The Continuing Saga of Nurse Staffing

Historical and Emerging Challenges

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Registered nurses are the backbone of America’s health systems, providing care and support to patients across the lifespan. Appropriate nurse staffing is critical to ensure safe and effective care for patients. Nurse staffing is a complex topic; nurse administrators find themselves facing escalating challenges to meet staffing needs. These challenges can be attributed to a variety of factors, both historical and new. This article examines the current factors contributing to nursing shortages, nurse staffing challenges, and the implications of inappropriate staffing on both financial and patient outcomes.

Why are we talking about nurse staffing again? This never-ending saga of trying to effectively schedule the best mix of experienced and novice staff is a vexing conundrum. The current healthcare economic changes are driving repeated cost reduction efforts. Continuing challenges to the Patient Protection and Affordable Care Act (ACA) and access to care for the uninsured equate to uncertainty in how and where patients will receive necessary care. Research is clear that insufficient registered nurse (RN) direct care hours lead to increased serious safety events for patients, impacting hospital reimbursement.\(^2\,^3\) What new insights can help explain the supply and demand factors underlying this situation?

Understanding the complicated interplay among drivers of increased demand and reduced supply of RNs can be examined through a systems framework. Figure 1 depicts a simplified view of inputs arising from supply and demand factors, throughput (effective nurse staffing), and output-safe, high-quality, reliable nursing care delivery.

Factors Influencing Supply and Demand

Throughout the last century, the United States has been experiencing cyclical nursing shortages, documented as early as the 1950s.\(^4\) There are close to 3 million nurses currently licensed in the United States.\(^5\) This group comprises the largest segment of healthcare professionals nationally. According to the most recent nursing workforce projections from the Health Resources and Services Administration, there will be both surpluses and shortages between now and 2030.\(^5\) This results in a maldistribution of nurses across the country. The supply and demand for nurses across states varies considerably, indicating a need for strategies at the national, regional, and local levels. In the past, documented shortages have been attributed to strictly supply or demand side factors. The current predicted shortage is unique in the sense that both supply and demand factors exist. Table 1 outlines some of these factors.

Table 2 highlights reported challenges for nurse staffing in rural communities and long-term care, as well as the impact of technology and workplace violence on nurse satisfaction and supply.

When inappropriate staffing becomes frequent, the remaining RNs can become fatigued, discouraged, and disillusioned. This repetitive situation actually “feeds itself,” causing more RNs to move away from direct patient care and/or leave that care delivery setting. When nurses feel that they cannot finish their responsibilities or must take “shortcuts” in essential care activities, this “missed care” results in frustration and a sense of disillusionment with the organization.

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and leaders. Nurses wonder about management’s support when they bring staffing concerns, or other resource issues such as supplies, forward and there is repeated nonresponse. Workplace incivility and cultures that do not promote patient safety and allow disruptive behavior become stressful and lead staff to believe that leaders do not care about them and their workplace. This dissatisfaction may be reflected in employee engagement (job satisfaction) scores, demonstrating concerns about the work environment including the inability to have enough resources to adequately perform their responsibilities. Earlier studies show that this dissatisfaction can lead to “burnout” and a desire to leave direct care at the bedside. Some nurses may leave nursing and healthcare entirely because of the resulting cycle of disillusionment (Figure 2).

**Implications for Patients and Health Systems**

One of the important differences between the current situation and previous shortages is the increasing amount of published research on the impact of inadequate direct care hours on patient outcomes. When there are inadequate RN resources, organizations usually try to supplement the care team with assistive personnel or outside agency staffing. This often does not suffice: critical elements of patient care are left undone or missed, as the RNs “triage” their responsibilities, doing what they can with the time and resources available that shift, as Lake et al noted, the consequences can be serious.

**Implications for Patients**

- Delayed, unfinished, or missed care
- When nurses have a higher patient load, there is an increase in delayed, unfinished, and missed care. Missed care can be defined as “required patient care that is omitted or delayed in response to multiple demands or inadequate resources.”
- The most influential cause of missed care can be attributed to low nurse staffing; when there are not enough nurses present, necessary care is missed and less likely to be completed.
- When patient-nurse ratios increase because of inappropriate staffing, care activities can be missed. In 1 study, the most frequently missed care activities due to inappropriate staffing were:
  - Ambulation (84%);
  - Assessing effectiveness of medications (83%);
  - Turning (82%);
  - Oral care (82%);
  - Patient teaching (80%); and
  - Timeliness of PRN medication administration (80%).
- Further results from this study indicated that there was a strong negative correlation between hours RNs spent with patients and missed care.
- A recent cross-sectional study examined data from 2187 neonatal intensive care units, PICUs, and pediatric units to examine missed care in the pediatric setting. It was concluded that more than 50% of nurses reported missed care from previous shifts, with an average of 1.5 missed necessary care activities. The most commonly missed activities reported in this analysis were planning, comforting, and teaching, which could potentially contribute to higher readmission rates.

