Research RECAP

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A theoretical model of the determinants of mortality

What is this research about?

Nursing research that focuses on outcomes has been criticized for not being theoretical in nature. There is existing research that investigates patient mortality as an outcome, but there is little discussion of models or theories of mortality for hospitalized patients.

Unnecessary patient mortality is an important patient safety outcome. Three known sources for variation in hospital mortality rates include: individual patient characteristics, quality of care and random sources. There is evidence that mortality rates for hospitalized patients continue to vary even when patient characteristics are controlled for. This suggests some portion of this outcome is preventable. Further, because nurses provide most of patient care, it is reasonable to assume that nursing care structures and processes are important determinants of patient mortality.

The purpose of this article was to further develop a theory linking the outcome of mortality with its causes. The article first describes development of a theory of nursing-related causes of patient death and concludes with a revised version of the model.

What you need to know:

Researchers revised a model of patient mortality to better understand the factors involved. Several hospital characteristics exist that together affect patient mortality. This article describes the development of an emerging theory of causes of patient death. The theory is tested and refined and a revised model is proposed that considers both direct and indirect effects on mortality.

What did the researchers do?

An original model of determinants of mortality was proposed, tested and refined (Fig. 1). In this original model, it was hypothesized that in addition to patient characteristics, the following hospital factors each have a direct effect on 30-day post-admission patient mortality: amount of nursing staff, skill mix of nursing staff, amount of professional role support available, nurse experience, nurse capacity to work, continuity of nurse care provided, condition of the nursing practice
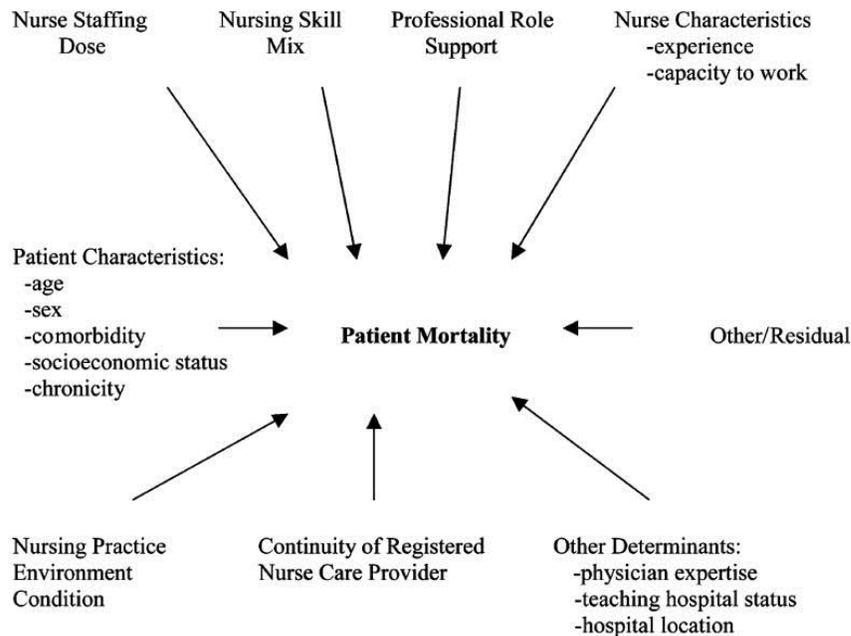
Fig. 1. Original mortality model

environment, physician expertise, teaching hospital status and hospital location. Researchers tested and made revisions to this mortality model.

What did the researchers find?

A revised and more complex "nursing and other determinants of hospital mortality model" was proposed (Fig. 2). The most significant revision was the hypothesis that the following 5 predictors have *indirect* effects on patient mortality:

- Nursing staff dose
- Amount of professional role support available
- Continuity of RN care provider
- Teaching hospital status
- Hospital location

Two indirect predictors of mortality were added to the model: nurse burnout and nurse satisfaction.

Other main revision concepts and their hypothesized relationships include:

- Nursing skill mix has both direct and indirect effects on patient mortality.
- When nurses take more opportunity to recuperate and regain capacity to work through missed shifts, mortality rates are lower.
- Nurse experience both directly and indirectly affects mortality.
- Work environments that are characterized as being stronger professional practice environments, are associated with lower patient mortality.

Because of the complexity of the revised model that hypothesizes direct, indirect and spurious relationships; further testing and refining is needed.

Fig. 2. Revised mortality model
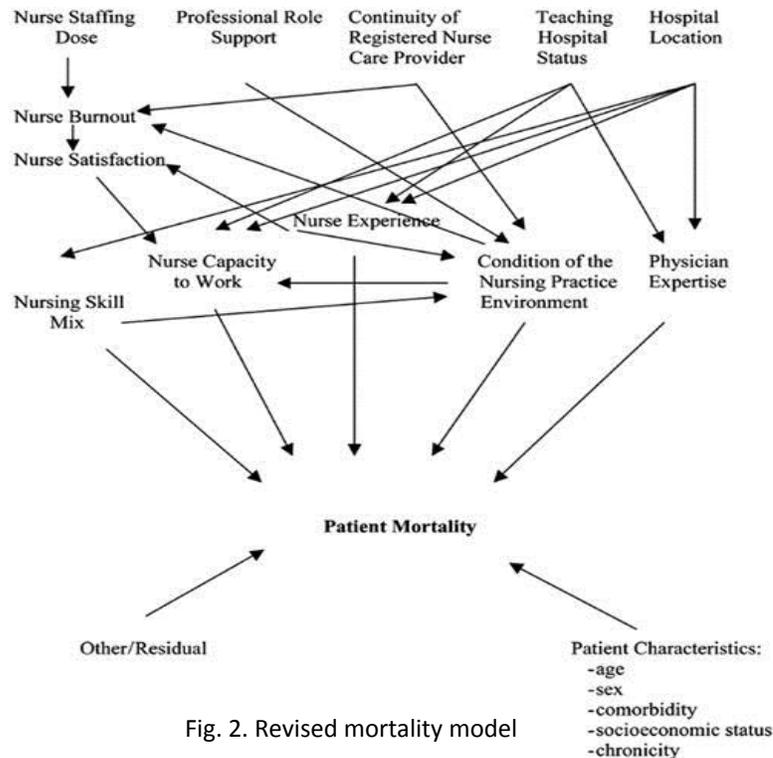
How can you use this research?

There is strong motivation for hospitals and care providers to understand what characteristics contribute to unnecessary patient deaths. This model leads to better understanding of the impact that nurses and nursing care have on patient mortality. Findings from model testing could be used to determine the changes hospitals need to make to reach target mortality rates. Hospitals should maximize the proportion of registered nurses and seek to hire and retain baccalaureate prepared nurses. They should also make significant investments in the use of care maps and protocols to lower unexplained patient death.

Original Article:

To learn more about this study, we invite you to read the original research article:
Tourangeau, A. E. (2005).A theoretical model of the determinants of mortality. *Advances in Nursing Science,* **28(1), 58-69.**

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Keywords

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