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Rapid Response Program at UCSD

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UCSD Nurse of the Year 2008

What do you do when you walk into your patient's room and find that he has become dyspneic or suddenly obtunded or that his blood pressure has bottomed out. Sure, you put a page out to the doctor, but it might be a while before she calls back much less comes to your aid. And even if she does call from, say, the clinic or the OR, what do you tell her? Do you have all the information that you need to figure out what is going on? What if things start getting worse, but it's too early to call a code.... yet. Or even more anxiety provoking, what if you have a growing certainty that something is going wrong, but you just can't put your finger on what it is? What do you do?

Well, here at UCSD, the answer is simple. You call a rapid response. In the year-and-a-half since the rapid response team has existed at the medical center, I and the other team members have jumped in to support numerous nurses who have found themselves in just such a predicament.

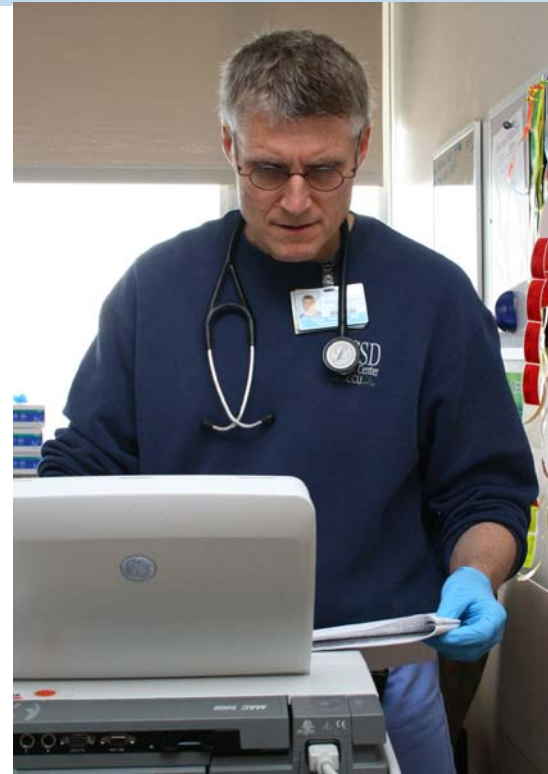
How does it work? Let me use the example of a recent activation as an illustration. This particular patient was on the telemetry unit and was going into respiratory failure; the trigger for a huge percentage of our calls. It was clear that she was in serious trouble and that, if no one intervened quickly, she was going to be intubated.

The call came a little after five p.m. With the shift change approaching, I was making the rounds on my unit, helping the nurses get caught up. As usual, it had been a busy day on the CCU. I was the code nurse; my co-worker Terri was in charge.

When the pager went off, I stopped what I was doing and headed for the double doors. I walked briskly, but didn't break into a run as I would have had a code blue been called. The idea behind a rapid response is that there is a situation that requires urgent

attention, but that there is enough time to intercede in a controlled, efficient manner. A successful rapid response is one that is called well before it's time to punch the panic button. This activation had come from the telemetry unit which was just down the hall, so it only took a minute to get there anyway. Since it was so close, Terri went with me.

We entered room 1017 to find a 54-year-old woman, (I'll call her Linda), who was comatose. In fact, the response had been called on the basis of her altered mental status. The telemetry nurses were already getting vital signs when we arrived and, as I was glad to see, had elevated her head. This was important from both a neurological and a respiratory standpoint. The patient's primary nurse gave us a quick report. Here was a woman, recovering from back surgery, who had been moving around normally and speaking coherently just a couple of hours earlier. Now, she was unresponsive to even supraorbital stimulation. I completed my neuro assessment as the respiratory therapist set up an ambu-bag in order to assist with her breathing if required. Although her oxygen saturation was 98% using a non-rebreather mask, her



Peter Hall started as an English major, but after receiving his BA decided to pursue a degree in Nursing. He obtained an AANS and became a psychiatric nurse and then an ICU nurse, before getting a Masters in Public Administration. He worked in administration for a number of years, coming to San Diego as Director of Case Management for a South Bay psychiatric hospital. But he couldn't forget that year in ICU nursing. He finally returned to the career he loves and has been in ICU and CCU for the last 12 years. He is an integral part of the staff in CCU at UCSD, and has been influential in bringing about a number of innovations, such as the Rapid Response Team.





effects of any narcotics in her system. If that didn't work, we'd call a stroke code and prepare for intubation. Moments later, the nalaxone was at the bedside and ready to be given, but suddenly, we were faced with a new problem: Linda's only IV was infiltrated and one look at her

areas, their downward spiral can be halted and, potentially, reversed.

Anybody can call a rapid response. Among the criteria are a number of objectively defined triggers, but there is also an allowance for the intuitive sense that 'something just isn't right'. This encourages nurses and other clinicians to not hesitate before calling for help. They use the same number that they would use to report a fire, a cardiac arrest or any other emergency. The operator then sends out a page to the code nurse on the CCU, the cardiac/medical ICU.

