

Patient outcomes and cost savings associated with hospital safe nurse

staffing legislation: an observational study (2021) Karen B Lasater, Linda H Aiken, Douglas Sloane, Rachel French, Brendan Martin, Maryann Alexander, Matthew D McHugh

This is the first study to report local and timely evidence about staffing variation in a large sample of hospitals across Illinois, and the consequences of staffing variation for patient outcomes and costs of care to directly inform public policy efforts actively under consideration.

<https://bmjopen.bmj.com/content/bmjopen/11/12/e052899.full.pdf>

Objective: To evaluate variation in Illinois hospital nurse staffing ratios and to determine whether higher nurse workloads are associated with mortality and length of stay for patients, and cost outcomes for hospitals.

Setting: 87 acute care hospitals in Illinois. Participants 210 493 Medicare patients, 65 years and older, who were hospitalized in a study hospital. 1391 registered nurses employed in direct patient care on a medical-surgical unit in a study hospital.

Results: Patient-to-nurse staffing ratios on medical-surgical units ranged from 4.2 to 7.6 (mean=5.4; SD=0.7). After adjusting for hospital and patient characteristics, the odds of 30-day mortality for each patient increased by 16% for each additional patient in the average nurse's workload (95%CI 1.04 to 1.28; p=0.006). The odds of staying in the hospital a day longer at all intervals increased by 5% for each additional patient in the nurse's workload (95%CI 1.00 to 1.09, p=0.041). If study hospitals staffed at a 4:1 ratio during the 1-year study period, more than 1595 deaths would have been avoided and hospitals would have collectively saved over \$117million.

Conclusions: Patient-to-nurse staffing ratios vary considerably across Illinois hospitals. If nurses in Illinois hospital medical-surgical units cared for no more than four patients each, thousands of deaths could be avoided, and patients would experience shorter lengths of stay, resulting in cost-savings for hospitals.

WHAT WE KNOW:

- When nurses care for fewer patients at time, they are able to spend more time at each patient's bedside, and as a result, patients are less likely to experience an adverse outcome such as a hospital-acquired infection, poor glycemic control, readmission and even death.
- The benefits of better nurse staff extend to nurses as well; with nurses in better-staffed hospitals reporting less burnout, less job dissatisfaction and being less likely to intend to leave their employer.
- An emerging body of research evidence articulates the human and economic consequences of adverse patient outcomes that result from hospital *nurse understaffing*.
- A 2019 study of adult medical patients showed that patients in hospitals with better nurse resources had better outcomes including less mortality, fewer readmissions and shorter lengths of stay—at no difference in cost, when compared with similar patients in hospitals with poorer resources.

WHAT WE LEARNED FROM THIS 2021 RESEARCH IN ILLINOIS:

Research found that each additional patient in a nurses' workload was associated with **16% higher odds of death and longer lengths of stay**.

If Illinois hospitals staffed medical and surgical units at the ratio proposed in the legislation, we **project thousands of deaths could be avoided** each year and **patients would experience shorter lengths of stay** resulting in **hundreds of millions of dollars in cost-savings for hospitals**.



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