- Adverse patient outcomes
Evidence from well-regarded studies has linked inpatient staffing to patient mortality and adverse outcomes.\(^5\),\(^22\),\(^24\)

The Agency for Healthcare Research and Quality recently released their updated “National Scorecard on Hospital-Acquired Conditions: Updated Baseline Rates and Preliminary Results 2014–2016”.\(^23\) The costs, both human and financial, associated with patients experiencing 1 or more of these avoidable conditions are staggering. A number of “hospital-acquired conditions” are correlated with inadequate RN staffing, as reported by Aiken, Needleman, and Lake, among others.\(^19\),\(^22\),\(^24\)

The New England Journal of Medicine concluded that management of patients is compromised when nurse workload is high, leading to a higher risk of adverse events.\(^24\) This study examined close to 200,000 patients across 43 nursing units and found that mortality increased by 6%
on poorly staffed units compared with fully staffed units. This study concluded that there was a significant association between mortality and below-target staffing shifts.

A 2017 cross-sectional study of 300 hospitals in 9 countries compiled data from 26,516 nurses, examining nurse staffing and mortality rates in patients after surgical procedures. This study concluded that there was a 16% increase in the likelihood of a patient dying when a nurse’s workload was increased by just 1 patient. When nurses have too many patients, they cannot complete all necessary care, leading to missed nursing care and an increased risk of dying.

### Patient readmissions
- The quality and quantity of time educating patients sufficiently and preparing them for discharge is critical to prevent readmissions.
- Many evidence-based nursing interventions are fundamental to the discharge process, such as patient education, care coordination, complication prevention, and knowledge assessment.
- Nurses working in environments with inappropriate staffing may not have the time and resources to effectively monitor complications and adverse outcomes, which increases readmission risks.
- A study conducted in 2016 examined staffing from 661 cardiology and heart surgery units, combining the data with readmission rates. This study concluded that there was a significant difference in heart failure patient readmissions between the low-staffing group and the high-staffing group.
group—hospitals with lower RN staffing had a significantly higher readmission rate.27

- Poor patient experience
  - In 2015, Press Ganey released a report that analyzed the nursing work environment with a variety of factors, including patient experience. This report combined National Database of Nursing Quality Indicators data with patient experience data from the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) scores and Press Ganey Patient Experience survey scores.21
  - This analysis concluded the following:
    - Hospital Consumer Assessment of Healthcare Providers and Systems patient experience is significantly correlated with hours nurses spent with patients per day.
    - Pearson correlation of nurse staffing with Press Ganey satisfaction surveys showed that there was a strong correlation between nurse staffing and the patient experience including discharge, overall experience, tests that were performed, nursing interactions, and issues during their stay.
    - When analyzing HCAHPS scores and Press Ganey mean scores, it was found that patient experience scores of hospitals with higher RN staffing were consistently higher than those with low staffing.
    - When examining Press Ganey survey results, there was a 3- to 4-point difference in scores between top-staffed and low-staffed hospitals among the nursing-focused and discharge-related questions.
    - There was a greater differential for survey items that examined meeting the patients' social and emotional needs.21

Thus, the consequences to patients when staffing is inadequate can be serious, as can the impact upon the healthcare organization where the patient is receiving care. These impacts include financial, human resources, and reputational risks. The correlation between high RN turnover and reduced financial health is now understood by many health system leaders.

