

# More Nurses, Better Patient Outcomes: Why Isn't It Obvious?

For well over a decade, there has been great tension between hospitals and nurses about how many nurses are enough, what their roles should be, and how to recruit and retain them. Hospitals, attending to the bottom line, spent much of the 1990s reducing nursing personnel through layoffs and attrition. Nurses worried that these cuts would adversely affect the quality and responsiveness of patient care. In fact, many nurses now believe that hospital staffing levels are not only inadequate but unsafe and deteriorating. In a recently published study, only one third of U.S. nurses reported that their hospitals have enough registered nurses to provide high-quality care, and 45% said the quality of care in their hospitals has deteriorated in the past year.<sup>1</sup> Physicians support the nurses' assessment: 64% rate hospital nursing staff levels as fair or poor.<sup>2</sup> Patients and their families also seem dissatisfied with current nurse staffing. They want more, and an increasing number are bringing along their own nurses.<sup>3</sup>

## Policymakers Respond

With widespread press coverage of the debate over hospital nurse staffing, and opinion polls suggesting eroding public confidence in hospitals, state and federal policymakers are under pressure to respond. Many legislative initiatives to regulate or bolster staffing have appeared in recent months. One such response is California's new law mandating minimum nurse staffing levels in all hospitals in the state beginning January 1, 2002. The definition of "minimum" is still being hotly debated, with nurses again pitted against hospitals. The three major proposals under consideration vary from four patients to each nurse in acute medical–surgical units (a proposal advocated by Services Employees International Union, a nurses' union) to 10 patients per nurse (advocated by the California Healthcare Association, a trade association representing hospitals).

## How Many Nurses Are Enough?

A 1996 congressionally mandated Institute of Medicine study concluded that evidence-based standards were insufficient to guide hospitals, nurses, and policymakers in prescribing hospital nurse staffing.<sup>4</sup> In this issue of *ecp*, Pronovost and associates help fill this void by creating an evidence base for establishing nurse staffing standards.<sup>5</sup> Their study examined the relationship between nurse-to-patient ratios in the intensive care units (ICUs) of Maryland hospitals and the risk for complications after abdominal aortic surgery. They found that patients in hospitals where ICU nurses care for three or more patients have significantly increased risk for medical complications compared with patients in hospitals where ICU nurses care for one to two patients. Of interest, California adopted an ICU nurse staffing ratio of 1 nurse to 2 patients two decades ago; Pronovost and colleagues now provide evidence to validate that standard.

*This paper is available at [ecp.acponline.org](http://ecp.acponline.org).*

## Can We Afford Fewer Nurses?

Pronovost and coworkers' paper and their previously published research<sup>6</sup> are also pertinent to another aspect of the nurse staffing debate, the cost of nurses. Registered nurses are inevitably a target for cost reductions in the current context of constrained hospital budgets because they represent almost one fourth of the hospital workforce and are the single largest labor cost for hospitals. On the one hand, more nurses cost money. Depending on which nurse-to-patient ratio is adopted under the new California legislation, hospital expenditures for nurses could increase by 5% to 31%.<sup>7</sup> On the other hand, as suggested by Pronovost and associates, fewer nurses could cost more: Inadequate nurse staffing levels lead to increased resource use, particularly in the form of longer lengths of stay, thus negating expected labor savings. Having an ICU nurse-to-patient ratio of less than 1:2 during the day increased mean ICU days by 49%.<sup>6</sup>

The findings of a 20-hospital study my colleagues and I conducted of inpatient AIDS care are similar to those of Pronovost and colleagues.<sup>8</sup> We found substantial variation across hospitals in risk-adjusted 30-days-from-admission mortality among patients with AIDS, as well as substantial differences in nurse-to-patient ratios. After accounting for other important factors, we estimated that an additional nurse per patient-day cut the odds of dying by more than half. We also found that the hospitals that had the most favorable nurse-to-patient ratios had significantly shorter overall length of stay as well as fewer ICU days. Thus, the overall cost of care was no greater in hospitals with a more favorable nurse-to-patient ratio. These findings add to the evidence presented by health economist Uwe Reinhardt in his compelling essay, "Spending More through 'Cost Control': Our Obsessive Quest to Gut the Hospital". Reinhardt showed that flawed accounting practices in health care often result in managerial and policy decisions that adversely affect patients without reducing costs.<sup>9</sup>

## Would More Doctors Help Blunt the Effects of the Nursing Shortage?

Another intriguing finding in Pronovost and colleagues' paper is that lower ICU nurse staffing is associated with increased risk for medical complications, independent of ICU physician staffing. We had a similar finding in our AIDS study. Patient outcomes were significantly better on units with more favorable nurse-to-patient ratios, whether or not the unit's physicians were AIDS specialists. It has been suggested or implied that increasing use of hospital-based physicians—intensivists and

hospitalists—could compensate for hospitals' inability to retain enough registered nurses. Both the ICU and AIDS studies suggest that nurses' and physicians' contributions to acute inpatient care are complementary rather than substitutive.

## Rethinking Nursing: Numbers and Responsibilities

The extensive literature on the correlates of differential hospital outcomes consistently shows an inverse relationship between nurse staffing and risk-adjusted mortality. However, most studies have "controlled" for the effects of nurse staffing on outcomes rather than focusing on understanding how nurse staffing affects patient outcomes. This may explain the conclusion of the Institute of Medicine's study on the adequacy of nurse staffing in hospitals: that insufficient research was available to provide a rationale for developing nurse staffing standards or minimum requirements.<sup>4</sup>

Nurse staffing tends to be defined by health services researchers as a structural characteristic of hospitals, in much the same way that size and teaching status depict the nature of an institution. However, unlike size and teaching status, staffing is a managerial decision. The organizational climate in which care takes place (the conditions in which nurses work) also reflects managerial decisions. Thus, more research is needed on how the modifiable attributes of hospitals, such as staffing and organizational climate, affect patient outcomes. Pronovost and colleagues' study is a step in the right direction. However, other than nurse and physician staffing, we know little about how the organizational climate in Maryland hospitals and in their ICUs contributes to patient outcomes.

## Changes in Organizational Climate Are Key

Our more than a decade of research suggests that the organizational climate in which care takes place is as important as staffing in determining patient outcomes.<sup>10,11</sup> The effects of excellent nurse staffing can be undermined in organizations that restrict nurses' autonomy to act within their scope of expertise, that provide inadequate administrative support, or that fail to give nurses authority commensurate with their high level of responsibility for patient well-being. Recent restructuring and re-engineering of hospitals have adversely affected nurses' practice environments and contributed to the current perception of an acute shortage of hospital nurses. Now that hospitals want more nurses, nurses are increasingly reluctant to accept hospital employment and have found new and perhaps more rewarding practice opportunities outside of the hospital sector.

Increasing evidence suggests that more nurses lead to better patient outcomes, and the key to recruiting and retaining adequate numbers of nurses is to substantially improve working conditions in U.S. hospitals.

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