

## Invited Commentary

# Revisiting Nursing's Effect on Surgical Quality and Cost

Amir A. Ghaferi, MD, MS; Christopher R. Friese, PhD, RN, AOCN

**Improvements in surgical safety** remain an important focus of hospitals and clinicians. With nearly 100 000 patients dying per year in the United States after undergoing elective surgery and mortality rates varying from 2-fold to 10-fold across hospitals,<sup>1-3</sup> excess surgical mortality qualifies as a significant public health problem. Unfortunately, the precise means to improve surgical safety remain elusive.

While several hypotheses have been proposed to explain the variation in postoperative mortality, failure to rescue—death following a major complication—ranks among them as the most popular, intuitive, and actionable theory.<sup>4</sup> Yet rescuing patients from surgical complications requires substantial human and financial resources. Increased cost pressures places “rescue” at odds with current hospital priorities.

In this issue of *JAMA Surgery*, Silber and colleagues<sup>5</sup> evaluate the “value” of improved nursing environments in surgical patients. They evaluate differences in patient outcomes and cost between hospitals with better nursing work environments, determined by Magnet status and higher nurse-to-bed ratios, and matched controls. This study uses a large sample of Medicare patients with exquisite attention paid to comparing similar populations using rigorous statistical matching methods.

Two key findings emerge. First, hospitals with better nursing environments (termed *focal hospitals*) have a nearly 20% lower failure-to-rescue rate than control hospitals. Interestingly, even larger benefits were observed in the sickest patient group. While causation cannot be assumed, the quality and quantity of nursing care likely enables early recognition

and management of these complex patients. Further, the intensive care unit length of stay was markedly lower in the focal hospitals, another potential signal of successful rescues associated with better nursing environments.

Second, the overall value of care delivered at focal hospitals was superior to that of control hospitals. Specifically, focal hospitals achieved similar costs with decreased mortality, thereby tipping the value scale. However, care associated with the sickest patients in focal hospitals was not consistently associated with lower cost. The survival benefit was offset by increased spending in this highest risk cohort.

While we do not fully understand how hospitals rescue surgical patients,<sup>6</sup> successful rescue likely requires teamwork, communication, and leadership skills from front-line nurses. Yet these attributes are hard to measure, and researchers continue to work toward gathering pertinent and reliable data in these important domains. Executives may also wonder whether they should improve nurse staffing, improve working conditions, or both. Despite Silber and colleagues' evidence of the value of better nurse staffing and hospital recognition for nursing excellence, safety cultures cannot be changed quickly. For example, our group has shown that hospitals transitioning to Magnet status do not improve their outcomes after recognition.<sup>7</sup>

Committed efforts to understand the context in which rescue occurs successfully are needed to provide clinicians and executives with actionable targets. Armed with such data, implementation science can help us disseminate promising organizational strategies to improve patient outcomes while spending resources judiciously. Surgery is a team sport and the thoughtful coordination of all the “players” will no doubt improve patient safety.

## ARTICLE INFORMATION

**Author Affiliations:** Center for Healthcare Outcomes and Policy, University of Michigan, Ann Arbor (Ghaferi, Friese); Ann Arbor Veterans Administration Healthcare System, Ann Arbor, Michigan (Ghaferi); Department of Surgery, University of Michigan, Ann Arbor (Ghaferi); School of Nursing, University of Michigan, Ann Arbor (Friese).

**Corresponding Author:** Amir A. Ghaferi, MD, MS, Center for Healthcare Outcomes and Policy, University of Michigan, 2800 Plymouth Rd, NCRC B016/Room 140-E, Ann Arbor, MI 48109 (aghaferi@umich.edu).

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