A CCU code nurse is designated for each shift from a team of highly trained staff nurses. These are experienced critical care RNs who benefit from an ongoing process of skills development. Although they have each been ACLS certified at some point, they are now given the Advanced Resuscitation Training (ART) which was created by Dr. Davis and which employs the most current concepts in resuscitation science. For nurses in a hospital setting, ART focuses concisely on the skills that are relevant to their role in a resuscitation effort. While on the CCU, the code nurse functions as a resource, assisting with high acuity patients, helping novice nurses learn new skills and so on. At any time though, she or he could be called to a code blue (an arrest), a rapid response or to help out with an ST elevation myocardial infarction patient who is coming into the emergency room.

Rapid response pages do not set off a stampede. Instead, the code nurse proceeds quickly to the patient's location, makes an assessment of the situation and determines what other resources may be needed. The supervising respiratory therapist also responds to the call. This limited use of personnel both promotes efficiency and prevents the kind of mass reaction that could make someone think twice about calling for assistance. Armed with the emergency standing orders, the code nurse is well equipped to intervene. For instance, he or she could give D50 to a hypoglycemic patient or

respiratory rate was only ten breaths per minute and her air movement sounded partially obstructed. She was not protecting her airway and, from the look of things, her ability to do so was only going to decline. While the unit secretary paged the primary intern, we checked a blood glucose level, which was normal, drew an arterial blood gas, a chemistry panel and a hemoglobin/hematocrit. Terri started doing an EKG.

Linda's vital signs were not an issue fortunately, but her mental status was as puzzling as it was alarming. She was not hooked up to a patient controlled analgesia pump (a frequent culprit in situations like this), but she had received Oxycontin seven hours previously. "Could that be causing symptoms of an overdose this far out, even if it is a time-released medication?" I asked myself. "Wouldn't the problem have manifested itself earlier?" Her cheek was hanging to one side of her face and a couple of people voiced the concern that she was exhibiting a facial droop, a sign of a stroke. I wasn't so sure. One thing was certain, though, time was not on our side.

Terri and I quickly formulated a plan. We would invoke our hospital's emergency standing orders and give Linda a 1 mg of nalaxone to reverse the

arms told us that starting another one was going to be a challenge.

As one of the telemetry nurses searched for a new IV site, it occurred to me that nalaxone could be given intramuscularly. Luckily, the primary physician arrived at that point and authorized this departure from the standing orders. We gave the drug via the IM route. Nothing happened. However, after two attempts, the tele nurse was finally successful in starting an IV. Now we gave a second dose intravenously and then watched for the effect. Within seconds, Linda began to stir, still stuporous, but with all extremities moving. Then her eyes popped open and she looked at us. "What's going on here?" she said.

If you were to narrow the objectives of the UCSD rapid response initiative down to one, it would be to prevent resuscitation codes. According to the "Advanced Resuscitation Training Manual," the source book for responders written by Dan Davis, MD, director of UCSD's Center for Resuscitative Science and the chief architect of the program, patients who end up in cardiac or pulmonary arrest typically start showing signs of a problem hours before they crash. By bringing ICU level resources to at risk patients in non-critical care

RAPID RESPONSE: CALL 6111

Acute Criteria for Calling:

Intuitive sense that something is wrong

Acute change in mental status

ABG requested for respiratory concern

New onset of agitation or restlessness

Acute change in temperature <35 or > 39.5

Sudden blood loss

New onset of chest pain

SBP < 90mmHg or > 170 mmHg

HR < 55 or > 120 beats per minute

Increased effort of breathing

RR < 12 or > 32 breaths per minute

Stridor or noisy airway

start external pacing on someone in a third degree heart block. Frequently, the respiratory therapist will set a patient up with a bipap machine. In addition to these initial steps, the nurse gets the ball rolling by issuing STAT orders for such things as lab work, chest x-rays and EKGs. By the time a physician arrives, the diagnostic work-up has already been started.

In no way could it be said, however, that an activation is anything less than a team effort. To begin with, the primary nurse usually makes the call on the basis of some astute observations, plays a key role in guiding the code nurse's assessment and then assists with any interventions that are deemed necessary. The importance of the primary nurse's continued involvement cannot be overstated. Of course, if the patient's treating physicians have not been notified by the time the code nurse arrives, they generally will be immediately thereafter. Much of the time, they are able to resolve the situation. Often, the patient's deterioration has occurred relatively swiftly or was unanticipated and the treating MD is relieved to find that actions have already been taken by the time they can get to the bed side. Occasionally, a physician who is reluctant to address a problem may be prompted to act by the initiation of a rapid response. It is valid for a nurse to make the call if she or he feels that

