SECTION 4

Innovation and Evidence as an Integrated, Iterative Process

CHAPTER 12

Shifting Workforce Paradigms: From Quantity to Value-Driven Staffing Using Evidence and Innovation

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> *The enterprise that does not innovate ages and declines. And in a period of rapid change such as the present, the decline will be fast.*
>
> —Peter Drucker

CHAPTER OBJECTIVES

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

1. Examine the driving forces and current challenges requiring change in health care.
2. Develop insights into an innovative healthcare value model as the infrastructure to improve nurse staffing adequacy.
3. Assess the clinical productivity model as a strategy to integrate disciplines across the continuum.

INTRODUCTION

Providing adequate caregivers and staff support for patient needs is foundational for effective healthcare organizations, clinics, and home care settings to be able to achieve valued outcomes. This work is complex and clearly impacted by emerging evidence, new technology, innovative ideas, and the existing organizational culture in which care

is provided. In this chapter the driving forces requiring change, the new opportunities that support innovations in healthcare delivery, challenges and obstacles to progress, and a value-based approach for more effective care from an evidentiary perspective, as well as the anticipated outcomes from this value-driven model, are presented. The content of this chapter focuses on available evidence as the foundational content for effective work and identifies gaps in knowledge or absence of evidence as opportunities for innovation and innovative strategies. Challenges in advancing this work should be viewed not as obstacles but rather as opportunities to tap into the infinite wisdom of healthcare colleagues and move forward with energy and enthusiasm in changing health care for the better. The interactive dynamic of evidence and innovation provides a purposeful framework from which to view this work.

The key to success is for you to make a habit throughout your life of doing the things you fear.

—Vincent Van Gogh

DRIVING FORCES FOR CHANGE AND INNOVATION IN STAFFING

There are numerous drivers and incentives to improve not only the management of nurse staffing, but also the overall quality of the healthcare experiences that are nearly always impacted by the quality of nurse staffing. Several regulatory and accrediting agency drivers that are facilitating significant change in the way health care is delivered include the Centers for Medicare and Medicaid Services (CMS), the Institute of Medicine (IOM), and the Institute for Healthcare Improvement (IHI).

The CMS road map for value-based purchasing (Centers for Medicare and Medicaid Services [CMS], n.d.) and the Medicare Modernization Act and the Deficit Reduction Act have shifted the government from a passive payer of services to an active purchaser of higher-quality, affordable care. The overall intent of these regulations is to promote efficiency in resource use while providing high-quality care in settings such as hospitals, home health, nursing homes, and medical homes. Nursing is a significant part of resource allocations and necessarily must embrace more effective, evidence-driven ways of providing care.

CMS has also advocated for and legislated improvements in care coordination, alignment of financial incentives with outcomes, adoption of electronic health records,

e-prescribing, increases in the percentage of population-based payment, and joint team accountability for outcomes (CMS, 2015; Welton, 2010). The meaningful use initiative now requires increasing levels of electronic documentation.

The IHI identified the Triple Aim of simultaneously improving population health, improving the patient experience of care, and reducing costs per capita as the expectation for transformed healthcare systems (2012). The Triple Aim has become an organizing framework for the U.S. National Quality Strategy. Necessarily, improvements in nurse staffing and resource use are essential in supporting the Triple Aim.

NEW OPPORTUNITIES

In addition to the driving forces, there are several advances that provide opportunities to improve the healthcare system. These include an increased evidentiary focus, technology advances, and increasing consumerism focusing on value.

Evidentiary Focus

Much attention has been given to staffing based on evidence or research that has tested and validated practices. A critical mass of research supporting the presence of registered nurses in hospitals is now recognized. Nurses educated at the baccalaureate level also positively impact or decrease patient mortality (Aiken, Clark, Cheung, Sloane, & Silber, 2003; Aiken, Clark, Sloane, Sochalski, & Silber, 2002; Buerhaus, Donelan, Ulrich, Norman, DesRoches, & Dittus 2007; Kane, Shamliyan, Mueller, Duval, & Wilt, 2007; Lang, Hodge, & Olson, 2004; Needleman et al., 2002; Needleman, Buerhaus, Pankratz, Leibson, Stevens & Harris, 2011; Savitz, Jones, & Bernard, 2005; Tourangeau, Cranley, & Jeffs, 2006; Upenieks, Akhavan, Kotlerman, Esser, & Ngo, 2007; White, 2006). Further, new science specific to healthcare organizations in the Magnet Recognition Program shows better patient outcomes on mortality measures and significantly better outcomes compared to non-Magnet hospitals (Friese, Xia, Chaferi, Birkmeyer & Banerjee, 2015).

New science for staffing specific to clinical specialties, skill mix, environmental influences, and the linkage of staffing models to clinical outcomes is being developed and published regularly (Malloch, 2015; Needleman et al., 2011). In addition to new staffing science is evidence for IOM interprofessional practice (IPP). IPP has an impact on patient safety, provider and patient satisfaction, quality of care, community health outcomes, and cost savings, as well as a direct impact on the relationship among interprofessional education (IPE) and patient, population, and system outcomes (Institute of Medicine, 2015).

Value research is also emerging. The Agency for Healthcare Research and Quality (AHRQ) has advanced value research, which focuses on finding a way to achieve

greater value in health care with cost and waste reductions while maintaining or improving quality (AHRQ, 2015)

Technology Advancements

Advances in technology continue to emerge for both patient care delivery and the management of information. With the introduction of the electronic health record, platforms for the management of large data sets are now available as well as the introduction of standardized clinical language. The standardized language further supports data comparisons across settings and enables providers to coordinate and collaborate more easily on patient care, which can improve healthcare outcomes and enable providers to achieve performance standards (CMS, n.d.).

Consumerism

Finally, users of the healthcare system are more involved than ever. Person and family-centered care is now the expectation (Barnsteiner, Disch, & Walton, 2014), whereby persons are empowered, actively participate, and are informed of all costs and the anticipated value of services. Both provider and healthcare organization performance metrics, as well as Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) scores, are published regularly. Consumers also access staffing data for healthcare facilities on a routine basis. The importance and utility of a personal health record continues to increase. Users of the healthcare system want their information consolidated into one file and readily accessible when needed. User ownership and management of one's personal health record is now an expectation of increasing numbers of patients. These opportunities, along with other driving forces, continue to support the case for value-based health care, of which staffing is an integral part.

Embedded within each of these initiatives are issues and concerns about the availability and productivity of nursing resources. As previously noted, the work of changing current systems and practices is complex and requires courage, persistence, and evidence to shift the current trajectory. While there is supporting evidence for this journey, there are also obstacles and challenges that must be reckoned with. The obstacles or challenges to this work are discussed in the next section.

CHALLENGES AND OBSTACLES TO CHANGE

There are many challenges and obstacles within the healthcare system that make it difficult to move forward with improvements to the healthcare system. Despite the clear and convincing theoretical rationale for system change, it is often ignored. These

obstacles to making the needed transformation happen cannot be dismissed or taken lightly. Creating a new healthcare model requires support, passion, evidence, and resources. For many healthcare leaders, the process involved in making a significant system change is far too complex to embrace. Many leaders will struggle with any modification of the current system under the misguided notion that the system is functional and provides the appropriate information to make decisions supportive of quality patient care outcomes. In this section, several of these challenges will be discussed. The control and influence of the existing powerful organizational infrastructures over nursing resource allocation, coupled with the inability of nursing to articulate its specific work and outcomes achieved within the existing productivity framework, the environment of health care, and the determination of productivity using a single metric are imposing obstacles that many may find difficult to challenge.

