Epidemiology of First Order Operational Failures in Acute Care Settings

Principal Investigator: **Kathleen R. Stevens**, RN, EdD, ANEF, FAAN
Co-Principal Investigator: **Robert L. Ferrer, MD, MPH**

Specific Aims:

1. To determine the types and frequency of first-first order operational failures that nurses self-detect

2. To determine whether self-detected first-order operational failures made by nursing staff correlate with those failures that are observed by others

3. To determine the types of factors that correlate with first order operational failures made by self-detection

Background and Significance:

- Most adverse events in health care originate from small process failures that are common enough to be taken for granted.[1] Although these process failures include both errors and "problems" – task interruptions due to something or someone not being available when needed – problems are far more common and have drawn far less attention.[2]

- In frontline nursing care, workarounds are a common response to small operational failures,[3] exposing patients to errors and creating inefficiencies in care.

- Endemic shortages of nursing staff and difficult working conditions present substantial barriers on the path to improvement.[4]

- Detection of first order operational failures provides opportunities to fix underlying system failures and contributes to organizational learning.

- Failures occur about one per hour per nurse on hospital units and 95% of problems are managed through workarounds.[2]

- How problems are managed, therefore, may be an important determinant of a hospital's organizational culture for quality of care.[4]

Research Design and Methods:

- Specially-designed **pocket cards** (index sized) will be used to collect data from all nurses on participating units.

- A variety of methods will be used to ensure that staff are engaged in the process and also have a clear understanding of what the process entails. Some of these strategies include utilizing key individuals from the unit to serve as champions, maximizing staff meetings as a tool for engagement and ensuring that the research team has a clear presence on the unit(s).

- **Checklists on cards** will capture small problems encountered in daily practice to track and create awareness of problems. The card will also provide a space to write in problems not on the list. The card will have a space to record the date.

- Nursing staff will record in real time the small operational failures that they encounter.

- Cards will be deposited in a box on each unit for later collection by research staff. Using the card data for a defined time interval as the numerator, and patient days on the unit for the same interval as the denominator, we can calculate a rate of small problems per patient-day.

References:

1. Reason J. Human error: models and management. *BMJ* 2000;320:768-70.

2. Tucker AL, Edmondson AC. Why hospitals don't learn from failure: organizational and psychological dynamics that inhibit system change. *California Management Review* 2003;45:55-72.

3. Hassmiller SB, Cozine M. Addressing the nursing shortage to improve the quality of patient care. *Health Affairs* 2006;25:268-74.

4. Edmondson AC. Learning from failure in health care: frequent opportunities, pervasive barriers. *Quality and Safety in Health Care* 2004;13:3-9.