

RAPID RESPONSE TEAMS IN HOSPITALS



Khalil Rizk, MPH, MHA, CPHQ
Accreditation & Risk Manager
American University of Beirut Medical Center

approach by introducing the RRTs as a new requirement in 2008 as part of the National Patient Safety Goals:

“Goal 16—Improve recognition and response to changes in a patient’s condition—Requirement 16a: The organization selects a suitable method that enables health care staff members to directly request additional assistance from a specially trained individual(s) when the patient’s condition appears to be worsening”. (3)

The RRT is a method of bringing ICU-level care to the bedside of clinically deteriorating and critical patients in the form of a multidisciplinary team. Acute care unit staff is trained to recognize clinical deterioration using a set of vital criteria. When a patient develops one or more of the criteria, or the nurse feels concerned about the patient’s worsening condition, a team consisting of ICU physician(s), nurse(s), and/or respiratory therapist(s) responds to the patient at the bedside. The team is responsible for stabilizing the patient’s condition and integrating his/her care with the primary team. (4)



INTRODUCTION & DEFINITION

The implementation of Rapid Response Teams (RRTs), also known as Medical Emergency Teams (METs), in hospitals is an approach that attracted increased level of attention in the past few years. In 2004, the Institute for Healthcare Improvement (IHI) launched the 100,000 Lives Campaign which listed six interventions that, if implemented, they would result in saving more than 100,000 persons across the United States. (1) The first of these interventions is:



DEPLOY RAPID RESPONSE TEAMS AT THE FIRST SIGN OF PATIENT DECLINE

According to the IHI, the implementation of the above interventions resulted in saving an impressive number of lives (exceeding 123,000) as of June 2006. Hospitals are currently implementing RRTs as a proven strategy for preventing avoidable deaths of inpatients. (2)

On the other hand, the Joint Commission endorsed this

HOW DOES IT WORK?

In the regular patient care unit set-up, the primary nurse is responsible to assess and monitor the patient’s clinical condition. The primary nurse is expected to recognize any change in the baseline patient’s condition and report it to

the treating team by using the SBAR technique (Situation, Background, Assessment, and Recommendation). Nurses must be aware of signs and symptoms that could lead to cardiopulmonary arrest and initiate an early intervention by the RRT. Physiological changes can be gradual or sudden; they should trigger calling the RRT. (5)

Triggers for Calling the Rapid Response Team	
If the patient exhibits any of the following EARLY WARNING SIGNS, call the Rapid Response Team without delay and call the patient’s primary team physician.	
Staff Concerned/Worried	"THE PATIENT DOES NOT LOOK/ACT RIGHT", gut instinct that patient is beginning a downward spiral even if none of the physiological triggers have yet occurred
Change in Respiratory Rate	The patient’s RESPIRATORY RATE is less than 8 or greater than 30
Change in Oxygenation	PULSE OXIMETER decreases below 90%
Labored Breathing	The patient’s BREATHING BECOMES LABORED
Change in Heart Rate	The patient’s HEART RATE changes to less than 40 bpm or greater than 120 bpm
Change in Blood Pressure	The patient’s SYSTOLIC BLOOD PRESSURE drops below 90 mmHg or rises above 180 mmHg
Hemorrhage	The patient develops uncontrollable BLEEDING from any site
Decrease in Urine Output	URINE output less than 50 cc over 4 hours
Decreased Level of Consciousness	The patient becomes SOMNOLENT, DIFFICULT TO AROUSE, CONFUSED, or OBTUNDED
Onset of Agitation/Delirium	The patient becomes AGITATED OR DELIRIOUS
Seizure	The patient has a SEIZURE
Other Alterations in Consciousness	ANY OTHER CHANGES IN MENTAL STATUS OR CNS STATUS such as a sudden blown pupil, onset of slurred speech, onset of unilateral limb or facial weakness, etc.
Additional Criteria	<ul style="list-style-type: none"> o Chest pain unrelieved by nitroglycerin o Threatened airway o Uncontrolled pain

WHY RRTS?

