

# Research BRIEF

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## CHRONIC HOSPITAL NURSE UNDERSTAFFING MEETS COVID-19

### *An Observational Study*

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### KEY FINDINGS

A study of hospitals in New York and Illinois at the start of the COVID-19 pandemic found that most did not meet benchmark patient-to-nurse staffing ratios for medical-surgical or intensive care units. New York City hospitals had especially low staffing ratios. Understaffed hospitals were associated with less job satisfaction among nurses, unfavorable grades for patient safety and quality of care, and hesitance by nurses and patients to recommend their hospitals.

### THE QUESTION

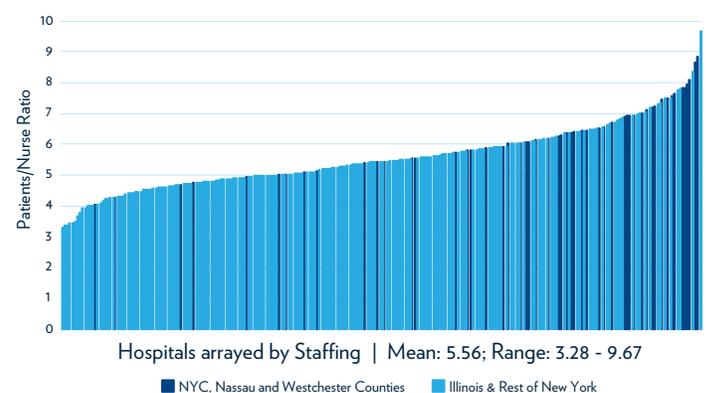
Better hospital nurse staffing is associated with lower patient mortality, fewer complications, high patient satisfaction scores, shorter lengths of stay, and fewer readmissions. However, staffing levels vary widely across hospitals, and only one state (California) has comprehensive legislation delimiting how many patients a nurse can care for at one time. In the 20 years since California's mandate, similar proposals, such as a 2018 initiative in Massachusetts, have failed.

A principal policy barrier is a lack of timely data regarding local staffing conditions. Staffing requirements come at significant cost to hospitals, and policymakers often have limited insight into the consequences of nurse staffing levels, which complicates weighing policy tradeoffs. In this study, the authors surveyed nurses in Illinois and New York—two states considering staffing legislation—to determine the variation of nurse staffing levels in medical-surgical and intensive care units (ICUs) and estimate the association with quality of care, patient satisfaction, and nurse job outcomes.

### THE FINDINGS

The study included 4,298 registered nurses (RNs) working in medical-surgical units at 254 hospitals and 2,182 RNs in ICUs at 179 hospitals. Patient-to-nurse ratios in medical-surgical units ranged from 3.3 to 9.7. Understaffing was even more acute in the New York City area, with average patient-to-nurse ratios of 6.5 in medical-surgical units (Figure 1). Staffing ratios in ICUs also varied, ranging from 1.5 to 4, with New York City hospitals worse than hospitals elsewhere.

**Figure 1.**  
Hospital variation in medical-surgical staffing



**Figure 2.**  
Odds of poor outcomes reported by medical-surgical nurses for each additional patient per nurse



Overall, about half of nurses across all settings reported burnout and unfavorable patient safety grades, about 70% would not “definitely recommend” their hospital, and two thirds reported frequent work interruptions and delays due to insufficient staff. About a third of patients gave poor satisfaction ratings and would not definitely recommend their hospital. Across most measures, surveys revealed worse outcomes in New York City hospitals.

These outcomes were highly correlated with staffing levels (Figure 2). After controlling for hospital factors (e.g., size and teaching status), nurse characteristics (e.g., years of experience), and geography, each additional patient per nurse was associated with significant increases in the odds of nurses reporting poor outcomes. Furthermore, patient-reported satisfaction measures were also associated with staffing and validated nurse-reported measures.

## THE IMPLICATIONS

Both New York and Illinois had severe COVID-19 outbreaks at the start of the pandemic. This study demonstrates that even before the pandemic strained health care systems, hospital nurses were already working in understaffed conditions, leading to frequent process failures that jeopardized patient safety, and contributed to emotional distress and high turnover among nurses. Patient reviews of hospitals corroborated these findings. Both patient and nurse assessments of hospital quality were strongly associated with nurse staffing levels in these states.

Proposed legislation in both states would mandate a maximum of 4 adult medical-surgical patients and 2 ICU patients per nurse per shift. This study reveals a wide variation in current average staffing levels, and nurses working in hospitals that regularly exceed these thresholds. The findings comport with other reporting related to COVID-19: variation in access to resources, such as RNs, can lead to unequal outcomes for patients.

The COVID-19 pandemic has seriously affected hospital budgets, raising concerns about the cost of staffing mandates. This timely analysis shows the other side of the tradeoff. In two states considering legislation to set minimum requirements, the variation in hospital nurse staffing adversely affects quality of care and patient safety, as well as outcomes for RNs. Further research is needed to evaluate other relevant policy considerations, such as the scale of the cost required to comply with new regulations.

## THE STUDY

Survey data were collected from December 2019 through February 2020 from direct-care RNs in New York and Illinois hospitals. The survey questions used previously validated measures of personal characteristics (e.g., years of experience), job outcomes (e.g., burnout), and quality of care and patient safety at their institution. These surveys were aggregated at the hospital level to create hospital-specific measures of each variable, including the average number of nurses per patient per shift.

Staffing data were linked to patient satisfaction data from the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) and hospital characteristics gathered from the American Hospital Association (AHA) Annual Survey. Hospital and personal characteristics were used as controls when modeling the effect of staffing levels on patient and nurse-reported outcomes.

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