

can be important in how effectively nurses prioritize their workload, solve problems, mentor younger nurses, and teach patients about self-care. Older nurses may also be more proficient in detecting patient complications early and knowing how and when to intervene to prevent the complication from worsening and even causing death. (See the discussion about failure to rescue in the preceding section.) On the other hand, compared with younger R.N.s, the bodies of older R.N.s are likely to have greater “wear and tear” resulting from many years of walking, pulling, lifting, stooping, bending, and reaching. Older R.N.s are therefore more susceptible to musculoskeletal injuries and, when injured, require a longer time to recuperate. In fact, a 2008 national survey of R.N.s found that nearly half (45%) reported having musculoskeletal injuries during the previous year.<sup>3</sup> Thus, as the future hospital R.N. workforce is composed of a greater proportion of older R.N.s., the capacity of the nursing workforce to adjust to surges in patient demand is likely to be compromised.

### Future Shortages

Because the many R.N.s born during the baby boom generation have not been replaced by younger R.N.s, not only is the average age of the current workforce increasing, but the rate of growth in the supply of R.N.s will decrease as baby boom R.N.s retire during the next decade. Although larger cohorts born in the 1970s and 1980s will prevent the R.N. workforce from decreasing in size, these cohorts are not large enough to add enough R.N.s who will be required to meet the projected demand, which is expected to increase by 2% to 3% per year during the next 20 years. In addition, limited openings in nursing schools and an insufficient number of teachers constrain the number of nurses entering the field.<sup>78</sup> Consequently, a projected shortage of R.N.s is expected to develop by roughly 2015, increase to an estimated 285,000 FTE R.N.s by 2020 (nearly three times larger than any deficit experienced in the United States during the past 50 years), and expand to roughly 500,000 R.N.s by 2025.<sup>75</sup> Importantly, should this projected shortage develop, it will fall on a much older R.N. workforce than did shortages experienced in previous decades.

Given an aging R.N. workforce and projected large shortages developing during the next decade, R.N.s will become increasingly scarce resources. At the hospital nursing unit level, the declining physical ability of older R.N.s means that nurses will be less able to accommodate the increased workload brought about by uncontrolled surges in patient demand. As a result, the likelihood that some nurses may not provide needed patient care could increase and, in turn, increase patients’ risk of developing complications. Given changes in hospital payment systems based on pay for performance, hospitals’ financial health may be negatively affected if nursing shortages lead to an increase in “never

conditions.” In addition, because of the expected large future shortage, hospitals that do not exert greater control over patient flow will be at increased risk that nurses will leave for other hospitals that act to smooth or minimize peaks in patient demand, thereby providing their nursing staff with greater predictability and lowering their overall workload.

### Controlling Sources of Variability in Patient Census

The overriding goal of this chapter is to increase hospital decision makers’ recognition of the numerous negative effects of poorly controlled patient flow on hospital systems of care and the individuals affected by them. As we have described, the effects are complicated and often interconnected and have consequences for patients and hospital staff. Surges in patient demand require managers and nurses to gather, filter, and process large amounts of information and coordinate the actions of many individuals in an effort to prevent systems from faltering. When systems break down, patients are at increased risk of experiencing complications or adverse outcomes during their hospitalization. Although systems do not usually collapse and patients are not harmed, the response of hospital staff who contend with repeated cycles of surges in patient demand come at the cost of staff burnout, stress, and fatigue. These costs are shared with hospitals, which pay for hours of unnecessary overtime, excessive use of temporary staff, and needless and costly replacement of staff who leave to work elsewhere. Unless decision makers share in recognizing these problems, it will be difficult to take effective action to reduce them.

This chapter is also intended to ensure that hospital decision makers recognize that the nursing workforce will be increasingly unable to respond effectively to the problems created by poorly controlled patient flow. The aging of the R.N. workforce means that many R.N.s will be unable to provide the physical effort required by their jobs. In addition, the large shortage projected to develop during the next decade means that hospitals are unlikely to have access to enough R.N.s to respond to the expected growth in patient demand, let alone meet surges in patient demand. The importance of adequate nurse staffing was made clear in recent parallel surveys of physicians and the public that focused on perceptions of medical errors.<sup>79</sup> A little more than half (53%) of physicians and a majority (65%) of the public identified understaffing of nurses in hospitals as very important causes of medical errors. Physicians reported only two approaches as very effective in reducing errors: “requiring hospitals to develop systems to avoid medical errors” (55%) and “increasing the number of hospital nurses” (51%).<sup>80</sup>