Historically, services are provided and documented by siloed or individual disciplines and then pasted together into a summative document without identified connections among the individuals contributing to patient care. Most healthcare organizational cultures are steeped in traditions that support the silo mentality and stability of operations.

The historical adequacy of the overarching position of medicine and its specific measures of procedural-based coding and billing have precluded the need for more accurate clinical productivity measures for nursing that are quantifiable, credible, and useful. Unfortunately, the development of appropriate measures for nursing work tend to garner attention only during times of nursing shortage and nursing dissatisfaction.

Organizations today may struggle to control costs through cost reductions associated with the poorly defined work of nursing, yet the need for competently educated practitioners remains significant. Despite the increases in nursing education and the increasing complexity of nursing work, clarity in the work of nursing and appropriate workforce measures have not emerged to achieve the desired recognition of the value of nursing work in the marketplace. Because it is poorly defined and described, nursing work is difficult to measure and evaluate, which too often results in uncertain patient outcomes. When attempts are made to decrease or increase nursing resources for work that is poorly defined, the effects of these measures on patient outcomes is uncertain as well. While it is believed that less nursing care results in poor patient outcomes, such conclusions are not universally supported. The lack of evidence identifying the specific interventions of nursing and their implications for patient outcomes must be addressed. Tallying simple hours of care, without delineating the actual work performed, will not produce data that can be confidently correlated to patient outcomes, whether those outcomes are positive or negative. Describing the work of nursing from an evidence-based perspective is the first step in the process; the second step, integrating these principles into practice, is evolutionary and ongoing.

Inconsistent Identification of the Work of Nursing

Not all work of nursing is visible and measurable; intuition, caring behaviors, and trust are essential in the provision of care and yet are not readily captured in traditional knowledge worker models or productivity systems. The tangible work of nursing is more easily measured than intangible work. While the work of nursing is defined in each state's nurse practice act and professional standards of the American Nurses Association (ANA), each organization has created unique models and frameworks to guide the practice of nursing. Most frequently, the frameworks are based on body system checklists and assessments. Few organizations focus on nursing care interventions on the basis of practice acts or professional standards.

Another challenge is the work that nurses actually do during their work time. A high percentage of time is spent on activities not related to direct patient care. In a Hill-Rom study of acute care organizations, approximately 85% of nurses' time was spent on direct and indirect activities that did not move the patient along the care path (Lanser, 2001). Murphy (2003) reported that wasteful work—including excessive documentation requirements; inefficient shift-to-shift or departmental reports; and searching for colleagues, supplies, and equipment—consumed 35% of hospital employees' time. More recently, the Advisory Board Company identified that nurses spend 25% of their time on indirect patient care (2012).

Another aspect of this challenge is that nurses find it quite difficult to give up any of their current nursing work because all work is believed to be valuable and appropriate. Non-value-added work includes both direct and indirect nursing work and work resulting from system inefficiencies. The following examples identify tasks that do not provide value to patient outcomes:

- Provision of patient education to patients who are historically noncompliant: It is unrealistic to expect that an 80-year-old diabetic patient will become enlightened and change his or her behaviors in an acute care setting. Extensive reviews and presentation of information in these situations serve only to complete checklists and provide inappropriate feelings of accomplishment. Brief, meaningful encounters with known noncompliant patients are necessary to check for new interest; however, this is more effective in post-acute-care settings. In the value equation, unrealistic interventions render the equation out of balance given the lack of outcomes and overuse of scarce resources associated with these efforts.
- Frequency of vital signs: When a patient has consistent and stable vital signs, is it necessary to repeat these measures every 4 hours, especially when caregivers are present who can monitor the patient?
- Telemetry monitoring: Is all telemetry monitoring value based? Is the intervention of telemetry monitoring linked to improvements in the patient's status, and is it an effective use of available resources? Or is telemetry monitoring used for routine patient oversight?

- Searching for equipment and supplies: Does this task promote the patient's movement along the healing continuum?
- Passing out meal trays: Is this the best use of a nurse's time? Should someone from another division or support staff handle this task?
- Searching for other providers and colleagues: Is this an appropriate task for nurses?
- Replenishing procedure carts and monitoring levels in supply rooms: Do these activities directly affect the patient?
- Searching for information and reference manuals: Can this task be managed differently?

Lack of Linkage between Nurse Actions and Patient Outcomes

The next challenge is not only the lack of linkage between nurse work and patient outcomes, but also the inconsistent use of linkage evidence that is available. The evidence supporting a relationship among caregiver performance, patient outcomes, and financial performance is strong (Aiken et al., 2003; Aiken, Smith, & Lake, 1994; Blegen & Vaughn, 1998; Cho, Ketefian, Barkauskas, & Smith, 2003; McCue, Mark, & Harless, 2003). Evidence supporting the relationships among variables in the organizational structure and patient outcomes has also been identified. Unfortunately, the intervening specific work processes that produce those outcomes have not been clearly articulated, nor are they embedded in the analysis of these relationships.

The challenge in identifying truly valued work is coupled with the reality that evidence is lacking to support some interventions that may, indeed, positively affect patient outcomes. The historic lack of connection between the economic viability of the organization and its effects on the satisfaction and performance of its nursing resource is an untenable factor in the future consideration of the viability of healthcare organizations. The failure to clearly tie practice elements and activities to specifically defined outcomes makes it exceptionally difficult to identify any unique and specified value for nursing practice. Nurses cannot claim value on one hand and provide little definitive evidence of that value on the other hand.

Too many nurses ignore the need to balance clinical performance against resource availability and quality outcomes. Because of the history of nursing and its predominant focus on clinical process, rather than specific identification with clinical outcome, many nurses have become addicted to process (Hughes & American Nurses Association, 1958). In fact, for many nurses, the process has become ritual, routine, and intellectually mindless. Further, experience itself has become a mantra, even though in most cases experience tends to be a limitation; the more experience one has, the more one is inculcated in the values that experience provides (Smith, 2002). *Competent* practice is *changing* practice. As technology enhancements and innovations continually challenge the foundations of clinical practice, it is the very fluidity, flexibility, and

mobility of clinical practice that ensures its continuing viability and efficacy. This blind dependence and valuing of experience over innovation and education must be overcome if meaningful value is to be found and defined (Corey, 2001).

Inconsistent Time Allocations for Nursing Work

There is precious little data about how much time is required for nursing interventions and the recognition of the optimal provider to do this work. The greatest stumbling block for quantification of nursing work is the lack of consensus about the appropriate measurement technique, such as motion and time studies, historical use of nurses' time, and comprehensive assignment analysis methods (Malloch, 2015).

