The Latest Evidence on Hourly Rounding and Rapid Response Teams in Decreasing Adverse Events in Hospitals

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The purpose of Evidence Digest, a recurring column in Worldviews, is to provide concise summaries of well-designed and/or clinically important recent studies along with implications for practice, research, administration, and/or health policy. Articles highlighted in this column may include quantitative and qualitative studies, systematic and integrative reviews as well as consensus statements by expert panels. Along with relevant implications, the level of evidence generated by the studies or reports highlighted in this column (see Figure 1) is included at the end of each summary so that readers can integrate the strength of evidence into their healthcare decisions.

**Figure 1. Rating System for the Hierarchy of Evidence (from Melnyk & Fineout-Overholt 2005).**

- **Level I:** Evidence from a systematic review or meta-analysis of all relevant randomized controlled trials (RCTs), or evidence-based clinical practice guidelines based on systematic reviews of RCTs
- **Level II:** Evidence obtained from at least one well-designed RCT
- **Level III:** Evidence obtained from well-designed controlled trials without randomization
- **Level IV:** Evidence from well-designed case-control and cohort studies
- **Level V:** Evidence from systematic reviews of descriptive and qualitative studies
- **Level VI:** Evidence from a single descriptive or qualitative study
- **Level VII:** Evidence from the opinion of authorities and/or reports of expert committees

Modified from Guyatt & Rennie, 2002; Harris et al., 2001

**NURSING ROUNDS AND PATIENT SAFETY**


**Purpose.** The purpose of this study was to assess the frequency of and reasons for patients' call light use as well as the effects of 1- and 2-hour nursing rounds on patients' use of the call light, patient satisfaction, and the rate of patient falls.

**Design.** Quasi-experiment, with three study groups: (a) hourly patient rounding, (b) patient rounding every 2 hours, and (c) control, with no regular rounding.

**Sample.** Twenty-seven nursing units in 14 hospitals across the United States, including small, large, rural and urban hospitals.

**Methods.** Nurses in the two experimental study groups followed a specific protocol, either performing hospital rounds on their patients every hour or every two hours. Chief nursing officers and nurse managers made decisions on what units in their hospital were assigned to one of the three study groups. After baseline assessment of key clinical variables for 2 weeks, rounding occurred for a time period of 4 weeks. After the 4 weeks of the intervention (i.e., rounding), follow-up assessments of the outcome variables (e.g., use of call lights, patient satisfaction, falls) were conducted. Nurses on the experimental rounding units were instructed to inform their patients that they were there to conduct rounds and perform key actions (e.g., assess patient pain levels using a pain assessment scale, offer toileting assistance, make sure the call light and telephone were within the patients' reach, inform the patients that staff would be back to round again in a set period of time).

**Findings.** Of the 46 units in 22 hospitals that participated in the study, data from 19 units in 8 hospitals were excluded from the analyses because of poor reliability and validity of data collection. Findings indicated that hourly rounding was more effective than 2-hour rounding and no rounding on call light usage, patient satisfaction, and number of patient falls. Two-hour rounding was more effective than no rounding on patient satisfaction.
Infection and Critical Care, 62
of the intensive care unit.

of a rapid response team decreases cardiac arrest outside
the intensive care unit.

Purpose. The purpose of this study was to assess the
impact of a rapid response team on the number of cardiac arrest events.

Design. Prospective case study outcomes evalu-
ation.

Level of Evidence: III.

RAPID RESPONSE TEAM DECREASES
CARDIAC ARRESTS


Purpose. The purpose of this study was to assess the effect of a rapid response team on the number of cardiac arrests that occur outside of the intensive care unit.

Sample/Setting. Level I trauma center in the Western part of the United States.

Methods. A rapid response team was developed that consisted of an intensivist, a critical care nurse, and a respiratory therapist. The team was available 24 hours a day for 7 days a week.

Hospital staff were informed to activate the rapid response team for the following patient criteria: (1) heart rate greater than 130 or less than 40 beats per minute, (2) systolic blood pressure less than 90 mm Hg, (3) respiratory rate more than 24 or less than 8 breaths per minute, (4) seizures, (5) acute mental status changes, and (6) nursing staff concern for any other reason. An educational program was conducted with the hospital staff so that all staff members were familiar with how to use the team. Data were collected prospectively regarding the number of team activations, reasons for activation, the interventions performed, and the outcome as well as the occurrence of cardiac arrest.

Findings. Between March and December of 2005, the rapid response team was activated 76 times, an average of eight times per month. The most common reason for activation of the team was a change in mental status, followed by concern from the nursing staff that the patient’s condition was deteriorating. Most activations of the team occurred between 7 a.m. and 7 p.m. In over half of the activations, patients were moved to a higher level of care. After implementation of the rapid response team, there was a 50% reduction in cardiac arrests in comparison to the same time period the year before initiation of the rapid response team.

