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CASE STUDY **SUTTER ROSEVILLE MEDICAL CENTER**

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How Closing the Communications Gap Led to Improved ED Throughput and Patient Outcomes

Problem

Sutter Roseville Medical Center ED, like over 50% of EDs, faces overcapacity issues leading to long wait times, patient diversion, and patients leaving without being seen. Other than a few, high-acuity cases, all inbound ED patients were managed similarly.

Solution

The Sutter Roseville Medical Center ED team implemented new response team processes and communication tools for "very sick" patients who are not the highest acuity. The Code Critical patients are now managed in a streamlined process providing better patient care and improved Emergency Department throughput.

Improving clinical communication and collaboration among physicians, nurses and emergency response teams is critical to faster clinical response times and improved patient care and outcomes. Yet, it's also one of the most challenging aspects of providing healthcare. The Joint Commission reports that 37% of all sentinel events are caused by a communication or assessment issue. Nowhere is this more critical than in a hospital Emergency Department.

A recent Everbridge survey[1] of 158 emergency department leaders, reports that Emergency Departments have more communication handoffs than the rest of the hospital and found communication errors in 10% to 40% of all handoffs between clinicians. These errors can significantly impact patient care, either causing mistakes in care delivery or delaying the delivery of care. One of the toughest challenges for Emergency Departments is communication/response from physicians/specialists. This can particularly impact the ability of response teams (stroke, STEMI, sepsis, trauma) to respond to a high-acuity patient situation.

Sutter Roseville Medical Center

Sutter Roseville Medical Center, a 328-bed hospital with an Emergency Department managing over 80,000 visits per year is often near or overcapacity—about 250 cases per day flow through the ED. Quick and efficient communication between clinicians and staff across the hospital campus is critical for patient care and patient throughput and managing the overcapacity challenge.

One goal of Sutter Roseville Medical Center's Emergency Department included improving response times for high-acuity heart attacks (STEMI). Previously, when a STEMI patient arrived at the ED, the unit secretary would be notified to activate a STEMI code and would contact the switchboard operator to activate the code. Upon notification, the operator would send a Code 444 overhead page across the hospital and page the Cath lab team. But before placing the page to the Cath lab team, it was necessary for the operator to look up individual team member page numbers—for a team consisting of a surgeon, 2-3 nurses, a nurse tech, radiology, and the lab. Upon

1 http://go.everbridge.com/rs/004-QSK-624/images/ED%20Survey%20Report_02.13.17_FINAL.PDF

Since implementation, we've **improved ED throughput by 19%** with a **1.5-hour reduction in the length of stay** from arrival to ED departure. This has translated into a **62% improvement in door-to-doctor time**. We continue to measure patient outcomes — however team members have reported high satisfaction due to reduced alarm fatigue and the reduced need of pagers."

— Andrea Perry
Sutter Roseville Medical Center

confirmation of the page, the surgeon and nurses had 30 minutes to arrive at the hospital. Then, once the patient was in-house and being treated, the team began coordinating with physicians to ensure the right orders and results were communicated across the various tech teams.

Recognizing the delays inherent in this process, the ED team decided to move to an automated system for STEMI. Today, the unit secretary activates the Cath Lab team and tech teams with a single click of a button. With the implementation of this new system, Sutter Roseville Medical Center improved team response time and satisfaction. In addition to activating the Cath Lab team, the new system enables notification of the supporting team including the pharmacy, nursing supervisor, chaplain, social worker, vascular department, and bedside registration, for a more stream-lined, efficient approach.

Adding Code Critical

Based on their success with improving their response and collaboration for STEMI patients, the ED team at Sutter Roseville Medical Center implemented an even more enhanced process for "very sick" patients. To better respond to the needs of these patients, while improving patient flow within the ED, the Medical Center implemented a "Code Critical" and created a targeted response team. Code Critical includes patients presenting with cardiac arrest, altered mental status, severe respiratory distress, or shock among others.

The targeted team dedicated to addressing the sickest patients arriving in the ED, includes an ED physician, 1-3 ED nurses, an ED Tech, respiratory therapy, and the Lab. Pharmacy, radiology, social services, chaplain, the nursing supervisor, and the Rapid Response Nurse are also notified that their services may be needed. Once the patient is identified, he/she is moved to the "very" sick portion of the ED and both teams are activated with a single click.

Code Critical criteria includes but is not limited to:

- Cardiac arrest/ post arrest ROSC
- Acutely altered mental status/ GCS <13 or drop >2
- Unstable vital signs
- Shock presentation
- Systolic blood pressure <80, Mean Arterial Pressure <65, Heart rate <50 or >130 (adult parameters)
- Active profound bleeding, signs of poor perfusion (i.e. altered mental status, delayed capillary refill, weak pulses.
- Unprotected airway
- Severe respiratory distress/impending arrest
- Bradypnea or Tachypnea (age dependent)
- CPAP en route
- Intubated en route
- Oxygen saturation <90% with high flow oxygen
- Severe accessory muscle use/ increased work of breathing
- Drowning/near drowning
- Symptomatic arrhythmia (i.e. supraventricular + tachycardia, atrial fibrillation, bradycardia)
- Severe allergic reaction
- Active seizure

> We continue to measure patient outcomes from the Code Clinical protocol, but the short-term team impact has been great. Team members reported back high satisfaction due to reduced alarm fatigue and the reduced need of pagers."
>
> — Andrea Perry
> Sutter Roseville Medical Center

Engaging Everyone in the New Process

The number one challenge was ensuring everyone understood how the new process would work. First, the ED team engaged the department managers and directors to build out new workflows/standards of care and converted those into policy. In parallel to that process, they began implementing the new supporting technology. The clinical teams were very receptive, partially because they found the paging system very unreliable. Also, given that the STEMI teams were already successfully utilizing the new process, their positive feedback helped reinforce confidence in the system among the new clinical teams. The team also conducted a test run with secretaries and techs to work out any workflow glitches.

Challenges Encountered Along the Way?

From a process perspective, upper management was very interested in the new process and wanted the Medical Center to take a Lean approach to launching the process. The team worked with upper management to set expectations and ensure they had the time for a successful launch of the process.

On the technical front, the team ran into some minor glitches including outdated phone numbers for physicians, which were quickly corrected.

What Has the Impact of the New Process Been?

Since implementation, Code Critical has been activated an average of 46 times per month. Average door-to-doctor time for Code Critical activations is 7 minutes (the average for all patients is 30 minutes). The program has resulted in:

+ 19% improvement in ED throughput
+ 1.5-hour reduction in the length of stay from arrival to ED departure.
+ 62% reduction in median door to Medical Screening Exam
+ 45% reduction in lab turnaround time
+ 46% reduction in diagnostic imaging turnaround time

In addition, clinician satisfaction has been high with physicians asking why Code Critical wasn't called when sick patients present.

While Sutter Roseville Medical Center is still evaluating this program, they have already begun to consider expanding the program to other teams including Trauma and even managing high census response.

For more information on how Everbridge CareConverge helps drive faster clinical response times and more timely patient care, visit www.everbridge.com/product/careconverge.

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