Calculation of time requirements for patient care needs requires more granularity than previously considered. Time considerations for the additional handoff requirements of admissions, discharges, and transfers has been identified and continues to be studied using electronic records. Time for nurse surveillance and nursing care that encompasses oversight of the patient without a specific intervention has also been calculated and linked to adverse patient outcomes when not provided.

Limited Productivity Measurement and Evaluation

The current metric of hours per patient day identifies how long it took for the care to be delivered but not what was done; it is an incomplete representation of the work of nursing that does not incorporate structural and environmental considerations in productivity measures. Relative value unit (RVU) measures attempt to recognize the degree of patient care variation based on a median unit, but they are limited by the description of the value of 1.0 unit. The limited accuracy and completeness of describing 1.0 RVU continues to be problematic because descriptors for all categories of the core work of nursing are not included in this system.

Measurements that are limited to comparisons of total hours worked per patient day and projected budgeted hours can only provide a limited perspective of value. Such comparisons provide no information specific to the level of patient acuity, provision of appropriate interventions, achievement of clinical outcomes, and absence of adverse outcomes—all of which require a framework for productivity measurement based on principles that integrate values of effectiveness, utility, and cost.

Knowing which outcomes resulted from which work performed by which category of caregiver is critical if the profession is to effectively articulate its value and contribution to the health of individuals. Understanding the important relationships among specific work processes and integrating them into the productivity measurement systems of organizations will require new knowledge, new mental models, and commitment to staffing on the basis of evidence or trend data created from best practices.

Unfortunately, this approach and limited analysis have been used in most organizations to measure nurse productivity and to make decisions specific to the allocation of staffing resources. The hours used are typically compared to patient units of service without considering the actual output, which is an essential component of a productivity measure. These traditional productivity measures of hours used per patient day represent a limited analysis and do not reflect the notion of theoretical productivity, which calls for the greatest output for the least input (Drucker, 1990).

Nonsupportive Physical Environment

Pinkerton and Rivers (2001) identified 64 variables that affect nurse staffing needs, including variables specific to interdepartmental interactions, intradepartmental interactions, the care environment, professional competency, physicians, and the external environment. Physical environments are a critical element of the care dynamic itself, not only for patients, but also for providers. Unfortunately, there is wide variability in the use of evidence in the creation and sustaining of current healthcare environments. The building, structural format, color, inclusion of nature, and peaceful aesthetics help create a viable milieu to work within (Ulrich, Quan, Zimring, Joseph, & Choudhary, 2004).

Poorly designed work spaces, heavy equipment, the absence of patient lift equipment, and the lack of noise control have negatively impacted both patients and caregivers. Further, the conditions of stress embedded in clinical work have a tremendous impact on retention and turnover in clinical practice. Nurse fatigue and burnout have been identified as major stressors for both nurses and patients (Geiger-Brown et al., 2012; Martin, 2014; Stimpfel, Lake, Barton, Gorman, & Aiken, 2013).

Mixture of Technology and Minimal Interoperability/Lack of Actionable Data

The use of multiple applications for clinical documentation and management information requires users to sign in and sign out of multiple applications during their work time. The inefficiencies of isolated applications render the information fragmented and leaves the aggregation of data to the user to obtain meaningful information for clinical decisions. Further, within applications, caregivers are required to review multiple other areas of documentation to determine the status of the patient condition.

Evidence Lacking in Staffing and Assignment Processes

The nurse–patient assignment process has also lacked an evidentiary foundation; namely, matching required hours of patient care to the appropriately competent

caregiver. The simplicity of ratio calculations for nurse–patient assignments has overshadowed the benefits (including greater accuracy) that might be realized with the use of multiple data values. Overcoming the deeply entrenched tradition of ratio or grid-based staffing models to create evidence-based processes that recognize and address the daily variations of patient care needs and staff availability requires courage and commitment to the creation of a better system. The obvious simplicity of these historical calculations is antithetical to the real goal of quality patient care. To overcome this resistance, increasing numbers of organizations are selecting computerized database management systems to provide more sophisticated, more complex, and timely data that can be used to develop the next generation of productivity measurements. The reality is that it is difficult to use resources effectively without such systems and evaluations.

Lack of Standardized Language

> *In attempting to arrive at the truth, I have applied everywhere for information, but in scarcely an instance have I been able to obtain hospital records fit for any purposes of comparisons.*
>
> —Florence Nightingale

At one point, the ANA approved 13 standardized languages that support nursing practice, 10 of which are considered languages specific to nursing care (Rutherford, 2008). The use of multiple descriptions for similar concepts is confusing and difficult to automate. Information in healthcare records must be searchable, shared, and synthesized as needed (Warren, 2012). The use of standardized healthcare language requires that the interventions of nursing must be specified and described with sufficient clarity so another researcher or practitioner can replicate the action. Standardized language comprises terminology and communication styles that can be used in all settings by all clinicians, is grounded in clinical practice and research, is functionally appropriate for computerized clinical documentation systems that need to simplify the exchange, and makes it easier to manage and integrate clinical data into the electronic health record. The language must allow for the measurement of patient, family, and community healthcare interventions and outcomes (Moorhead, Johnson, & Maas, 2004).

Although this next section focuses on the work of nursing, it is imperative for all professional and support providers to recognize the current limitations in

determiningtheirvalueandcreatesimilarlinkagesamongservicesandvaluedoutcomes. The proposed innovative model is designed to serve as a framework for the conceptualization of the interrelationships of organizational elements.

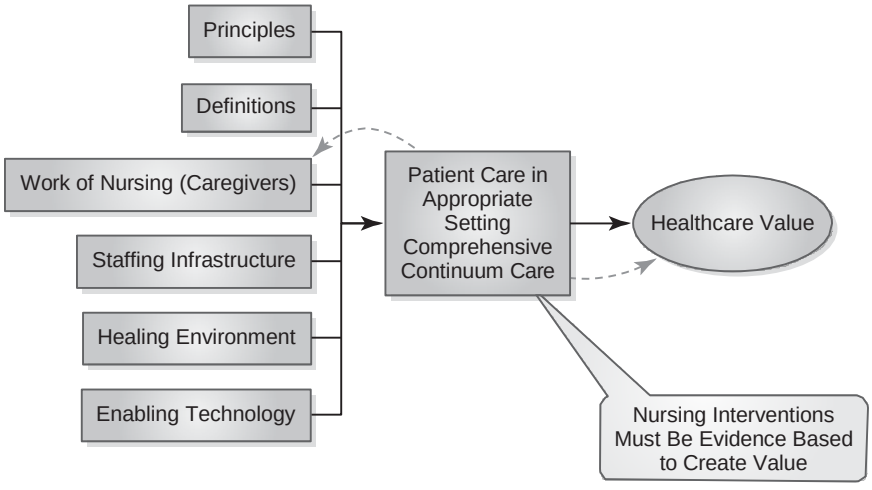
A pile of rocks ceases to be a rock pile when somebody contemplates it with the idea of a cathedral in mind.