Commentary with Implications for Action in Clinical Practice and Future Research. There continues to be a major pressure placed upon hospitals to enhance patient safety and quality of care. Thus, hospitals are intensifying their efforts to determine the most efficacious strategies to decrease adverse events such as cardiac arrest, including the use of rapid response teams. Although this study was not a randomized controlled trial, which is the strongest design for testing cause and effect relationships, the findings indicate that use of a rapid response team could possibly lead to a reduction of cardiac arrests in hospitalized patients. Accumulating evidence has shown that patients show multiple signs of deteriorating status before cardiac arrest occurs, therefore, close monitoring of these signs by nurses at the bedside who can activate a rapid response team seasoned in intervening before cardiac arrest occurs can be lifesaving for patients. Future research is needed to continue to document the positive outcomes of rapid response teams on a variety of patient and staff outcomes.
CONSENSUS ON THE USE OF MEDICAL EMERGENCY TEAMS


Purpose. To create a consensus document regarding the use of medical emergency teams.

Methods. An international conference on medical emergency teams (MET) was held in June of 2005 with experts in hospital safety, hospital medicine, critical care medicine and medical emergency teams. Pre-conference telephone and e-mail conversations were conducted along with an extensive literature review before the 2-day consensus conference. The review of studies conducted by the experts did not include unpublished data or data presented in abstract form only. The participants addressed four key questions: (1) What is an MET response? (2) Is there an MET syndrome? (3) What are barriers to METs? and (4) How should outcomes be measured? The expert panelists for the consensus conference were faculty members of the First International Conference on Medical Emergency Team

Responses. Preventing Patient Crisis, Protecting Patients in Crisis. The consensus panel of experts met following the international conference. At the consensus conference, the experts were divided into four groups to address the four key questions. Each group generated a response to their question and presented their progress to the entire group in order to receive additional input. In the weeks following the conference, each of the four working groups generated a report. These reports were distributed to all panelists for final comments.

Results. The consensus panel defined an in-hospital medical emergency as a mismatch between patient needs and resources available (e.g., when a hospitalized patient’s condition deteriorates and resources are not available or being implemented). An MET patient was defined as a person who has deteriorated to the point where he or she is at risk for serious harm and requires an urgent clinical response. Barriers to implementing Rapid Response Systems (RRSs) were identified, including such factors such as culture and professional role norms, structure and tendency to work in professional silos, resource constraints, and knowledge of evidence regarding medical emergency teams, and training/education. The panel achieved consensus that the new term Rapid Response System should be used to describe a whole system for implementing a safety net when patients become critically ill and have a mismatch between needs and resources. These RRs should consist of four components: (1) a crisis detection and response triggering mechanism, (2) a predetermined rapid response team, (3) a governance/administrative structure to supply and organize resources, and (4) a mechanism to evaluate crisis antecedents and promote hospital process improvement to prevent future events. It was recommended that data should be collected for a period of 3 months before implementation of RRSs. Implementation should be conducted for at least a year before the measurement of outcomes, including the frequency of adverse events, the quantity and types of resources used, and staff satisfaction. The experts concluded that there is strong evidence to support a recommendation that hospitals implement and assess RRSs although they reported that there is insufficient evidence for accrediting organizations as well as governmental and regulatory agencies to require hospitals to implement RRSs. Positive outcomes of RRSs include reduced deaths, cardiac arrests, hospital length of stay, ICU length of stay and cost. It also was recommended that more research is needed to determine the extent of positive outcomes with RRSs and the settings that benefit most from these systems.

Commentary with Implications for Action in Clinical Practice, Administrators, and Future Research. The consensus meeting was thoughtfully planned and consisted of experts from multiple areas, which diversified the perspectives of the panel. The process was carefully planned and implemented, resulting in consensus recommendations for hospitals surrounding whether and how RRSs should be utilized. Based on multiple studies that have documented the positive outcomes of rapid response teams or medical emergency teams, it is recommended that hospital administrators strongly consider the implementation of RRSs. Measurement of outcomes once RRSs are implemented is critical to generating additional evidence on the benefits of RRSs for a variety of hospital systems. Future research should assess moderators of the effects of RRSs on outcomes (i.e., under what types of systems and conditions that RRSs work best).

Level of Evidence: I, since a thorough evidence review was conducted as part of the consensus panel’s work.

MEDICAL EMERGENCY TEAM USE AMONG MEDICAL UNITS

Purpose. The purpose of this study was to determine the frequency and pattern of medical emergency team (MET) activation among medical cardiology patient care units.

Design. A retrospective descriptive study.

Sample/Setting. Three medical cardiology units within a 700-bed academic medical center, which houses 54 patient beds. The 54 beds comprised 12% of the total medical surgical beds in the hospital.

Methods. Calls for a condition C team (i.e., an MET team) were reviewed in the log data base, which included event time, date and location. The log was assessed to determine the frequency and timing of the events that occurred in the cardiology service, and the pattern was compared to the total events for a 6-month period of time.

Findings. There were 886 events from the medical surgical nursing units of which 100, or 11%, of the activations were to the medical cardiology patient units. Fifty-one percent of the events happened on the day shift, with 21% occurring during 8 and 10 a.m., and 49% occurred on the night shift.

Commentary with Implications for Action in Clinical Practice and Future Research. This descriptive investigation supports prior studies that have shown the majority of activations of METs occur during the day hours. An interesting question that is generated by this finding is whether patients are actually first deteriorating during these hours or it is more likely to be discovered since this is the time when routine care activities are taking place (during early morning hours) and patient assessments are occurring. In the future, it will be important to conduct further research to determine whether hourly rounding is associated with more activations and other outcomes besides falls, call light uses and patient satisfaction.

Level of Evidence: VI

References