The attending physicians are quite busy and it is not practical for them to be immediately available to attend to every patient at all times. The decisions therefore fall to other team members who may or may not have the experience

necessary to care for a critically ill patient. For this reason, RRT is considered the most plausible solution where “help is available around the clock”. It is only a phone call away and within minutes the RRT is available at bedside.

Medical literature reveals that on average, the patient’s

baseline condition deteriorates during 6.5 hours before an unexpected critical event or actual cardiac arrest happens thus giving the primary nurse ample time to report the case to the RRT. The positive side of reporting is that 70% of the events leading to deterioration in the patient's condition are preventable if we attend to them in a timely manner. So it is important that hospitals establish the criteria of early warning signs and train the nursing staff to be able to recognize them and initiate the RRT. It has been shown that timely intervention by the RRT may provide better outcomes for general medical-surgical patients. Studies have indicated that RRTs resulted in a 50% reduction in the occurrence of cardiac arrest outside the ICU and reduced post-operative complications requiring transfer to the ICU by 58% thus reducing the post-operative deaths by 37%. RRTs may also decrease the number of unnecessary transfers to a higher level of care by 30% and decrease overall hospital mortality by a mean of 26%. (6)

ORGANIZATION OF RRTS

The intended objectives of RRT are to prevent deaths outside the intensive care unit by attending to the patient as soon as the primary care team recognizes the need for the RRT to intervene.

A current challenge facing hospital administrators is how to manage available resources so as to assign competent groups of intensive care professionals to attend to calls around the clock efficiently and effectively. Increasing acuity levels of patients, rapid admission and discharge cycles, and the chronic shortage of nurses make it difficult to provide "critical-type" of care at the bedside. Failure to recognize changes in a patient's condition in a timely manner and failure to attend to those patients continue to happen in most hospitals.

The RRT is a designated resource group of trained health-care professionals (usually intensive care physicians, nurses, respiratory therapists, etc.) who can be assembled quickly to deliver critical care expertise in response to grave clinical deterioration of a patient located outside a critical care unit. RRT is usually structured in a manner to ensure availability of some of its members in the hospital around the clock (24 hrs a day- 7 days a week).

RRTs may consist of different structured groups: Physician and nurse, intensivist and respiratory therapist, physician assistant alone, critical care nurse and respiratory therapist, or clinical specialist alone. (7) Several organizational different models of RRT programs exist as shown in the following table:

Rapid Response System Models		
Model	Personnel	Duties
Medical Emergency Team	Physicians (critical care or hospitalist) and nurses	<ul style="list-style-type: none"> Respond to emergencies
Critical Care Outreach	Critical care physicians and nurses	<ol style="list-style-type: none"> Respond to emergencies Follow up on patients discharged from ICU Proactively evaluate high-risk ward patients Educate ward staff
Rapid Response Team	Critical care nurse, respiratory therapist, and physician (critical care or hospitalist) backup	<ol style="list-style-type: none"> Respond to emergencies Follow up on patients discharged from ICU Proactively evaluate high-risk ward patients Educate and act as liaison to ward staff

LESSONS LEARNED - ONE HOSPITALS' EXPERIENCE WITH RRTS

One of the original 13 hospitals selected by IHI to pilot-test the initiative called "Transforming Care at the Bedside" in 2004 was a 128-bed non-teaching acute care community hospital who began implementation of an RRT by organizing an interdisciplinary rapid response steering team. This project was approved by the hospital's performance improvement committee. Steering team members included 6 nursing leaders, 4 ICU staff nurses, 3 respiratory therapists, and the chief nursing officer. Weekly meetings were planned with the goal of launching the new RRT within 5 months. The project's steering team formulated action plans to accomplish the following:

- Review current evidence-based practice
- Establish an RRT structure
- Evaluate the skill level of the responders
- Establish criteria for when to call the RRT
- Create documentation and data collection tools
- Measure results
- Provide education throughout the institution
- Deploy program pagers
- Develop feedback mechanisms
- Provide ongoing education for responders