—Antoine de Saint-ExupÉry

THE VALUE APPROACH: AN INNOVATIVE MODEL TO ADVANCE STAFFING ADEQUACY

At long last, the rules are changing! Value is now the driver for healthcare work as identified earlier in this chapter. It is now back to the future as healthcare leaders work to achieve the expected value outcomes from an evidentiary paradigm. Considering both the challenges and the opportunities in health care, leaders are well positioned to advance the value model. In this section, the basic components of a healthcare staffing value model are presented (**Figure 12-1**). These components include principles for an evidentiary value

Figure 12-1 Healthcare value model mind map: Basic components



model, a description of healthcare value, description and measurement of nursing work using a clinical productivity model, and anticipated outcomes from a value-driven system.

Principles in a Value Model

Foundational principles to guide the development of this innovative model are presented. Principles for designing this model are more effective in a complex and ever-changing world than specific procedures and algorithms. Principles should be longer lasting, and procedures and algorithms change rapidly. The principles include the following:

- Person and family-focused care is provided within the context of each patient's life position
- Coordinated team efforts are essential for and by providers and patients
- Objective and measurable outcomes are associated with each intervention or strategy
- Providers are selected based on cost and outcomes; the goal is the highest quality and the lowest cost optimizing the full scope of practice for each role
- The environment is supportive of patients and caregivers
- The most current evidence is integrated into this work

Value Definitions

Although there are many definitions of value and value-based health care, the following are simple and reflective of the desired outcome:

- Value is considered as patient health outcomes per dollar spent; value is the only goal that can unite the interests of all system participants. It will require fundamental restructuring of healthcare delivery, not incremental improvements (Porter, 2012).
- Value-based care means safe, appropriate, and effective care with enduring results at a reasonable cost; it means using evidence-based medicine and proven treatments and techniques that take into account the patient's wishes and preferences (Dartmouth-Hitchcock, 2015).

CLARIFYING THE WORK OF NURSING

The challenge is to create a value-driven model based on evidence for nursing work that includes all valued nursing care, its economic component, and the intangible

work that nurses bring to the bedside (Welton, 2011). There are three types of nursing work: objective and observable interventions, intangible interventions or absence factors, and overlapping interventions. All must be included in a staffing productivity model.

The work of nursing is about providing appropriate goal-oriented services rather than providing as many services as possible irrespective of the cost and outcomes. Value choices for care, rather than rich choices (choices for care that are nice but not linked to the outcome, such as back rubs twice a day or bed baths for ambulatory patients), that take into account fiscal implications, appropriateness of nursing care specific to outcomes, and goodness of fit, service quality, and patient impact are needed. The process of quantifying and enumerating the work of nursing must be embraced if we are to develop valid and reliable information and systems to guide nurse staffing. This effort will, in turn, provide credibility within the financial sectors of health care.

To identify value, there also needs to be objective and measurable elements that can be related to outcomes using standardized language to embed in current measurement structures and electronic databases. The description also requires recognition and integration of a societal mandate for nursing, the professional scope of practice, and the economic realities of the marketplace (American Nurses Association [ANA], 2003). A qualitative, descriptive overview of the work of nursing must include more than just tasks that are easily observed and quantified, such as procedures and administration of medications.

Quantifying the work of nursing using a standardized approach to patient intensity is the foundation for a valid and reliable patient intensity needs system, another important element of an evidence-based workforce management system (ANA, 2008). The patient intensity level used by an organization must reflect the major clinical intervention categories applicable to all clinical specialties. At a minimum, categories specific to the technical work of nursing, monitoring activities, interdisciplinary coordination, communication, and leadership must be represented. Examples of interventions within those categories include patient assessment, medication administration, intravenous access and line management, pain management, safety or restraint management, and interpretation of vital signs.

In addition to these categories, the following must be included:

- Monitoring progress and oversight of patient conditions
- Management of information, namely, knowing not only what to communicate, but also to whom and when to communicate
- Patient and family education as well as information management among members of the caregiver team

- Creating and modifying plans of care in a timely manner based on patient conditions
- Leadership behaviors specific to the delegation and supervision of work processes of other staff and precepting new nurses
- Continuum care coordination, namely coordination of the work of all disciplines caring for the patient

It is clear that to ensure effective resource management, workforce systems must be transformed into evidence-based systems and reflect a prevailing and sustaining reality (ANA, 2012). Optimum nursing care, according to Welton (2011), represents a balance between the intensity and quality of the delivered nursing care, including costs, safety, and outcomes of that care.

Continuum Care Coordination

The work of care coordination has been moved among clinical roles and typically focuses on utilization management or the amount of resources or dollars that are available for a patient. Historical goals have been to avoid overuse of resources at the expense of patient achievement of desired goals. The proposed value model requires the registered nurse to assume the care coordination role across the continuum for several reasons. The nurse is located at the intersection of the provision of all healthcare services. It is the nurse's role to coordinate, integrate, and facilitate all of the clinical functions related to the delivery of patient care. Nurses are deeply entrenched in daily processes of relationship management with all patient care team members (e.g., physicians, nurses, managers, allied health personnel, and unlicensed assistive personnel). Experience and collective wisdom emerge from team members who work together effectively. It is vital to recognize nursing's central role, however, as nurses integrate all of the work of other disciplines with regard to a patient's progress along the healing continuum. This realization is the key to the clinical success of the entire health organization (While et al., 2004). However, empirical evidence of the critical value of *intersection management*—that is, interdisciplinary coordination—is needed.

Continuum care coordination is a much-needed service for patients within the value model. As previously noted, it has been difficult to determine and quantify the value of those activities that are predominantly focused on coordinating and integrating processes. Because this type of coordination and integration account for the majority of professional nursing activity (in terms of value), it is clearly important to provide a financial definition for it (Rubin, Plovnick, & Fry, 1975). Although nursing must clearly delineate its own specific functions and activities, the importance attached to those functions and activities is not gained unilaterally.

Fulfilling the role of care coordination clearly places the nurse in a critical position with regard to the financial and service viability of the organization. In addition,

elements of high levels of quality in the delivery of clinical service are influenced and often coordinated by nursing professionals. Nurses are the eyes of all other providers; in this eyes-and-ears role, nurses evaluate the patient's condition, response, and progress in a timely fashion. Therefore, in a high-level interface, nurses have a direct and powerful impact on the clinical and service viability of the organization. Through this direct relationship, nurses control the financial variables that ultimately affect the economic viability of the organization as a whole (Finkler & Graf, 2001).

Missed Nursing Care

Missed nursing care must also be considered. Examination of nursing from the opposite side of the outcome—namely, from the time before nursing occurred or in the absence of nursing as it is now known—is both illustrative and enlightening to assist in the description of nursing. When nursing is absent, it is not merely medications that are not administered and dressings that are not changed; much more occurs. What is lost is subtle at first and then overwhelmingly thunderous. Patients are not monitored regularly for condition changes; failure to rescue is common, and emergency codes occur; condition changes are not communicated to physicians; care is not coordinated; patient knowledge is not improved; and measures of preventable conditions, such as pressure ulcers, urinary tract infections, pneumonia, and length of stay, all increase—these are the intangible interventions that need to be described and included as nurse work. Kalish (2014) has recently identified nine elements of regularly missed care: ambulation, turning, delayed or missed feedings, patient teaching, discharge planning, emotional support, hygiene, intake and output documentation, and surveillance. Failing to fully account for the work of nursing and to be sure that there is not missed care will compromise the integrity of the value model.

