this information with members of the team and create a specific plan to decrease the wasted time for this particular event. Be sure to include a specific timeline to complete this work.
3. List the challenges in gaining support from the team and in documenting the value of this work to the team and to the patients.
4. Develop a plan to communicate the challenges in addressing basic waste at the point of patient care and the importance of continuing to address nurse work from a positive perspective.

## CHAPTER TEST QUESTIONS

Licensure exam categories: Management of Care: Delegation/supervision, interprofessional practice

Nurse leader exam categories: Knowledge of healthcare environment: Delivery models/work design. Governance: Evidence based practice and care management, patient safety.

1. Staffing adequacy:
  - a. is determined by multiple factors, including nurse competence and patient care needs.
  - b. does not vary by shift.
  - c. can be assured with good planning of nurse's work schedules.
  - d. requires experienced nurses and supportive managers.
2. Equitable nurse patient assignments:
  - a. require experienced nurses to create nurse assignments.
  - b. are positively related to nurse satisfaction.
  - c. are nearly impossible in complex patient care settings.
  - d. are typically limited to core staff.
3. Core schedules:
  - a. Are based on budgeted hours.
  - b. Should be adjusted at least quarterly.
  - c. Are based on trended patient care needs over time.
  - d. Are inconsistent with ratio staffing models.

- 4. Ratio staffing:**
  - a.** is strongly correlated with positive patient outcomes.
  - b.** is strongly correlated with nursing satisfaction.
  - c.** requires specific state legislation to implement.
  - d.** does not consider the variations in patient care needs.
- 5. Non-value-added work:**
  - a.** will continue due to patient expectations.
  - b.** should be identified and eliminated whenever possible.
  - c.** can be identified easily during unit focus groups.
  - d.** is not an area of significant concern for nurses.
- 6. Measuring staffing adequacy:**
  - a.** requires knowledge of recent research evidence.
  - b.** is essential for medicare certification.
  - c.** is a quarterly evaluation of evidence for nurse staffing, physician availability, and reimbursement.
  - d.** is an ongoing evaluation of matching patient care needs with appropriate nurse staffing and outcomes achieved.
- 7. Evidence for staffing specific to nurse fatigue:**
  - a.** is unique for each team of nurses on a particular unit.
  - b.** is inconclusive for healthcare workers.
  - c.** identifies work practices that can be performed safely.
  - d.** includes information specific to shift hours worked, weekly hours worked, and number of days worked in a row.



8. Reliability of patient classification systems:
  - a. requires the use of a standardized nursing language.
  - b. is high when the ratings by system users are identical.
  - c. requires use of the system for at least 12 months.
  - d. does not exist if the interrater reliability is less than 85%.
9. Validity of patient classification systems:
  - a. is about the accuracy of the system to measure the work of patient care.
  - b. requires a minimum amount of clinical intervention categories.
  - c. does not change over time.
  - d. is only essential when the data are used for patient billing.
10. Patient care delivery models:
  - a. are most commonly based on the team model.
  - b. are best used in academic medical centers.
  - c. are required for medicare reimbursement.
  - d. form the foundation for workforce management goals.

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## APPENDIX A

### Selected Staffing Effectiveness Research Evidence

Significant progress is being made in identifying the relationship between the role of the nurse and patient, provider, organization, and cost outcomes. This appendix lists the specific areas of impact and supporting references. The increasingly broad range of evidence provides support for effective staffing plans and adjustments to daily staffing assignments. Specific relationships between patient outcomes, nurse characteristics, and nurse schedules are illustrated here. Reference numbers are listed with the identified variables. In addition, the American Nurses Association maintains a Safe Staffing website with a wide range of resources ([http://www.rnaction.org/site/PageServer?pagename=nstat\\_take\\_action\\_safe\\_staffing](http://www.rnaction.org/site/PageServer?pagename=nstat_take_action_safe_staffing)).

