



In the Literature

NURSE STAFFING IN HOSPITALS: IS THERE A BUSINESS CASE FOR QUALITY

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In the face of preventable deaths, costly in-
efficiency, and a rapidly aging population,
U.S. hospitals are eager to establish a viable
business case to improve quality of care and
patient safety. New research published in
Health Affairs finds that increasing the use
of registered nurses (RNs)—without in-
creasing total nursing hours—could reduce
costs and improve patient care by avoiding
unnecessary deaths and reducing days of
hospital care.

The Commonwealth Fund-supported study,
“[Nurse Staffing in Hospitals: Is There a
Business Case for Quality?](#)” (*Health Affairs*,
Jan./Feb. 2006), explores different ap-
proaches to nurse staffing in hospitals that
involve strategies like changing the mix of
RNs and licensed practical/vocational
nurses (LPNs) or increasing the total num-
ber of licensed nursing hours per patient.
Based on these models, the study finds that
increasing the use of RNs and hours of
nursing care per patient could help to
avoid more than 6,700 patient deaths and
4 million days of care each year. Doing so
can also help avoid negative outcomes, like
urinary tract infections, cardiac arrest, or
hospital-acquired pneumonia.

Strategies for Increasing Nurse Staffing

Together with his colleagues, lead author
Jack Needleman, Ph.D., of the School of
Public Health at the University of Califor-
nia, Los Angeles, analyzed data from 799
acute care general hospitals in 11 states.
The study simulated the effect of three op-
tions to increase nurse staffing: 1) raising
the proportion of RNs relative to LPNs,
without changing the total number of

hours of care, to the same level as in the
top 25 percent of hospitals; 2) increasing
the number of licensed nursing hours per
day, without changing the proportion of
RNs and LPNs, to the same level in the
top 25 percent of hospitals; and 3) raising
proportions of RNs and the level of li-
censed nursing hours per day to that of the
top 25 percent of hospitals.

More RN Staff Helps Avoid Patient Deaths and Medical Complications

Option 1—raising the proportion of
RNs—would require hospitals below the
25 percent level to replace more than
37,000 LPNs with RNs, at an estimated
cost of \$811 million, according to the
study. However, this approach would
benefit both hospitals and patients alike,
resulting in nearly 5,000 fewer patient
deaths per year and net savings of \$242
million over the short term and \$1.8 bil-
lion over time, assuming that fixed hospital
costs are fully recovered. Savings would be
generated from shorter hospital stays, fewer
patient deaths, and decreased rates of com-
plications. “There is an unequivocal busi-
ness case for hospitals to improve nurse
staffing under one option we examined:
raising the proportion of RNs without
changing licensed hours,” the authors say.

Although options 2 (increasing the number
of licensed nursing hours) and 3 (raising
the proportion of RNs and the level of li-
censed nursing hours) are also associated
with substantial savings, they would not be
enough to offset the costs of the increased
staffing, resulting in short-term net costs of
\$5.8 billion and \$5.7 billion, respectively.

These cost increases, while large, would only represent about 1.5 percent of hospitals' annual expenditures, say the authors. In time, as hospitals adjusted to the fewer days of care, the expenses would lessen, representing 0.8 percent and 0.4 percent of expenditures, respectively.

Policy Implications

Researchers warn that, depending on reimbursement systems in use, hospitals may be required to share cost savings with insurance carriers and other payers. These policies create a strong disincentive for hospitals and may impede their ability to justify quality improvements. But for patients, the benefits are clear. "From a patient's perspective, however, using standard measures of value, the additional costs to increase nurse staffing appear justified," say the authors.

Policymakers, as well as public and private payers, should focus on ways to reconcile these issues. For example, when Medicare was introduced in 1965 and hospitals faced significant nursing shortages, Congress made extra payments to help hospitals raise wages and increase staffing. Could a similar policy be adopted now to help bridge the gap between patients' and hospitals' needs?

Ultimately, the authors say, policymakers, insurance carriers, hospital administrators, and other players will

have to face serious questions regarding the importance of improving patient safety, the feasibility of increasing nursing staffing, and how to make funds available to help hospitals realize their goals.

Facts and Figures

- In 2002, U.S. short-term acute general hospitals employed 942,000 full-time equivalent RNs and 120,000 full-time equivalent LPNs.
- The researchers estimate that more than 6,700 in-hospital deaths could be avoided by increasing nurse staffing.
- The net short-term costs associated with options 2 (increasing the number of licensed nursing hours per day) and 3 (increasing the proportion of RNs and the number of licensed nursing hours per day) would be \$5.8 billion and \$5.7 billion, respectively.
- More than 90 percent of projected cost-savings are generated from decreases in length-of-stay associated with higher nurse staffing.

Avoided Hospital Days, Costs, and Deaths if Proportion of Registered Nurses (RNs) or Number of Licensed Nursing Hours Were Increased to the 75th Percentile of Hospitals Studied, National Estimates Updated to 2002

	Option 1. Raise proportion of RNs from 75th percentile without changing number of licensed hours	Option 2. Raise number of licensed hours to 75th percentile without changing proportion of RNs	Option 3. Raise both proportion of RNs and number of licensed hours to 75th percentile
Hospital days avoided	1,507,493	2,598,339	4,106,315
Cost impacts			
Net cost of increasing nursing (in millions)	-\$242	\$5,819	\$5,716
Net cost as percent of hospital expenses	-0.1%	1.5%	1.4%
Cost savings assuming that fixed hospital costs are recovered			
Net cost of increasing nursing (in millions)	-\$1,821	\$3,240	\$1,558
Net cost as percent of hospital expenses	-0.5%	0.8%	0.4%
Avoided deaths	4,997	1,801	6,754

Notes: Cost savings of avoided days are initially reduced by 60 percent based on research that only 40 percent of hospital costs are variable in the short run. Over time, fixed costs should be reduced to reflect changed volume. Estimates based on recovery of 40 percent of average costs and all average costs are presented. Net cost of increasing nurse staffing was calculated by subtracting total estimated cost savings due to avoided outcomes and days from cost of increasing nurse staffing.

Source: Adapted from J. Needleman et al., "Nurse Staffing in Hospitals: Is There a Business Case for Quality?" *Health Affairs*, Jan./Feb. 2006 25(1):204-11. Authors' estimates using data from J. Needleman et al., "Nurse-Staffing Levels and Quality of Care in Hospitals," *New England Journal of Medicine*, May 30, 2002 346(22):1715-22, updated to 2002 based on 1997 and 2002 American Hospital Association annual survey data and on wage data for nurses employed in hospitals from the Current Population Survey.