Rapid Response Systems (RRS)

Peter Morris, MD

Wake Forest School of Medicine

The Problem: Unrecognized Deterioration of Patients on General Hospital Wards

- Question –
  - Could better examination of Vital Signs (VS) predict deterioration?
- Do these predictors (VS) coupled with activation of a "response team" improve outcomes?

Early Warning Scoring Systems

- >100 now in literature
- Many by expert opinion
- More recent “derived scores”
- Limitation –
  - “how often are vital signs obtained?”

Rapid Response Systems (RRS)

- Strong face validity
- Support of Hospital Administrators
- 2001-Institute of Medicine –
  - Crossing the Quality Chasm: A New Health System for the 21st Century
  - Failure to Rescue (FTR)
- 2007 – National Institute for Health & Clinical Excellence recommends
  - Physiologic track & trigger systems to monitor adult pt in acute hospital settings
- 2009-Joint Commission National Pt Safety Goal-implement RRS's

Benefits of EWS/RRS

- RRS associates with reduction in non-ICU cardiopulmonary arrests but not lower overall hospital mortality (adults)

Limitations of Literature

- DNR patients not excluded from analyses
- None have used a randomization methodology or concurrent control group
- Few (2) have studied multiple centers simultaneously
- Few have attempted to control for other safety improvements and practice change over time
  - (nurse to pt ratio, increased density of hospitalists)
- No study has included a blinded outcome assessment

Harms?

- “de-skilling” of ward staff
- dependence on RRTs
- Diversion of ICU staff from high acuity ICU pts
- Communication errors by introduction of new team members urgently

Cost Analyses of RRTs

- 11 reports with quantitative methods evaluating effect of change
- Overall, implementation processes differ widely
- Local needs, local resources dominate the process (eg, cost of education 2^{o} to variable investment)

RRS – Optimal Team Composition

- Unknown

A Plausible Role for RRTs
End of Life Care

- Many ward arrests occur in “terminally ill” pts
- Training, training, training
- Relief from distressing symptoms
- Communication - “what are patient’s goals”
- Avoid “there is nothing else we can do for you”

Nelson J, et al.
Integration of Palliative Care in the Context of Rapid Response.
A Report From the Improving Palliative Care in the ICU Advisory Board.
CHEST, 2015; 147: 560-569

What Are Better Ways?

- Multiple Modality Approaches (RRTs plus…..)
- Nurse Ratio in Ward
- Hospitalists
- Communication across levels of nursing unit acuity (ED to floor, ICU to Floor, OR to floor)
- Electronic Vital Sign Monitoring Systems – every patient, every hospital?