a patient is in jeopardy for any reason. There are also times when a change in condition can take a patient beyond the purview of the primary physician's expertise or clinical jurisdiction. In this event, the code nurse can request back-up support from the critical care medicine resident on call. Maybe a second opinion is all that is needed or, maybe, the patient requires an ICU bed and the critical care resident actually assumes the person's care. Whatever a rapid response entails, the house supervisor is obviously involved from the beginning as well. He or she gets the page and goes to the patient's

call of this sort that I consider to be one of the most smoothly functioning rapid responses that I've been a part of. It came from a medical/surgical floor at 8:30 am. When I got to the room I found that the nurse practitioner, Rhonda, was already in attendance. The patient was a 61-year-old Asian man (I'll call him Sam) who had undergone a transarterial chemoembolization for a liver tumor the previous day. He had done well afterwards, was eating and getting out of bed, but early in the morning of this day, he had started to complain of increasing abdominal pain. Other than the pain, there was



location in order to determine what needs to be done from a systems perspective. This could mean making arrangements for an in-house transfer or calling in additional resources.

In a sense, when a rapid response is activated, all necessary hospital services converge upon the needs of that patient. There are instances in which the principal benefit of calling for an activation is that it gets all the gears turning in the same direction at the same time. There was a particular

no outward sign that anything was wrong, but the primary nurse, Myrna, felt uncomfortable with the rapid change in Sam's pain level and with his increasing anxiety. She called Rhonda and she called a rapid response. By the time I arrived Sam's face was ashen. He was responsive but extremely weak. His abdomen, which was distended due to ascites at baseline, appeared to be growing bigger by the minute. His

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systolic blood pressure was in the sixties. It turned out that his hematocrit had dropped from 33.6 to 22.7 in the span of 90 minutes. Although Myrna's call was appropriate, Sam was decompensating so quickly that, when I got there, his condition would have justified a code blue call. Since help came so fast though, we didn't have to take that step.

No time was wasted. I immediately called the critical care resident. When he called back, Rhonda filled him in on the situation while I spoke with the house supervisor. Luckily, there was an empty bed on the CCU. The resident



showed up on the unit minutes later, took one look at Sam and said "Let's go". Sam was already packed up for the transfer, so we just started wheeling him up toward the elevator. Up on the CCU, the medicine team was rounding. They stopped abruptly and turned their attention to their new patient. Within 20 minutes, Sam was already packed up for the transfer, so we just started wheeling him up toward the elevator. Up on the CCU, the medicine team was rounding. They stopped abruptly and turned their attention to their new patient. Within 20 minutes, Sam was intubated, a central line had been placed, blood was

infusing and a vasopressor had been started. While this was all happening, the surgical team came to see him and, less than two hours from the time of the rapid response call, Sam was in the OR.

It's easy to feel good about individual successes like this one, but the big question is whether or not the development of a rapid response team has had its intended effect overall. Has it reduced the number of cardiopulmonary arrests seen throughout the medical center? Since the Institute for Healthcare Improvement first endorsed the concept of using these teams in 2004, they have been implemented at hospitals across the country. There is no uniformity in the way that they look or function, however, so the outcome statistics are bound to be variable. Here at UCSD, we have put together a model that appears to be both working well and improving over time. The numbers tell the story. According to the data that Dr. Davis collects and analyzes on a quarterly basis, this fiscal year, so far, has seen a 36% reduction in inpatient code blue calls when compared to the last. Over the same period of time, there has been a 41% increase in the number of rapid responses that are called. The analysis also shows that patients have a much better chance of surviving until discharge if their nurse calls for a rapid response instead of waiting until a code blue is the only option. Additionally, even those patients who end up being "coded" have a better chance of survival now that the rapid response program is in full gear. Compared with baseline numbers from fiscal year 06/07, Dr. Davis shows that there has been a 2.7 fold improvement in the percentage of non-ICU arrest patients that survive until discharge and a 67% improvement in the percentage of ICU "code" patients who make it out of the hospital as well. It would seem that, even for those rapid response patients who end up in arrest, early intervention improves their



chances. From a resource utilization perspective, there is good news too. An average sixteen minute decrease in the time spent on an average response shows that we are learning to be more efficient as our activity increases.

Of course, the facts and figures only tell part of the story. For the nursing staff, much of the pay-off from the rapid response initiative comes in the form of empowerment. It's empowering for nurses to make a judgment call that bring the full strength of the medical center to bear on the urgent needs of their patients. It's empowering, as well, for nurses to be able to step up to new challenges and to demonstrate how expert they really are. And, above all, it's empowering for nurses to share their knowledge. Whenever a rapid response is called, it is a learning opportunity for everyone involved. The team takes this even further, when, at the center-wide nursing grand rounds, they present studies of real rapid response cases. These experiences and the insights gained from them are not just presented by the responding nurse, but by the nurse who initiated the call as well. The collegiality that you see at one of these sessions, the pride that nurses take in their practice: that's a success story.