A Day at CMS

by Thomas Beatty, MD

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My first experience at the Center for Medical Simulation (CMS)[1] was in 2004 with a team of colleagues (physicians, nurse midwives, and nurses) from Newton-Wellesley Hospital (NWH). We were a veteran group, confident in our ability to recognize and manage obstetric emergencies and skeptical that laboratory simulation would provide a realistic setting that could challenge us and teach us something new.

A didactic session reviewed crew resource management (CRM) principals such as situational awareness, assertion, and closed loop communication. The concepts were familiar, but not ones we had formally incorporated into obstetric care. During the session, our group was called urgently into a delivery room to assist in an ongoing obstetric emergency. The other participants watched events unfold through a two-way window. The simulation was realistic, with physiologic monitors producing realistic (and worrying) data. I quickly forgot that I was in a simulation lab and responded as I had been trained to do so many times before.

Later, reviewing the video and listening to feedback from observers was a humbling experience. Though I knew what obstetric/surgical decisions to make, my communication skills often failed to get the desired results. I issued instructions into the air, without directing them to a specific person; I made assumptions regarding the actions of others without confirming them; and I failed to communicate exactly which task I was performing. Our team members each possessed necessary knowledge and skills individually, but our ability to handle the crisis was hampered by our lack of effective teamwork.

Our team improved as the day progressed, as we observed other responders and practiced our own teamwork again. The intensity of the simulation experience taught me the value of CRM principals and teamwork training in a manner that classroom learning cannot. The experiential learning at CMS gave me the opportunity to participate and critique my own behaviors in a crisis, observe the behaviors of others in the same simulated event, and strategize with my hospital team—discussing how we would implement the team training concepts we learned back on our "real" Labor and Delivery unit.

At NWH, we have implemented structured communication (SBAR[2]), briefings and debriefings, closed loop communication, assertion, drills, and other elements of team training. And, we practice them with various obstetrics drills. Over time, all of our Maternal/Child Health staff have become versed in the terminology of patient safety CRM.

The Refresher Course

Prior to my second visit to CMS, in 2007, I had imagined all possible obstetric crises that might be simulated and felt prepared to ace the course. I was concerned that the second time around might not be as valuable a learning experience. I was attending alone, so I would be inserted into a "team" on the spot. The second experience was more intense than my first since I had to quickly establish relationships with strangers and effectively communicate. I may have learned more from this second time.

Observing teams from other hospitals and working with new people forced me to rely on principles and not past experience. Certainly, by the end of the day we were no longer strangers but a team, working effectively together. This second CMS experience re-imprinted principles for me that I continue to carry with me. Obstetric emergencies occur with regularity and require a defined set of clinical skills we can and do master. But our ability to effectively manage these emergencies requires more than the skill of individual providers—this is where the simulation experience was most valuable to me. The intense experience at CMS imprinted concepts along with the value of effective communication and teamwork, practices I employ daily as, for example, I use and request **SBAR** communication. I hold **briefings** before procedures and **debrief** after the event (although to be honest, we don't always debrief the uneventful procedures, but always debrief the eventful ones). Just today, a nurse **asserted** her concern about an aspect of care for one of my patients; we met, along with other team members, until all were comfortable with a plan we developed. **Closed loop communication** has become a requirement with verbal orders and we have extended it to emergencies.

My first simulation experience transformed the way I viewed emergency care in obstetrics. I took the knowledge back home, but could not have utilized it in a vacuum. Fortunately, a critical number of other hospital members obtained the same experience. This along with team training and regular drills allows me to utilize the concepts I learned on a regular basis. My second experience served to advance my understanding of CRM principles, reinforce the concepts in a way that only intense experiential learning can do, and to realize that daily use of team training/CRM principles is the best way to prepare to use them effectively in an emergency.

References

1 Center for Medical Simulation www.harvardmedsim.org/cms

2 SBAR (situation, background, assessment, recommendation)

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Following the coaching session and the conversation, we typically spend about 30 minutes debriefing the event. The purpose here is not to criticize or even to focus on how the interaction could have been improved, but instead to respect what we have just observed as simply one of the many ways that these conversations might actually happen. We reflect on the insights we have gained and on what they might teach us about how to be more effective coaches. The actors are part of the debriefing and play an essential and valued role, as they are perceived as authentic understudies for real patients and family members. They are frequently called upon to respond to questions from the participants such as "How did you feel when the attending said he was sorry about what happened?" or "What might have been said differently that would have increased your trust in the team?"

Attendance at a half-day workshop is a big commitment for clinical leaders, yet it is not enough time to fully teach all of the complicated skills that coaches require. Indeed, one of the most frequent comments we receive on our evaluations is that our participants feel this is an excellent *beginning*, but that additional and ongoing training will be necessary before they will feel comfortable taking on the coaching role. To date, we have conducted 12 workshops with more than 250 participants from the physician and nursing leadership of the hospitals; but we recognize that this is only a beginning to meeting the challenge from the NQF to make this model of just-in-time support through coaching a successful reality. ■

References

1 30 Safe Practices for Better Health Care http://www.ahrq.gov/qual/30safe.htm

2 www.leapfroggroup.org/

3 www.rmf.harvard.edu/company/harvard-medical-institutions.aspx

4 Clinton HR, Obama B. Making patient safety the centerpiece of medical liability reform. *NEJM*. 2008 354(21):2205–08.

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Getting Organized at STRATUS

by Molly Perencevich, MD

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Before my first STRATUS session, I reviewed the management of hypotension and hypoxia, as well as ACLS (Advanced Cardiac Life Support) algorithms. I knew that the sessions were intended for us (medicine residents) to practice managing sick patients in code situations in the hospital. And, I knew that a patient mannequin would be the focus of the simulation. However, exactly how the session would work was unclear to me.

