Using RRT Data for Quality Improvement

Multidisciplinary Clinical Research on Nurses' Detection of Patient Deterioration in Medical-Surgical Units

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Background

- Hospital nurses bombarded with tasks, stimuli (some informative, most not), and interruptions
- A key responsibility in acute care: monitoring and action when patient status declines …
  - True even in context of a well-planned, comprehensive RRS/MET approach
- Monitoring patients is challenging for all nurses, and even more so for the new graduate nurse in the first year of practice …

Dominant Streams of Thinking/Scholarship

- Focus on the efferent side of RRTs (activation and response) rather than afferent side (inputs—which patients are calls made for and when the calls are made)

- Disturbing findings regarding clear indications of deterioration in terms of vital signs in 12-24 hours before cardiac arrest

- Emphasis on "call criteria" and early warning signs (vitals plus urine output and oxygen saturation)

- Less attention to contextual elements beyond vital signs: what condition/treatment/other elements trigger or should trigger extra attention/vigilance?

- Less attention to the cognitive psychology/human factors/social processes involved in detection

New Nursing Graduate Competencies in Identifying Patient Clinical Deterioration

- Ontario MOHLTC, Nursing Research Fund 2009-2011
- Clarke, PI

The Team

- ## Coinvestigators:

  Dr. Claire Mallette, Director of Nursing Education, Placement and Development, University Health Network

  Dr. Louise Rose, Adjunct Scientist, Li Ka Shing Institute, St. Michaels' Hospital, Research Scientist, Mt. Sinai Hospital, Assistant Professor and Term Chair in Critical Care Nursing, Lawrence Bloomberg Faculty of Nursing, University of Toronto

  Dr. Stuart Reynolds, Physician Lead, MOHLTC, Ontario Critical Care Strategy, Critical Care Response Teams

  Dr. Ruth Childs, Psychometrician, Ontario Institute for Studies in Education, University of Toronto

- ## Province-wide advisory group

Organizational Perspectives on the Problem

- Root cause analysis of critical incidents involving failure to monitor/intervene reveal multiple problems and defy simple explanations
  - Good people in respected systems
  - Systems are only as strong as their weakest components

Nursing Issues

- Ward nurses' presence at the patients' bedside is usually limited (only approx 30% of duty time)
  - Assessments must be focused
- Nursing education (prelicensure and continuing ed) related to the basic (not so basic?) function of monitoring and detection of problems has tended not to be systematic
- Concepts of interest: signal:noise ratios, situational awareness are likely relevant

Project Phases

Phase 1:

Cognitive task analysis--surveillance and early detection of clinical deterioration in the medical-surgical patient

Phase 2:

Development of a test format for the tool

Phase 3:

Pilot test, preliminary analysis

Phase I

- Focus groups by low-fidelity simulations employing actual clinical observations of patients receiving RRT/code calls and comparison patients (call sheet and chart review)
  - Population: medical-surgical "ward" patients across a 3-facility tertiary/quaternary care hospital system
  - Chart abstraction on 200 "cases" (and 400 matched "controls")
  - Clinicians at various experience levels "walk through" their thinking and contribute information about cases
    - Mapping the thought process

Phases II and III

- Assembly and pilot-testing of a paper and pencil competency assessment tool
  - Case database (possibility to generate multiple/parallel forms of a test)
  - Presentation of selected vital signs/MEWS parameters and contextual details (diagnosis, procedures, medications, key Hx) for multiple patients
    - Algorithms for random sampling of patients/cues to generate case sets representing increasingly subtle distinctions
    - Asking respondents to identify patients at greatest risk and indicate the cues that tell them so
    - Relative rankings of cases by risk/severity

Future Directions

- Multiple products
  - Thick description: why does activation/detection sometimes happen too late; where is the problem (foundational knowledge, ability to apply it, practice context)
  - A practice tool—skilful monitoring/capacity for immediate action are critical safety skills/functions in acute care …
- Potential base for organizational and human factors research
- Directions for clinical education/staff development/RRT operations
  - Documenting capacity rather than waiting for evidence of inability to perform

Another Future Direction

- Protocol to be refined in study could be applied to examining clinical judgment related to identifying deterioration in other patient populations

  – E.g. Nonreassuring fetal heart monitor parameters in OB

Suggestions For Practice

- Case scenarios relating to MET calling decisions could (should?) be used to develop local orientation and continuing education efforts