

Rapid Response Teams

GOAL: PREVENT DEATHS IN PATIENTS WHO ARE PROGRESSIVELY FAILING OUTSIDE THE ICU BY IMPLEMENTING RAPID RESPONSE TEAMS.

BACKGROUND

- Adverse cardiac events are a common and serious complication among hospitalized patients. Cardiac arrest or shock occurs in 0.6% of medical patients and 0.5% of surgical patients.
 - Needleman J, Buerhaus P, Mattke S, et al. Nurse-staffing levels and the quality of care in hospitals. *N Engl J Med.* 2002;346:1715-1722.
- Despite advances in treatment for cardiac arrest, only 17% of patients who experience a cardiac arrest survive to discharge. Survival rates are higher when arrests occur in monitored units than in non-monitored units.
 - Peberdy MA, Kaye W, Ornato JP, et al. Cardiopulmonary resuscitation of adults in the hospital: a report of 14,270 cardiac arrests from the National Registry of Cardiopulmonary Resuscitation. *Resuscitation.* 2003;58:297-308.
 - Sandroni C, Ferro G, Santangelo S, et al. In-hospital cardiac arrest: survival depends mainly on the emergency response. *Resuscitation.* 2004;62:291-297.
- Most patients who have a cardiac arrest in the hospital have identifiable signs of deterioration prior to their arrest.
 - Schein RM, Hazday N, Pena M, et al. Clinical antecedents to in-hospital cardiopulmonary arrest. *Chest.* 1990;98:1388-1392.

INTERVENTION – RAPID RESPONSE TEAMS (also known as Medical Emergency Teams)

- A Rapid Response Team (RRT) may be summoned at any time by anyone in the hospital to assist in the care of a patient who appears acutely ill, before the patient has a cardiac arrest or other adverse event.
- The RRT has several models, ranging from an ICU MD/RN team to an ICU RN/Respiratory Therapist. The physician may be a senior resident, fellow, or staff physician.
- Criteria for calling the RRT may include the following:
 - Acute change in vital signs (pulse, blood pressure, respiratory rate)
 - Acute drop in blood oxygen level (O₂ saturation)
 - Decreased urine output
 - Altered mental function
 - Any staff member concern about the patient
 - Hillman K, Parr M, Flabouris A, Bishop G, Stewart A. Redefining in-hospital resuscitation: the concept of the medical emergency team. *Resuscitation.* 2001;48:105-110.
- Sites that have implemented RRTs have reported a reduction in cardiac arrests and deaths, as well as a reduction in ICU and hospital bed-days among survivors of cardiac arrest.
 - Buist MD, Moore GE, Bernard SA, Waxman BP, Anderson JN, Nguyen TV. Effects of a medical emergency team on reduction of incidence of and mortality from unexpected cardiac arrests in hospital: preliminary study. *BMJ.* 2002;324:387-390.
 - Bellomo R, Goldsmith D, Uchino S, et al. A prospective before-and-after trial of a medical emergency team. *MJA.* 2003;179:283-287.
- Among surgical patients, the deployment of RRTs has been associated with a reduction in the incidence of respiratory failure, stroke, severe sepsis, and acute renal failure, as well as a reduction in the number of ICU admissions, length of stay, and postoperative mortality.
 - Bellomo R, Goldsmith D, Uchino S, et al. Prospective controlled trial of effect of medical emergency team on postoperative morbidity and mortality rates. *Crit Care Med.* 2004;32:916-921.

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SUCCESS STORIES

- Austin Hospital in Heidelberg, Victoria, Australia, achieved a 65% drop in cardiac arrests and a 37% reduction in mortality after introducing RRTs.
www.ihl.org/IHI/Topics/Improvement/MoveYourDot/ImprovementStories
- Baptist Memorial Hospital, Memphis, TN, has experienced a 28% drop in codes. In addition, a higher percentage of all codes now occur in the ICU. Floor nurses report that they are now more confident in their ability “to rescue patients before they get into serious trouble.”
www.ihl.org/IHI/Topics/Improvement/MoveYourDot/ImprovementStories

RESOURCES

- Move Your Dot: Measuring, Evaluating, and Reducing Hospital Mortality Rates.
- IHI Innovation Series white paper. Boston: Institute for Healthcare Improvement, 2003.
www.ihl.org/IHI/Topics/Improvement/MoveYourDot/Literature

We welcome your comments, suggestions for revision, and enhancements to this document. Please send suggestions, with contact information when possible, to 100k@IHI.org.