



# Research Studies - Safe Staffing



## **Safe Staffing Impacts Patient Safety and Quality of Care**

- Research suggests that improved registered nurse staffing has a beneficial effect on patient outcomes. Conversely, research shows that the likelihood of both overall patient mortality (i.e., in-hospital death) and mortality following a complication (known as failure to rescue) increases by 7% for each additional patient added to the average registered nurse workload.  
Aiken, L.H., Clark S.P., Sloan D.M., Sochalski J. & Silber J.H. (2002). Hospital Nurse Staffing and Patient Mortality, Nurse Burnout, and Job Dissatisfaction. *Journal of the American Medical Association*, 288(16), 1987-93.
- Evidence shows that both a higher proportion of RNs in the nurse staffing mix and more RN hours per patient day are associated with decreased lengths of stay. Needleman and colleagues also found a statistically inverse relationship between nurse staffing patterns and rates of urinary track infections, upper gastrointestinal bleeding, pneumonia, and cardiac arrest among medical patients.  
Needleman, J., Buerhaus, P., Mattke, S., Stewart, M., & Zelevinsky, K. (2002). Nurse Staffing Levels and the Quality of Care in Hospitals. *New England Journal of Medicine*, 346(22), 1715-22.
- Results from a sample of Pennsylvania hospitals indicates that increased nurse staffing is associated with reductions in atelectasis (lung collapse), decubitus ulcers (bed sores), falls, and urinary tract infections.  
Unruh, L. (2003). Licensed Nurse Staffing and Adverse Events in Hospitals. *Medical Care*, 41(1), 142-52.

## **Safe Staffing and Medical Errors/Adverse Events**

- A systematic review of literature revealed a greater reduction in relative risk of hospital-related mortality and adverse patient events when additional nurses were added to unit staffing. Researchers also concluded that adding 1 RN FTE per patient day eliminated 16% of hospital-related deaths.  
Kane, R., Shamliyan, R.A., Mueller, C., Duval, S., Wilt, T.J. (2007). The Association of Registered Nurse Staffing Levels and Patient Outcomes: Systematic Review and Meta-Analysis. *Medical Care*, 45(12), 1195-1204.
- By examining workload and patient occupancy at a large urban hospital, researchers were able to conclude that increasing nurse-to-patient ratio by as little as 0.1% led to a 28% increase in patient adverse events. It also concluded that hospitals should initiate processes to avoid operating at or over capacity to reduce adverse patient outcomes.  
Weissman, J.S., Rothschild, J.M., Bendavid, E., Sprivilis, P., Cook, E.F., Evans, R.S., et al. (2007). Hospital Workload and Adverse Events. *Medical Care*, 45(5), 448-455.
- In a survey of hospital RNs, the nurses reporting higher workloads were more likely to report more frequent medical errors and patient falls occurring in their units over the previous year.  
Sochalski, J. (2004). Is More Better? The Relationship Between Hospital Staffing and the Quality of Nursing Care in Hospitals. *Medical Care*, 42(2 Suppl.) 1167-73.

- The number of hours worked by RNs is an important factor in the rate of medical errors. Odds of making an error during a shift of 12.5 hours or longer is over three times as great as during a shift of 8.5 hours or less.  
Rogers, A.E., Hwang, W., Scott, L.D., Aiken, L.H., Dinges, D.F. (2004). The Working Hours of Hospital Staff Nurses and Patient Safety. *Health Affairs*, 23(4), 202-12.
- The Institute of Medicine, in a recent study of the nursing work environment, recommends that the length of nursing shifts be limited to 12 hours in any 24 hour period, whether mandatory or voluntary.  
Institute of Medicine. (2004). *Keeping Patients Safe: Transforming the Work Environment of Nurses*. Washington, D.C., National Academies Press, p.237.

### **Safe Staffing Impacts the Retention of Experienced RNs**

- Patient workload is one of the working conditions that impact the job satisfaction of RNs. Aiken and colleagues in a 2001 study found that 43% of surveyed RNs had high scores on burnout measures, and that 41% reported they were dissatisfied with their jobs. These negative feelings foreshadowed a retention problem: with almost 23% of the nurses surveyed reporting they were planning to quit their current jobs within the next year.  
Aiken, L.H., Clarke, S.P., Sochalski, J., Busse, R., Clarke, H., Giovannetti, P., Hunt, J., Rafferty, A., & Shamian, J. (2001). Nurses' Report on Hospital Care in Five Countries. *Health Affairs*, 20(3), 43-53.
- Another study by Aiken also found statistically significant relationships between increased patient-to-nurse ratios and higher levels of reported dissatisfaction and burnout among RNs.  
Aiken, L.H., Clark S.P., Sloan D.M., Sochalski J. & Silber J.H.(2002). Hospital Nurse Staffing and Patient Mortality, Nurse Burnout, and Job Dissatisfaction. *Journal of the American Medical Association*, 288(16), 1987-93.
- Preliminary evidence indicates that there is a link between mandatory staffing plan legislation and the most positive nurse work environment perceptions among RNs when compared with either the implementation of mandatory staffing ratios or with no workforce regulation. These results are based on a study examining the variations in work environment perceptions of approximately 4000 RNs across 10 states.  
Cox, K.S., Anderson, S.C., Teasley, S.L., Sexton, K.A., & Carroll, C.A. (2005). Nurses' Work Environment Perceptions When Employed in States With and Without Mandatory Staffing Ratios and/or Mandatory Staffing Plans. *Policy, Politics, & Nursing Practice*, 6(3), 191-197

### **Safe Staffing Impacts Hospital Cost**

- Increasing the number and the proportion of RNs and the number of licensed hours yields a cost savings of almost \$3 billion – the result of more than 4 million avoided hospital days due to nosocomial infection, GI bleeding, and other adverse patient events – as well as 6754 avoided deaths. The authors state that “increasing nurse staffing is costly,” but “greater use of RNs... seems to pay for itself.”  
Needleman, J., Buerhaus, P.I., Stewart, M., Zelevinsky, K., Mattke, S. (2006). Nurse Staffing in Hospitals: Is there a business case for quality? *Health Affairs*, 25(1), 204-211.