Discussion

Nurses in your department believe there is much nursing care that is missed. What is available in your current systems to determine what has not been done? How would you propose to determine if discharge planning has been missed? Or if hygiene has been missed and how often it has been missed? After you quantify this information, how can you use the clinical productivity model to assure that the care will not be missed in the future? Finally, how were patient outcomes impacted in light of missed care?

Overlapping Patient Care

The nature of nursing practice should be closely examined to better understand the boundaries of nursing; that is, boundaries that overlap with other disciplines and boundaries that are unique to the nursing profession. The work of care coordination,

assessment, planning, and identified procedures should be retained by nurses, and activities of daily living, vital sign monitoring in many situations, and administration of routine medications should be delegated and shared with appropriate disciplines, such as paramedics, nursing assistants, and licensed practical nurses (Pittman & Forrest, 2015; Rheaume & Belliveau, 2015).

Some of the work performed by nurses can be performed by other disciplines or support staff. Nursing will have an especially difficult time in meeting the obligations of discipline-specific definitions if it continues to perform these tasks without further evaluation and efforts to assure the highest quality of care at the lowest cost. Examples of overlapping interventions include vital sign monitoring, activities of daily living, and medication administration in selected settings. The challenges for nursing derive from its historical commitment to the process and its lack of a clearly defined relationship to clinical outcomes. The more valuable activity for nursing in undertaking this process will be to assess the time commitments related to coordinating, integrating, and facilitating the clinical work of all the disciplines, then assign a specific value to that time and effort. Important to this process, which will put nursing farther along the road to adoption of an evidence-based format, is attention to the following factors:

- Establishing a clear value for the support functions of managing supplies and equipment for nurse work.
- Enumerating the type and character of coordinative and integrative activities that are fundamental to the role of the nurse.
- Specifically identifying particular clinical practice standards and professional performance characteristics against which value can be established so the outcomes indicated by them can be more clearly defined.
- Creating a method (formula) for determining costs and value related specifically to the clinical and coordinative activities undertaken at the point of service that reflect the standard of practice identified there.

The elimination of non-value-added work also provides more time for nurses to give comfort to and talk with patients, develop and update plans of care, and provide patient and family education—all types of work that are typically foregone when time is scarce.

Creating Linkages between Work and Value for the Patient

After the work of nursing is described, its linkage to patient outcomes and available resources must be established. A specifically defined tie among clinical tasks, best practices, and the payment formats within which they are financed is an essential element of the value model. The value equation in which clinical practice, performance outcomes, and the available payment structure are examined serves as a template to assess the

overall value of the nursing work (Malloch & Porter-O'Grady, 1999). Desirable outcomes of nursing interventions include achievement of clinical goals, improvement in the ability to manage one's own health, and a safe environment as measured by the absence of adverse outcomes. Examples of outcomes specific to nursing that affect not only the patient, but also the conditions that influence a patient's health, include the following:

- Increased ability to provide self-care
- Improved mobility
- Improved stress management and coping skills
- Improved knowledge of clinical condition
- Improved knowledge of healthy behaviors specific to nutrition and mobility
- Improved parenting skills
- Community health and well-being
- Improved knowledge of behaviors for safety specific to health care

The purpose of quantification of caregiver work is to develop information to extend the current productivity system that identifies the direct link among the evidence-based work of caregivers, value-based outcomes, and payment. Necessarily, this effort requires quantification of the specific work and the link or relationship of the work to the achievement of desired value-based outcomes. The health status of the patient must be affected positively to justify the resource expenditure.

Discussion

Achieving value in healthcare organizations begins at the unit or shift level. Using the value equation, namely resources will result in the desired clinical outcome for the patient, a group of nurses in a Magnet organization decided to see if their pain management service resulted in value for the patients. Nurses were aware that the revenue for this unit exceeded budget targets, and the hours for nurse staffing were within the budgeted allocation. As the team discussed this process of value analysis, they realized that patient feedback specific to sustainable pain relief was not a metric considered in evaluating the program.

- What is your reaction to this scenario?
- What changes do you think are necessary to determine the value of this program to patients?
- If the revenue and hours of nursing care were over budget and the patients experience significant relief from their pain, what would be the next steps in your assessment of the pain clinic?
- Are there other areas of patient care in which this analysis would be similar?

To clearly delineate nursing value, it is crucial to utilize the prevailing methodology, which uses payment factors as a part of value determination. The most obvious unit of value is the Diagnosis-Related Group (DRG), the predominant value unit that is used for payment in healthcare organizations. No matter which approach is ultimately identified and used, it must be consistent, be reducible to financial value, integrate and link the contributions of the healthcare disciplines, and be useful as an evaluative and comparative mechanism. In addition, it should provide an opportunity to evaluate the criteria, performance, and impact of medical practice.

Finally, there are several tools to examine the value of nursing in addition to clinical outcomes. These analyses can further document the value of nursing care. Each method is based on specific goals (Stone, Curran, & Bakken, 2002) and includes the following:

- Financial metric of cost minimization: Costs are compared among alternatives only; equal effects are assumed; no outcomes are measured
- Value metric of cost effectiveness: Consequences are measured in the same units among alternatives; outcomes are measured using ratios such as expenditures/outcome or dollars/life years gained
- Value metric of cost utility: Effects include both quantity and quality measures; measures are dollars or quality of life years gained
- Financial metric of cost benefit: Effects are measured as a single dollar measure; measures are in dollars gained
- Value metric of cost consequences: Costs and effects are listed separately; effects among alternatives may have different measures; expenditures and a separate list of outcomes are measured

Each of these evaluation methods offers a different lens through which to view the work of nursing. Ultimately, a combination of several methods is likely to better represent nursing work based on the intended goals and resources.

Supporting Effective Staffing Infrastructure Elements

To achieve staffing adequacy, specific organizational infrastructure elements are needed. The first is appropriate caregiver resources; that is, competent caregivers and support staff to meet identified patient care needs. The staffing infrastructure also includes a scheduling system, patient needs system, and time and attendance systems that are preferably interconnected and interoperative so that staffing adequacy can be obtained. The following elements are essential components within an effective staffing system:

- Nursing time required to perform identified care (Malloch, 2015)
- Appropriate skill and competence of each caregiver, addressing the overlapping of selected interventions by different disciplines

- Performance standards, including levels of expectations for clinical competence, differentiation among provider levels, and clearly delineated performance expectations for specific patient populations or DRGs
- Nurse–patient assignment criteria and a staffing adjustment process that addresses changes in patient conditions and needs
- Understanding of environmental factors impacting staffing and the cost factors associated with delivery of care
- Available resources (supplies, equipment, medication, etc.) for each patient

Supportive Environment

There are several considerations for the environment of care. First is a culture with supportive leadership embracing engagement, openness, and valuing of the clinical provider as a key aspect of creating an appropriate supporting structure. A host of considerations must be taken into account in regard to the physical work environment and its impact on risk and safety from both providers' and patients' perspectives. These issues also exert a powerful effect on the cost of providing service and the ability to create an environment that establishes a marketable relationship between the organization and those whom it serves. Much evidence supports the existence of a close relationship between environmental issues of safety and clinical error rates. As a consequence, fiscal and service leaders should be able to make a clear distinction of the costs associated with these environmental and structural factors. Also, these factors should be incorporated into any data analysis related to productivity and work value determinations.