The RRT consisted of 1 critical care nurse and 1 respiratory therapist who were assigned to in-house call 24 hours a day, 7 days a week. Pagers were programmed with an easy-to-remember number (1111) so that staff members could readily remember it. Criteria were developed to determine when the staff should page the RRT. The ICU nurse and respiratory therapist would be expected to arrive at the patient's bedside for a consultation within 3-5 minutes of being paged. Hospital staff and physicians were taught to use an effective communication technique called SBAR (Situation, Background, Assessment, and Recommendations) to promote efficient reporting skills. By using a uniform communication technique, staff members were able to report their findings directly and in a concise manner. (8)

The project's steering team developed a set of criteria for determining when an RRT should be called in to consult on a medical-surgical patient. These criteria, known as activation criteria, were simple and unrestricted; they included concern about the patient among staff members and/

or changes in the patient's heart rate, heart rhythm, blood pressure, respiratory status, or mental status. Intense education of primary nursing staff was conducted. The project's steering team collaborated with the physicians to develop a protocol that would be initiated once the RRT was activated. Diagnostic tests were incorporated into a protocol so that the RRT could initiate 5 interventions on their own before speaking with the primary physician. Types of interventions included arterial blood gas analysis, chest radiography, electrocardiography, oxygen per protocol, and/or tests to check blood glucose levels. The results from these interventions were then communicated to the physician to provide a more detailed assessment of the patient's current status.



Key indicators were tracked in a database to measure patients' outcomes before and after implementation of the RRT. This nursing documentation became a permanent part of the patient's medical record. Information collected included

patients' demographics, location, reason(s) for the call, call start time, call end time, and narrative information for the primary physician. Attending physicians were always notified by telephone of an RRT call involving their patients. (9)

COSTS AND BENEFITS OF THE RRT

It is true that hospitals will incur additional expenses when they allocate professionals to serve on the RRT on a continuous basis. These costs include special remunerations of the RRT members and cost of staff education. On the other hand, a financial benefit accrues by avoiding unnecessary transfers to the ICU, cardiopulmonary arrests, and complications that cause longer stays in the hospital. The RRT program helps to keep patients on track to help achieve a timely discharge. There are other non-measurable benefits to the hospital at large in terms of overall decline in hospital mortality and morbidity, and to the individual patients, in terms of avoidance of the pain and suffering associated with cardiac arrests and intensive care.

The overall outcomes of the RRT program should be evaluated over a relatively long period of time when many patients would have benefited from the program rather than looking at an individual patient's experience. Reports on effectiveness of RRTs reflect significant improvements in clinical outcomes especially in tertiary care hospitals where a large portion of the patients are considered acute care patients. A focused study compared 24,193 patients hospitalized before the start of RRT with 24,978 patients hospitalized after the RRT was put in place. The team was activated 376 times in a period of 20 months. The findings of this study indicate a decrease in cardiac arrests from 11.2 to 7.5 cardiac arrests per 1,000 patients. On the other hand, the number of deaths after a cardiac arrest did not change after the RRT program was established. (10)

The hospital-wide operational and financial benefits of implementation of an RRT greatly outweigh the challenges of starting up an RRT. Benefits include improved safety of patients, shorter hospital stays, fewer code blues, fewer transfers to the ICU, increased awareness and identification by nurses of signs and symptoms leading to deterioration in a patient's condition, decreased mortality and morbidity, increased satisfaction of physicians with nurses, increased satisfaction of patients with their care, and increased job satisfaction among nurses. Developing a structured RRT for patients' safety empowers all staff to operate at a higher competence level. Most nurses have an intrinsic desire to function at a higher level.

CONCLUSION

After several years of implementing the RRT in many hospitals across the world, it is fair to say that they do save lives. Dr. Don Berwick, president and chief executive officer of IHI, stated, "The names of the patients whose lives we save can never be known. Our contribution will be what did not happen to them."

If implemented properly, RRTs will provide a critical-care type and timely medical intervention to the inpatients in regular patient care units thus avoiding cardio-pulmonary arrest. The effectiveness of such teams is enhanced when proper criteria are established and the nursing and other clinical staff is trained to follow these criteria to alert the RRT for immediate attendance. It is also important that the RRT remain in direct contact with the primary attending physician of the patient to keep him/her informed of all the

clinical developments.

It is hoped that this article on the RRTs would prompt the medical and hospital authorities in Lebanon to give this approach a serious consideration for possible implementation.

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