**Implications for Health Systems and Hospitals**

- High nursing turnover rates
  - Studies dating back more than a decade ago report that nursing work environment factors, such as staffing, work culture, job satisfaction, skill mix, and burnout, are linked to quality, safety, and patient care.22
  - Numerous studies have indicated that nurses in hospitals with inappropriate nurse-patient ratios are more likely to have higher nurse burnout, job dissatisfaction, and higher intent to leave.12,13,22
  - When nurses leave their patient care units, there is a negative effect on the remaining nurses. These remaining RNs end up with an increased workload and increased job stress, which leads to subsequent burnout and turnover.
  - In addition, nurse fatigue from understaffing leads to higher adverse outcomes and higher nurse turnover.27 The link between nurse fatigue and adverse events has been closely studied. These studies link long work hours to high levels of work stress and reduced productivity. These studies have shown that worker fatigue increases the risk of adverse events, compromises patient safety, and increases risk to personal safety and well-being.27,28 Frequently, when hospitals are short staffed, they encourage staff members to work overtime.29 This increased overtime leads to worker fatigue, which leads to adverse outcomes and compromises patient safety.27,28 In addition, this fatigue leads to additional staff burnout, increased turnover, and more understaffing issues.29
  - This sense of burnout and turnover can be attributed to a variety of factors, one of the most significant being low staffing. In the Press Ganey Special Report mentioned previously, a cross-domain analysis was performed to examine RN turnover.21 This study examined the impacts of work environment and staffing on turnover rates. The results indicate that staffing had a stronger influence on nurse turnover than work environment. This analysis also found that nursing units with below-average staffing and poor work environments have the highest turnover rates.21

- Loss of experienced nurses
  - With the large number of nurses predicted to retire comes a significant loss of experienced nurses. This loss of experienced nurses can have widespread negative effects on patient care and patient outcomes. Experienced nurses are often seen as role models for new nurses, frequently training and mentoring new nurses once they are hired.

- Increased cost
  - In 2012, the Affordable Care Act established the Hospital Readmission Reduction Program (HRRP), which penalized hospitals financially for having higher-than-predicted readmissions. This has cost hospitals millions of dollars. Interventions that reduce readmissions, such as discharge teaching, patient education, and care coordination, are fundamental nursing responsibilities.
As a result, inappropriate staffing can lead to higher readmission rates and higher costs to hospitals.

- In a 2013 study, the relationship between nurse staffing levels and hospital performance in the HRRP was examined. This study concluded that better nurse-staffed hospitals had 25% lower odds of being penalized compared with lower-staffed hospitals.30
- Administrators often consider nursing a cost center that can be reduced, instead of a valuable and critical service line within the hospital with both direct and indirect benefits. In the article “The Economic Case for Fundamental Nursing Care,” Needleman examined whether increasing the number of nurses to offset the costs of these adverse outcomes would be more affordable for hospitals.31 In examining 4 key studies, it was noted that, when the cost savings of shorter lengths of stay and adverse outcomes for hospitals were used to offset the costs of increasing RN staff levels, the net costs for hospitals were low.31 Hospital administrators should become more aware that safe, effective levels of RN staffing can be critical when considering the revenue and cost impacts from shorter lengths of stay, reduced readmissions, and reduced adverse outcomes.31,32
- High nursing turnover adds additional costs to the hospital to recruit, hire, and train new nurses. According to the 2017 National Healthcare Retention and RN Staffing Report from Nursing Solutions Inc, the average cost of turnover for a bedside RN ranges from $38,900 to $59,700.13 As a result, hospitals can lose $5.1 M to $7.86 M annually to replace nurses leaving the bedside.13

In summary, there are numerous challenges associated with ensuring safe, effective RN staffing in today’s dynamic, complex, and intense healthcare environments.

The implications of the inability to meet the patient care delivery demand with experienced, competent nurses are serious. Patient outcomes are affected, as is the financial health of the organization responsible for those patients’ care. Nurse staffing is incredibly challenging—there is no single, comprehensive solution. It is imperative to understand the factors contributing to the fluctuation of supply and demand for nurses, the implications to patients and hospitals when nurse staffing is impaired, and the strategies necessary to ensure safe and effective staffing to maintain patient safety.

Every day, RNs complete demanding, dynamic, and complex work, which directly influences quality and patient safety. A recent study reinforced the impact of poor work environments on patient safety outcomes and satisfaction (both patient and staff) scores.32 Understanding the work of nurses and their practice environment is crucial. It is necessary to communicate the critical work of nurses to leaders and the public, stressing the benefits of safe, effective staffing from a quality and financial standpoint. Safe and effective nurse staffing is more than a “numbers” game. Resources must be provided and adjusted as the dynamic patient care volume and intensity of patients’ needs change, often several times within 1 single shift. Consider this most basic patient and family expectation of our healthcare delivery systems: Will there be enough competent nursing staff to care for me and my family when illness strikes?

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