The Center for Health Design's Pebble Project model addresses issues including the desirability of the environment for the patient, the market value of a healing environment to the community, and the fiscal impact of reducing length of stay, care intensity, and patient need. According to this model, creating a physical environment that facilitates healing is as important as other influences on cost (Berry et al., 2004).

Environmental considerations are critical to establish evidence of the environment's influence on clinical practice as well as economics and health service costs. In building an evidentiary value model, the following issues and relationships should be considered:

- Identification of specific healing, comfort, and patient satisfaction considerations related to the physical environment and structural context for care
- Delineation of the structural and organizational (delivery system) considerations affecting clinical practice and specific elements of work flow
- Enumeration of the impact of physical plant, environment, and structures on provider attitudes, satisfaction, and turnover rates
- Determination of the impact of environment and structure on issues of clinical error, patient safety, and circumstances of care

- Incorporation of structural and environmental considerations in productivity measures and formulas associated with appropriate resource use and service time values

Enabling Information Technology Platform for Data Management

The development of a data management system that collects, sorts and provides reports in an easy-to-access format is essential in an evidentiary model. Using an evidence-based framework to determine optimal productivity, patient–staff ratios, clinical assignments, provider categories, and relationships to patient outcomes is now fundamental in efforts to accurately determine value and its effects on quality and cost (Harrington & Estes, 2004). Indeed, the accuracy of the financial data pertaining to the clinical relationship between patient and provider is now an essential construct of appropriate, meaningful, and sustainable delivery of clinical services. Failing to include these environmental and structural considerations in the determination of productivity and clinical care not only contributes to a lack of cost control, but also facilitates the inappropriate and possibly expensive use of unevaluated human resources.

A new productivity metric is needed that reflects the complex work involved in the practice of nursing. This new metric would replace the traditional comparison of hours worked to hours budgeted. Metrics that reflect the output of care as compared to the input of providers and is adjusted for environmental factors provides a more accurate representation of nursing productivity.

An integrated data infrastructure in which nursing practice is included according to the context of both clinical quality and financial enumerators is necessary for monitoring and evaluating the value model. Integrated data systems that link services, costs, and outcomes add the nurse–patient assignment to electronic operational databases to allow specific identification of which nurse cared for which patients. Moving in this direction will significantly change how we view nursing performance (Welton, 2010). The financial success of system participants does not equal patient success, rather it is the aggregated cost the patient is responsible for, such as deductibles and non-covered items. It is important to be transparent and identify costs around the full cycle of care for the patient's medical condition rather than charges billed or collected (Porter, 2012).

The purpose of creating a new clinical productivity model is not to more accurately represent the work of nursing as we now know it, but rather to create a new mindset that moves leaders from expecting adequate numbers of nurses to focusing on achieving adequate patient care outcomes within the existing healthcare

structure and resources. Three strategies are essential in the creation of a more contemporary model:

- Embedding the new measures within existing systems
- Evaluating performance in an aggregated model
- Managing the variance or system feedback to ensure system sustainability

From an evidence-based practice perspective, it may be more helpful to clearly articulate nursing's value within an economic framework to join all interdisciplinary activities under the rubric of an integrated clinical standard of practice. It is this linkage and integration among the disciplines that will create the composite framework for value determination. The evidence of impact on patient outcome, the viability of clinical processes, and the cost framework that supports clinical practice can be more clearly elucidated when the disciplines speak the same language and use a common framework. Until that time, however, focusing on effective nursing workforce management and creating an integrated structure for valuing that work will be critical first steps toward valuing nursing practice, establishing its relationship to financial and payment concerns, and providing a baseline with which nursing resource value can be connected across the interdisciplinary healthcare network.

An integrated data set connects the financial, accounting, and budgeting processes of the organization to workforce management and resource allocation within the context of specific clinical protocols or DRGs. Developing, refining, and maintaining a clinical resource information infrastructure for real-time data related to acuity, patient demand, resource allocation, clinical standards or protocols, structural and environmental considerations, and a continuous and effective reporting mechanism requires an evolutionary process in which long-time disparate processes can be strategically linked.

An integrated data management system also supports the work of addressing the challenges of change and innovation. Improvements that focus on the elimination of non-value-added work and increasing productivity include computerized electronic health records, technology for communication, pocket reference guides, personal digital assistants, and pocket-sized hand sanitizer packets.

Variance Management: A Daily Dynamic

Daily data assessments of critical variables specific to clinical and financial targets are important not only to understand the current state, but also to make course corrections if needed.

The most significant information produced from any system relates to variances; that is, the differences between the desired outcome and the actual outcome. Seldom is there a perfect match between what is desired and what actually results. The resulting

variance between time for patient care needs and time provided by staffing resources reflects the reality of balancing the workforce processes with the inherent expectations for reducing, eliminating, or managing these differences. It is this variance that provides the data from which to manage, monitor, and improve system performance. Merely counting and documenting the desired and actual outcomes does not provide any value for the system in outcome management. Instead, ensuring the accountability of the articulation and reporting of variance management are essential unifying links in the process. Efforts to produce high levels of quality without devoting adequate human or financial resources to support those efforts is irrational and doomed to eliminate (destroy) the system. Effective evaluation processes lay the foundation for safe and timely management of the variance between what is desired and what actually occurs.

Discussion

As nurse manager on a unit, you would like staff nurses to become familiar with variance management for their own shift. What guidelines would you establish for determining when a variance is over or under target? How would you assist the nurses in determining if patient care is or will be negatively impacted? Is this about using evidence that is available, or being innovative and creating a new strategy for variance management?

Leaders are continually challenged to consider variations in the known natural clinical variances of disease, levels of severity, patients' responses to treatment, variability in work flow due to random arrivals of patients, and inherent variability of clinicians in regard to their knowledge, critical thinking, prioritizing, and communication skills. According to Long (2002), the goal is to eliminate artificial variance—that is, clinical errors, medication errors, lack of knowledge, inappropriate scheduling, and scheduling based on staff needs rather than patient needs. Leaders should focus on further managing the natural variation or the uncertain occurrence of care needs by patients, both predicted and unpredicted, and the inherent professional differences in ability that will always exist.

System variances result in high and low levels of workload, characterized by frequent internal diversions of patients to other units, backups in the postanesthesia care unit, external diversions from the emergency department, staff overload, and increased length of stay as a consequence of system gridlock. When a system variance is identified, the following management practices are indicated:

- Delineate protocols and link their required interventions to desired outcomes.
- Create a framework to examine performance standards.

- Define the linkage among interventions, best practice, and payment formats.
- Continue to monitor, evaluate, and adjust for gaps in desired linkages needed for value (cost–service–quality).