#### **Patient outcomes:**

- Patient mortality/failure to rescue: pneumonia, postoperative DVT/pulmonary embolism: 1, 2, 3, 4, 8, 9, 3, 14, 16, 17, 20, 21, 22
- Patient adverse outcomes: pneumonia, postoperative infections, urinary tract infections, acute myocardial infarction, congestive heart failure, patient falls, medication errors, pressure ulcers: 1, 4, 10, 14, 15, 16, 17, 20, 21, 22
- Smoking cessation counseling rates: 13
- Pneumococcal vaccinations rates: 13
- Length of stay: 8, 18, 19
- Patient satisfaction: 7, 15
- Patient experience of care: 15
- Physician satisfaction: 15
- Readmission: 9
- Cost of care: 9, 19

#### **Nurse characteristics:**

- Clinical nurse leader role: 5, 15
- Education level: 1, 2, 19, 21
- Percentage of RN staffing: 3, 8, 10, 14, 18
- Experience at the shift level: 10

- Shift hours: 4, 9, 10, 11, 12
- Number of days worked in row: 14, 16
- Number of hours worked in a week: 14, 16
- Unit admission, discharge, and transfer activity: 12
- Nurse turnover: 15
- Nurse fatigue and sleep cycles: 13

**Environment of care:**

- Foundations for quality of care: 4, 6
- Nurse manager ability, leadership, and support: 4, 6
- Collegial nurse–physician relationships: 4, 6

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## APPENDIX B

### Perfect Staffing

Perfect staffing is about having the optimal (not too much, not too little) staff resources to support the right number of qualified caregivers to do their work effectively and timely in an organizational setting that is affordable and available.

While the achievement of perfect staffing seems impossible, this must nevertheless be the goal of all caregiver teams. It is a journey that begins anew every day with the recognition that health care is complex and uncertain. It is also important to recognize that technology has increased opportunities for more efficient work and course corrections. As the caregiver team works toward perfect staffing, evidence is now our beacon for making things better, and it is readily available with the digital resources that are being introduced every day.

Perfect staffing goals include the following:

- Zero “never events”
- 100% quality compliance
- 100% patient, physician, and nurse satisfaction
- 100% working and available equipment

There are four key steps in creating a plan for perfect staffing:

1. Create the ideal story for a patient population.
2. Select data elements (focus on 15 or fewer).
3. Analyze the results.
4. Intervene at points of deficiency.

Consider the following scenario or story for a medical cardiac patient care unit and begin with one clinical condition for analysis. (Note, groups of patients can also be considered.) Outcome indicators for current performance are identified and compared to the team-developed perfect staffing metrics on the accompanying table.

In addition, nurse expectations for perfect staffing include the following:

- 12-hour patient care assignment that includes:
  - Five patients with acuity requirements for 11.5 hours of care
  - Effective hand-off from the previous shift



- An ergonomically safe environment
- Good communication/collaboration with team members
- Safe medication administration principles
- Available supplies for patient care
- Effective interactions with patients/family, including education

Given these guidelines for creating the conditions for perfect staffing, develop a plan to implement a perfect staffing plan in a selected patient care area. The plan should include the following:

1. The type of patient population
2. Current and expected performance metrics
3. A plan for analysis of data that includes the rationale for targets
4. Numbers and types of caregivers required
5. Assumptions about the patient population needs

Develop an implementation plan that includes key stakeholders, timelines, plans to address resistance, and communication of results. Include the next steps to achieve perfect staffing on a regular basis.

|                                  | <b>Perfect Staffing</b> | <b>Actual Staffing</b> | <b>Variance</b> |
|----------------------------------|-------------------------|------------------------|-----------------|
| HPPD                             | 6.0                     | 5.9                    | 0.1             |
| % RN                             | 40%                     | 42%                    | 2%              |
| % New graduates                  | 50%                     | 30%                    | 20%             |
| Average years of experience      | 3.0                     | 4.5                    | 1.5             |
| LOS                              | 4.5                     | 4.4                    | 0.1             |
| Cost/case                        | \$4,000                 | \$3,800                | \$200           |
| Readmissions                     | 0                       | 0                      | 0               |
| Call-light response satisfaction | 5.0/5.0                 | 4.8/5.0                | 0.2             |
| Pain management satisfaction     | 5.0/5.0                 | 4.8/5.0                | 0.2             |
| Medication errors                | 0                       | 1                      | 1               |

|                               |         |         |     |
|-------------------------------|---------|---------|-----|
| Patient falls with injury     | 0       | 0       | 0   |
| Overall satisfaction          | 5.0/5.0 | 4.9/5.0 | 0.1 |
| Nurse–physician satisfaction  | 5.0/5.0 | 4.7/5.0 | 0.3 |
| Overall employee satisfaction | 5.0/5.0 | 4.9/5.0 | 0.1 |
| Turnover rate                 | < 5%    | 3%      | 2%  |

Enjoy the challenge of this important journey for optimal outcomes!