As a consequence of high-profile disasters in the United States such as the September 11, 2001, attacks and Hurricane Katrina, efforts have increased to improve large-scale surge management capabilities.<sup>81,82</sup> However, far less effort has been directed at addressing the more insidious threats to safety and quality that arise from frequent surges in patient demand brought about by controllable (and thus preventable) increases in patient admissions. As illustrated in the vignette, surges in unplanned admissions created boundary conditions that forced managers and nurses to make difficult decisions that often involved trade-offs in quality and safety. As surge cycles are repeated and staff repeat their response to adapt to them, compromised care delivery practices can become accepted as customary. Over the longer term, systems designed to protect and maintain care quality and patient safety are undermined. However, by taking control of potentially controllable sources of patient flow, management can reduce the risk that care delivery systems will drift unwittingly into unsafe, low-quality practices.

### Taking Control of Patient Flow Management

Subsequent chapters (Chapters 4 and 6–8) describe the actions that management can take to minimize the frequency and magnitude of unnecessary surges in patient demand. Therefore, we bring this chapter to a close by describing some of the benefits that are likely to ripple through a hospital's care delivery systems as a consequence of more assertive patient flow management. At the hospital supervisor level, controlling surges in patient demand can be expected to increase the certainty of staffing levels across units and decrease the overall use of costly temporary nurses. Freed from the conflicts and time involved in finding and allocating staff, supervisors can focus more of their time on improving systems and processes of care and interacting with staff and coworkers. For example, supervisors can develop stronger relationships with community-based providers so that the needs of discharged patients are better matched with community-based resources. Should hospital payments be bundled and extended to include 30 days postdischarge, it is in a hospital's economic interest to decrease readmissions, which are also a source of uncontrolled patient arrival at the ED. Nurse supervisors could also spend more time mentoring nursing unit managers and other nurses so that when patient demand surges and other crises inevitably occur, managers and clinicians can respond more effectively by being able to draw on stronger relationships and more effective communication and by having a better understanding of the strengths and weaknesses of subsystems (for example,

pharmacy, admitting, housekeeping). Closer supervisor involvement with nursing unit managers and staff can help increase coordination, decrease mistakes and lapses in safety, reduce work-arounds, and help eliminate duplicated efforts, all of which weaken a hospital's clinical and economic performance.

Many of these same benefits also accrue to unit charge nurses. Relieved of the time-consuming and annoying burden of cajoling, exhorting, and persuading reticent or unwilling nurses to work an extra shift to staff peaks in patient demand, charge nurses can instead focus more of their time ensuring that unit-based standards of quality and safety are met and exceeded. Managers can work more frequently and meaningfully with staff to design and test experiments to improve care systems and focus on the needs of nurses, such as improving the ergonomic environment to help reduce musculoskeletal injuries. Increased efforts to achieve shared clinical and organizational goals can strengthen nurses' commitment to their units, promote staff continuity, and increase retention. Taken together, these outcomes are also likely to lead to improvements in the financial performance of nursing units.

For nurses at the point of care, greater predictability in patient arrival and discharge can be expected to result in fewer interruptions and distractions that will benefit nurses and patients. Greater predictability will help nurses more effectively plan, coordinate, deliver and evaluate the outcomes of care activities. At the same time, increased predictability can help decrease the emotional conflicts that many R.N.s confront when they are doing their best to complete all of the care that their patients require but fall short of this goal. Other conflicts that arise when work life intrudes into nurses' personal lives can be alleviated, such as the trade-off between overtime and spending that time with family or on other activities. A more stable working environment may also promote a community of practice that fosters collegial relationships among peers and with other individuals with whom nurses interact. Nurses need to know who they can trust to act in predictable ways, particularly during a surge in patient demand or some other crises. Finally, nurses who observe managers taking decisive actions to smooth the peaks in patient demand are more likely to perceive that hospital management cares about them and appreciates the problems and conflicts they face in providing safe patient care. A more supportive management might increase staff commitment to their units and overall loyalty to the hospital and might also encourage nurses to think more about how they can improve patient care and less about finding a different job where the care environment is better.