A staffing variance occurs when there is a difference between the identified patient care needs and the resources available to meet those needs. Given that there will always be discrepancies between needs and available staff, and given that nurses will continue to accept responsibility for providing safe, competent care, the development of strategies to manage this type of variance is essential. When a staffing variance is identified and efforts to obtain additional staff are exhausted, consider the following 10 strategies:

- Take a teamwork approach: Commit to working as a team to address the gap. Planned variance management from a team perspective is proactive and minimizes stress. In contrast, individual variance management is impulsive, reactive, and highly stressful.
- Prioritize: Identify specific patient care issues that require immediate attention and those that can be safely left until later in the shift or for the next shift.
- Manage decision making: As a team, determine how work will be organized or reorganized, then assign work for the shift based on the type of staff available and patient needs. Decide which aspects of care can be eliminated or safely assigned to others.
- Delegate and supervise: Delegate work to the appropriate caregivers and supervise accordingly to ensure that the work is being performed as required.
- Control work flow to the unit: Reroute admissions if possible and appropriate.
- Communicate: Arrange for a short midshift report to assess how well all team members are managing the workforce and reassign and reprioritize tasks as needed. Communicate how breaks and lunches will be organized.
- Plan: After the team is organized, have each team member do a quick walkabout to assess those clients identified as high priority.
- Evaluate: If circumstances require modification of a patient's plan of care, inform the patient about these changes and provide clear, factual information about the care the patient can expect.
- Document: Complete a variance report that identifies the specific patient care concerns. Clearly describe the safety concerns. Provide examples of care that could not be completed or situations in which the timing of prescribed interventions was delayed.
- Communicate: Share the variance management data with stakeholders and develop plans to minimize future gaps.

Box 12-1 Key Variance Assessment Questions

1. How many shifts are within, under, or over targeted staffing?
2. How many nurse–patient assignments were within capacity? Over? Under?
3. How do these results compare with target performance goals?
4. How many adverse patient outcomes occurred when targets were not met?

Variations from target staffing can also be calculated on a shift-by-shift basis. These data provide an overview of staffing patterns and opportunities to sustain or adjust current practices. In a large study by Needleman and colleagues, 15.9% of all shifts were 8 hours or more (8-hour shifts) below targeted staffing requirements. Both below targeted staffing and high turnover were associated with increased levels of mortality (Malloch, 2015; Needleman et al., 2011). Organizations will necessarily establish target performance levels and determine if 15.9% is acceptable.

New Units of Service: Comprehensive Continuum Approach

The historical inadequacy of summative task workforce calculations can be improved upon by using an aggregated or comprehensive workforce unit approach to measure patient care; the latter approach better represents the essence of the work of not only nursing, but also all other caregiver work.

New models that embrace and reflect the reality of nursing patient care services, focusing on the holistic and dynamic human condition with associated scientific, societal, and economic factors, will improve the ability of leaders to manage resources from an evidence-based perspective. A model that views and measures the work of patient care as an aggregated whole, rather than as a series of disconnected tasks, better represents the work of caregivers in a much simpler way. An extension of the nursing patient classification system to include all disciplines providing care further enhances the robustness of a clinical productivity system. The ideal workforce management system is one in which the unit of service is multidisciplinary and patient specific for a defined period of time. All disciplines providing services are integrated and considered as a multidisciplinary comprehensive unit of care. The work of each discipline can be identified on the basis of interventions and associated contributions to patient outcomes. This unit of care represents the integrated, interwoven contributions of associated disciplines, such as hospitalists, physical therapy, respiratory therapy, and social services.

This new model also must integrate the achievement of clinical outcomes resulting from the services provided, the number of hours of care for the service, and the level of provider required to achieve these outcomes. Further, the effects of this integration are

reflected in the patient care value equation in which resources, outcomes, and value are examined and evaluated, forming the philosophical foundation for a new, aggregated productivity model.

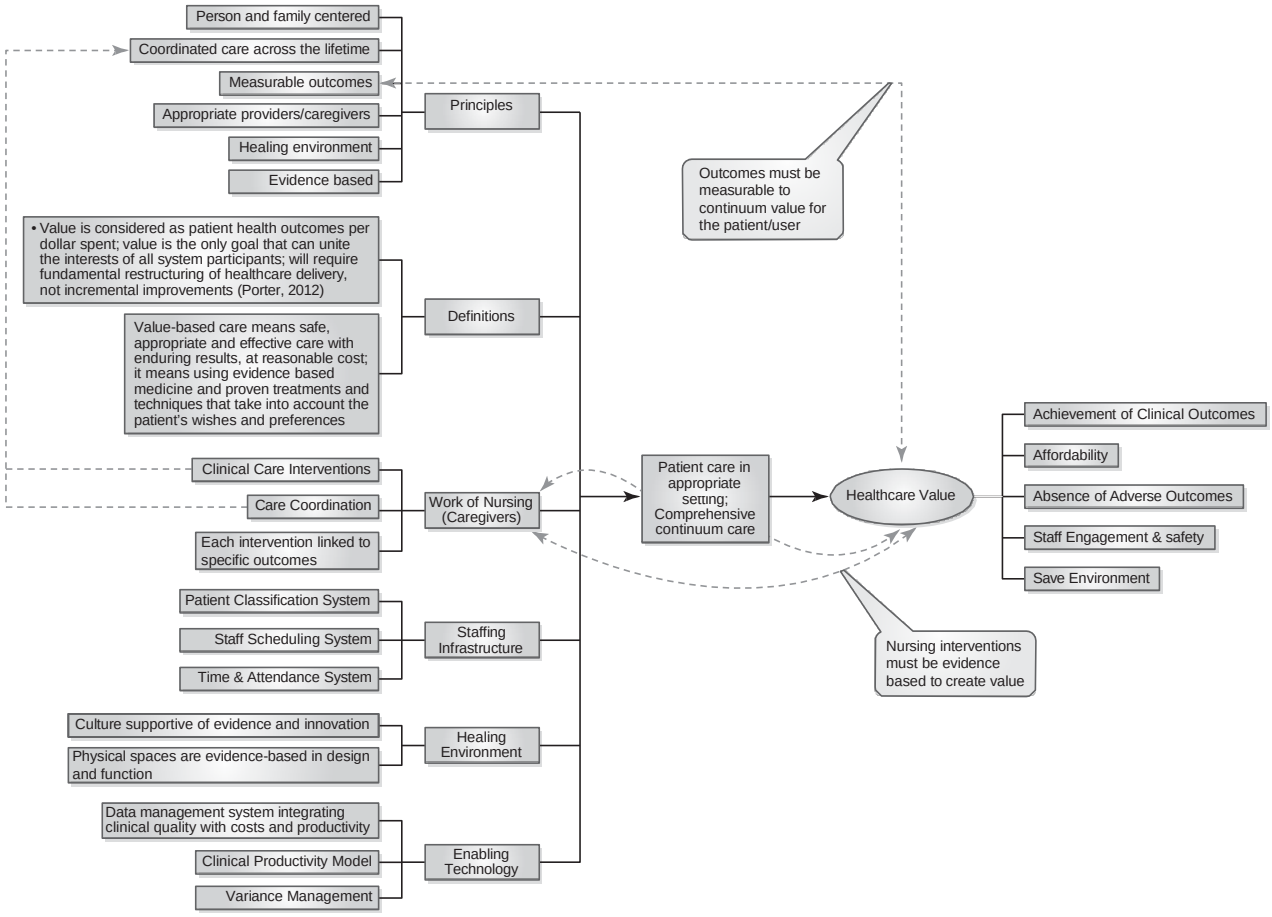
The purpose of modifying current processes and measures is not to devalue the historical clinical productivity measurement, but rather to extend the existing productivity system to quantify the relationship among patient care services, value, and payment, and to adjust for those variables that influence the work of nursing. To be sure, this work may prove challenging. Reengineering anything is a risk that requires knowledge of not only the desired state of improvement, but also the failures that one desires to correct. Successes provide confidence that something right is occurring but not necessarily *why* it is right. Failures provide unquestionable proof that we have done something wrong. Creating new measurement models for healthcare clinical labor productivity requires knowledge of the best features of effective existing processes and failures that have negatively influenced outcomes.

