Peter E. Carlson & Associates

Business Case for Better Nurse Staffing Levels

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The main reason that most hospitals are unwilling to increase nurse staffing levels is because they are preoccupied with cutting costs. Since labor costs make up 55-60 percent of the typical hospital's budget (RN's make up 25-30 percent), holding the line on staffing (and making cuts wherever possible) is often seen as most effective way to control costs.

In fact, some hospitals are so focused on holding the line on staffing levels that they would rather pay time-and-a-half for overtime and double time for agency personnel to do the same work. This may make economic sense as a short-term strategy for dealing with unexpected spikes in the census or temporary shortages of staff, but it makes no economic sense as a long-term strategy for staffing a hospital. In addition to the financial burden, numerous studies have shown that heavy reliance on overtime greatly increases the risk of medical errors and burnout.[1] However, calculations of the replacement factor for nursing staff usually fail to take those factors into account, even though their costs can be substantial.

Despite the belief that holding the line on staffing is the best way to control costs, a growing body of research suggests that reducing nursing staff actually adds costs[2], while adding nursing staff can actually reduce costs.[3]

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[1] See for example, Ann E. Rogers et al, "The Working Hours of Hospital Staff Nurses and Patient Safety," *Health Affairs*, July/August 2004.

[2] Needleman J, Buerhaus P, Mattke S, et al. "Nurse-staffing levels and patient outcomes in hospitals," Final report for Health Resources and Services Administration, 2001; Hickam DH, Severance S, Feldstein A, et al. "The Effect of Health Care Working Conditions on Patient Safety," Agency for Healthcare Research and Quality. May 2003; Cho SH, Ketefian S, Barkauskas VH, et al. "The effects of nurse staffing on adverse

Some of the most significant findings from that research are:

- Low levels of RN staffing are associated with higher rates of complications such as pneumonia, upper gastrointestinal bleeding, urinary tract infections, shock, sepsis, and cardiac arrest, including deaths from those complications.
- On the other hand, higher rates of RN staffing are associated with a 3-12 percent reduction in adverse outcomes.
- Surgical patients in hospitals with high RN staffing had a 5-6 percent lower rate of UTIs and a 4-6 percent lower rate of failure to rescue than surgical patients in a comparison group.
- Inadequate staffing levels are responsible for 19 percent of medical errors.
- Inadequate staffing levels are responsible for 24 percent of sentinel events.
- Fewer RN hours per patient day are significantly correlated with a higher incidence of pneumonia, while an increase of 1 hour worked by RNs per patient day is associated with an 8.9-percent decrease in the odds of a surgical patient contracting pneumonia.
- A 10-percent increase in the number of licensed nurses decreases the risk of lung collapse by 1.5 percent, pressure ulcers by 2 percent, falls by 3 percent, and UTIs by less than 1 percent.
- For each additional surgical patient assigned to an RN above a staffing ratio of 1:4, the mortality rate increases by 7 percent for all patients cared for by that RN.
- The length of stay for patients treated in hospitals with higher RN staffing is 3-5percent shorter, and complication rates are 2-9 percent lower, than in hospitals with lower RN staffing.

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outcomes, morbidity, mortality, and medical costs," *Nursing Research*, March/April 2003; Needleman J, Buerhaus P, Mattke S, et al. "Nurse-staffing levels and the quality of care in hospitals," *New England Journal of Medicine*, 2002; Kovner C, Gergen PJ. "Nurse staffing levels and adverse outcomes following surgery in U.S. hospitals," *Journal of Nursing Scholarship*, 1998; Unruh L. "Licensed nurse staffing and adverse outcomes in hospitals," *Medical Care*, 2003; Aiken LH, Clarke SP, Sloane DM, et al. "Hospital nurse staffing and patient mortality, nurse burnout, and job dissatisfaction," *Journal of the American Medical Association*, 2002; Aiken LH, Sloane DM, Lake ET, et al. "Organization and outcomes of inpatient AIDS care," *Medical Care*, 1999.

[3] Aiken, L. (2002b). "Superior Outcomes for Magnet Hospitals: the Evidence Base," in Margaret L. McClure and Ada Sue Hinshaw (Eds.), *Magnet Hospitals Revisited*, American Nurses Publishing, 2002; McCue M, Mark BA, Harless DW, "Nurse Staffing, Quality, and Financial Performance," *Journal of Health Care Finance*, Summer 2003.

- Hospitals with a staffing ratio of 1:7 experience a turnover rate of 18 percent, while hospitals with a staffing ratio of 1:4 have a turnover rate of just 9 percent.

These findings have substantial cost implications. For example, in a 100-bed hospital, reducing turnover from 18 percent to 9 percent would save nearly $2 million a year, since it costs an estimated $42,000 to replace a medical-surgical nurse and $64,000 to replace a specialty nurse. In addition, there are costs associated with poor quality care:

- Research suggests that the average cost of a medication error is $4,000 per incident.
- Each postoperative infection adds 9-10 days to the length of stay, which results in $39,000 per patient in excess charges.
- Patients that develop pneumonia while in the hospital have increased costs of $22,390-28,505, increased length of stay of 5.1-5.4 days, and increased probability of death of 4.67-5.5 percent.
- The cost of treating a pressure ulcer are estimated to range from $4,000 to $40,000 for newly developed ulcers,[4] while injuries that result from falls add $5,325 to the cost of care.

It's easy to see how the costs of poor quality care can quickly add up, and also how improving the quality of care can actually save money. That helps explain the finding in one study that increasing the number of nurses on staff increases the hospital's operating costs, but has no significant effect on profit margins.[5] Another study found that Magnet hospitals are able to operate at lower costs than the typical hospital, despite higher staffing levels.[6]

The bottom line is that better staffing leads to higher quality care, and higher quality care leads to lower costs. That's because with adequate staffing levels, there's more stability, so nurses and managers don't waste as much time fighting fires, and they can focus more on improving patient care. And improvements in the quality of care eliminate costly errors and complications.

[4] P Hibbs, "The economics of pressure ulcer prevention," *Decubitus*, 1988.
[5] McCue M, Mark BA, Harless DW, "Nurse Staffing, Quality, and Financial Performance," Journal of Health Care Finance, Summer 2003.
[6] Aiken, L. (2002b). "Superior Outcomes for Magnet Hospitals: the Evidence Base," in Margaret L. McClure and Ada Sue Hinshaw (Eds.), *Magnet Hospitals Revisited,* American Nurses Publishing, 2002;

That finding was recently underscored once again by the Premier Hospital Quality Incentive Demonstration project involving more than 260 hospitals.[7] The study tracked quality of care, outcomes, and cost at the patient level and found that patients who receive high quality care have fewer complications and fewer readmissions, significantly shorter length of stay, and for coronary artery bypass graft (CABG) patients, significantly lower mortality rates. These translated into significantly lower hospital costs.

[7] Premier Inc., "Exploring the Nexus of Quality and Cost," August 31, 2006.