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Impact of nursing care on mortality rates

What is this research about?

Mortality rates are different across all hospitals. This indicates that hospital characteristics and delivery of care have an impact on patient mortality. After controlling for patients own characteristics, the impact of hospital characteristics on mortality can be better examined. Since nurses provide the majority of care to hospitalized patients, it is proposed that the characteristics and delivery of nursing care have an impact on patient death.

This study was guided by a previous model, *The Determinants of Mortality Model*, which assumes each hospital has a unique mix of characteristics that affect patient mortality. In this model, it is hypothesized that the following categories have an impact on hospital mortality rates: nurse staffing, conditions of the nursing practice environment, nurse and nurse employment characteristics, hospital type and location and physician expertise.

This purpose of this study was to report on the characteristics of hospital care found to contribute to patient deaths within 30 days of admission. The study aimed to identify nursing-

related determinants of 30-day mortality for acute medical patients in Ontario hospitals.

What you need to know:

Researchers surveyed nurses and looked at patient data to determine hospital characteristics involved in patient mortality. Eight variables were found to help explain Ontario hospital mortality rates. Higher proportions of university educated, registered nurses along with increased use of care maps and protocols are essential ways that hospital quality can be improved to lower mortality rates.

What did the researchers do?

Researchers surveyed nurses working in medical / surgical units in 75 Ontario hospitals. Survey data was connected to data on 46,993 patients admitted to hospital for heart attack, stroke, pneumonia and septic infection. Nursing-related factors that impact mortality were determined using four data sources. These data sources included nurse surveys, hospital staffing data and a patient discharge database.



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What did the researchers find?

Researchers found evidence to show the impact that hospital characteristics have on mortality rates, particularly related to the proportion of RNs and baccalaureate prepared nurses.

On average, the hospital mortality rate for acute medical patients in Ontario was 17.4%. Lower 30-day hospital mortality rates for these patients were associated with:

- Higher proportions of Registered Nurses in staff mix
- Higher proportions of baccalaureate prepared nurses
- Lower total number of nursing personnel (more consistency and fewer casual positions)
- High nurse-reported adequacy of staffing and resources
- Higher nurse-reported quality of care
- Higher use of care maps
- Lower nurse-reported adequacy of manager ability and support
- Higher nurse burnout

A new and important finding was that higher use of care maps or protocols to guide patient care was associated with lower 30-day patient mortality.

Two variables in the model were found to be statistically significant predictors of 30-day mortality in the opposite direction as expected. Lower mortality was associated with lower nurse-reported manager ability and support and with higher nurse burnout. Further research is needed to understand these counterintuitive findings better.

How can you use this research?

Hospitals should focus on strengthening organizational structures and process of care to minimize patient death. Based on findings, it is recommended that hospitals:

- Maximize the proportion of RNs providing direct care;
- Seek to hire and retain university-educated nurses;
- Make significant use of care maps or protocols to guide patient progress through hospitalization.

Original Article:

To learn more about this study, we invite you to read the original research article:

Tourangeau, A.E., Doran, D.M., McGillis, H.L., O'Brien Pallas, L, Pringle, D., Tu, J.V., Cranley, L.A. (2007). Impact of hospital nursing care on 30-day mortality for acute medical patients. *Journal of Advanced Nursing*, 57(1), 32-44.

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Keywords

Care maps, care protocols, hospital structures, mortality rates, nurse staffing, quality of care, questionnaire survey, secondary data analysis