As we move though the productivity enhancement journey, it is important to remember that 100% productivity requires homogeneity—namely, patients with the same disease, patients arriving at the same rate, providers equal in their ability to provide patient care, and families with the same level of knowledge and understanding. In other words, 100% productivity is a mythical, ideal state that does not exist in clinical settings. The most reasonable approach for operational decision making is longitudinal monitoring of productivity by organizational units combined with indicators of quality of patient care (Advisory Board Company, 2014; O'BrienPallas, Thomson, Hall, Pink, Kerr, Wang, et al., 2004). This care must be described, documented, and measured using a standardized patient classification system to support decisions that will support safe patient care. O'BrienPallas and colleagues (2004) identified 85% as the optimal nursing unit productivity, with 93% as the maximum productivity because 7% of the shift is made up of mandatory breaks.

ANTICIPATED OUTCOMES FROM A VALUE-DRIVEN SYSTEM

Making changes and improvements in healthcare staffing to create an optimal value model will evolve over time. Using an evidentiary approach strengthens the quality and reliability of decisions and further illuminates opportunities for innovation. Using a value model framework is intended to improve not only allocation and matching of staff resources to patient needs, but also improved clinical outcomes through coordinated care, more affordable care, the availability of actionable data, and data to identify gaps in processes and opportunities to reduce those gaps. **Figure 12-2** provides an overview of the component details of the value model.

Figure 12-2 Healthcare value model mind map: Component details



All care providers must now be cognizant of the relationship among what they do, what it costs, and what is achieved as a result of having done it. In an evidence-based value format, managerial decisions must reflect a balancing of the value equation—namely, the tension among service, resources, and outcomes (Malloch & Porter-O'Grady, 1999). This three-legged stool upon which clinical and performance viabilities are based becomes unbalanced when any one of the value factors is emphasized in a way that sacrifices its relationship to the other factors. Untenable and uncontrolled emphasis on providing service without consideration to issues of resource utilization creates an imbalance that ultimately diminishes service sustainability. Equally importantly, a focus on producing high levels of quality without efforts to develop the human or financial resources necessary to obtain and sustain that quality creates an imbalance. An uncontrolled and overriding focus on managing costs ultimately limits and threatens the organization's ability to provide adequate service or to ensure the high quality of that service. Again, the imbalance inherent in these situations is obvious.

The economic and financial sustainability of the organization depends on finding a continuous and dynamic balance among the three elements of the value equation and keeping them in accord. To achieve this goal, productivity measurement must transcend its current constraints and evolve into a multifaceted model that reflects the complexity of the work of nursing. This level of understanding is much different from the simple and limited cost–benefit evaluation that compares work hours to budgeted units of service. Imagine the long-term impact that reactive cuts to the nursing resource create during an economic downturn and the turnaround toll that is later exacted when these reduced numbers increase both risks and costs, alter the organization's market position, and raise recruitment and salary costs to untenable levels. Cutting out the core of a business does more than just alter the current balance sheet; it ultimately damages the sustainability of the business itself and positions it on a negative trajectory from which it may never fully recover.

Case Example: Care coordination assessment

Cynthia Walker, RN, MSN, has recently been promoted to chief operating officer. One of her executive responsibilities is to assure there is an appropriate infrastructure for care coordination across the patient lifespan. She has a good understanding of the work and intended outcomes of this initiative; however, she is not certain how to assess current staffing for care coordination across the continuum life span. She would like to know the current status of care coordination. She believes the following information is needed:

- Identify those involved in handoffs, care planning, discharge planning, home health, and nonacute care placements.

- Identify and review existing policies and protocols for handoffs, care coordination, case management, and discharge planning processes. Identify the level of available evidence to support these policies and protocols.
- Interviews with 10 patients who use the organization's services and have chronic disease conditions, asking about their perceptions of care coordination across their life span.
- Interviews with 10 wellness users who access organizational services for regular health support and wellness maintenance about their perceptions.
- Review available metrics specific to care coordination processes.

Questions

1. Will this information be adequate to achieve Cynthia's desired goals?
2. Is additional information needed?
3. Is some of the information not necessary?
4. What would be the next steps in this process after the assessment is completed?
5. What innovations are needed to facilitate the required changes?

Case Example: Staffing adequacy

Sheila Baumgarten, PhD, RN, has been the director of the medical product line for 20 years. She is also a nurse informaticist and would like to see more use of software for clinical and management analyses. She is responsible for both acute care and postacute care services, including clinical, diagnostic facilities, and home health services. She has long been challenged with the limited utility of the financial productivity model. She recognizes that some of the resistance of executives has been due to the lack of software applications to collect and sort essential data elements for more comprehensive analysis of multiple data points.

The organization recently purchased the ideal software to create a comprehensive clinical productivity system. The nurse executive of the system asked Sheila to lead a team to develop the optimal clinical productivity system. She is excited and also cautious about how to do this work effectively using the current evidence for practice and outcomes and to be innovative in designing a robust model to address the current challenges. She has decided to start small and selected DRG 89, simple pneumonia and pleurisy, to begin this work.

Sheila identified key stakeholders to collaborate with and create the desired model. The following information has been identified by the group as necessary to create a clinical productivity system:

- Inputs:
  - Number of patients with DRG 89 for the past 12 months
  - Hours of care provided to each patient by registered nurses (RNs) and nursing assistants (NA)

  - Intensity projected needs for patient care (patient acuity) in hours
  - Budgeted hours of care for each patient
- Outcomes:
  - Actual length of stay (average)
  - Target length of stay (average)
  - Cost of care (average per patient)
  - Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) scores for patients (average)
  - Patient satisfaction with clinical outcomes
  - Number of falls, medication errors, and pressure ulcers

The following information was readily available:

- 200 patients with diagnosis DRG 89
- RNs provided an average of 47 hours to each patient (data extracted from patient acuity system and staffing information)
- NAs provided an average of 14 hours to each patient
- Patient intensity hours from the acuity system averaged 65 hours for each patient
- Budgeted RN and NA hours for each patient averaged a total of 68 hours for the RN and NA
- Patient satisfaction is 10% lower than the target performance goal
- Patient falls with injury increased by 10%
- No change in pressure ulcers or medication errors

Questions

1. As a team, consider these data and what they mean.
2. Is this data adequate for a new clinical productivity system?
3. What actions would you take, knowing that the hours used were below both the acuity and budgeted hours?

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