On the day of the session, prior to the simulation, one of the staff physicians introduced us to STRATUS. He explained that the mannequin could speak and answer our questions. The mannequin also has physical exam findings such as pulses, heart sounds, and lung sounds. A cardiac monitor would provide continuous data. An ECG, chest X-ray, and lab tests could be obtained by request. For treatment, there was oxygen, tools for intubation, materials to put in IVs (which could actually be performed on the patient), medications, and other items to perform a variety of procedures if needed. The session would begin with us being given the symptoms or abnormal vital signs that brought us, the medical team, to the bedside. It was then our job to evaluate and treat the patient. Afterwards we would discuss how things went.

"This is a 74-year-old man who was admitted two days ago with shortness of breath. He has been doing OK, but now his BP is 93/45 and his oxygen saturation is 84 percent on five liters of oxygen."

Upon entering the room the mannequin was moaning and saying, "I cannot breath." The six of us approached the patient somewhat timidly, not sure what to do first. Somebody talked to the patient and reviewed the chart. Someone else started to monitor his vital signs, but then got distracted by looking at the ECGs. And someone else examined him, but did not tell anyone else what he found. There was a lot of confusion and it was not always clear what we had determined and what needed to be done. We eventually arrived at the most likely diagnosis of flash pulmonary edema. We wanted to give Lasix, but there was no IV in place. Then, a staff member came into the room to discuss how things went.

The discussion was focused on not just the diagnosis and treatment, but also about how we managed the situation. Our approach had been disorganized. The staff physician recommended that we have a leader who stood at the end of the bed and kept the group organized. He or she would give jobs to

people and keep track of the relevant information obtained. We decided ahead of time that Samara would be the team leader. We were then given another scenario.

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Samara stepped to the head of the bed and helped coordinate our evaluation and treatment of the patient. Each of us had a clear task: to obtain the history, evaluate and manage the airway, monitor the vital signs, start an IV, and obtain data such as ECG and labs. We quickly learned that he had had a thoracentesis the day before for a pleural effusion, and our exam confirmed a right-sided pneumothorax. His blood pressure was dropping, so we performed a needle thoracostomy to release the pressurized air.

These simulations are valuable for many reasons. They are a great opportunity to review diagnosis and management of conditions such as flash pulmonary edema, tension pneumothorax, and cardiac arrest. Procedure training, such as needle thoracostomy, is also a benefit. The more unique part of these experiences, however, is a chance to practice these things in a real-time manner. If you asked any of us in the classroom what we would do when dealing with a situation like those above, we would calmly describe the process of evaluation and treatment. However, in reality, situations like these are often not calm and it can be difficult to focus when a patient is in distress and there are many people involved. In urgent situations, such as the evaluation of acute hypoxia or a cardiac arrest, it is important to be able to work together to thoroughly and efficiently evaluate and treat the patient. The STRATUS simulation sessions provide this opportunity in practical education.

Not a Moment to Lose: Shapiro Simulation Center

by Steven D. Schwaitzberg, MD, FACS

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Surgical training in the 1980s and early 1990s was a trial by fire: see one, do one, teach one. Ironically, it was said back then that the problem with every-other-night call was that you missed half of the action. Somehow though, the system worked since master surgeons were produced by the score.

That was a different era and much has changed. Everything from work-hour restrictions to competency-based education is different and we are not going back. Only the patients have not changed. They still come in the same flavors, hypotensive, septic, or perhaps bleeding from time to time; but no longer is there the luxury of large house office teams responding to crisis after crisis garnering experience through long hours of trial and (substantial) error.

In order to save lives in the Emergency Department (ED) or the Operating Room (OR), we will need to develop training strategies to hone the efficiency and competency of the modern multidisciplinary team of surgeons, anesthesiologists, ED physicians, nurses, physicians assistants, and medical technicians. In the era of restricted work hours, these individuals will mix and match with regularity.

Thirty years ago, I sat in a room with the famous surgeon centenarian Michael DeBakey who told a group of wide-eyed medical students, "You can't learn to play the piano by reading the sheet music." He was right and that was the justification later for a whole lot of every-other-night (and two months of every night) call for me in the hospital. His message is still right, but the methods have to change.

Last year, I participated in a research study designed to simulate a surgical emergency in a mock operating room with a full surgical team in the Shapiro Simulation Center at Beth Israel Deaconess Medical Center. I was prepared for disappointment. After all, I had trained on the real thing. To my utter amazement, when the simulated *you know what* hit the fan, I found myself in that same zone of slowed down reality and problem solving that occurs for me in "real" crisis scenarios. In fact, it took a few moments for it to sink in when the simulation was actually over. Reality had been successfully suspended. I realized we were onto something.

The full impact of the value of simulation in the OR crisis scenario didn't hit me until a month or two later when I was called to one of our operating rooms in full blown chaos. CPR was underway and a young surgeon was sweating with a big problem: an elective surgery patient with no blood pressure. There is no replacement for experience, but the closest surrogate is good training and this surgeon had neither when it came to this scenario. The story had a happy ending, a near miss instead of a terrible tragedy.

Later, when I could reflect upon it, I came to appreciate just how valuable team simulation will be, not only to tomorrow's surgeons, but today's as well. The broad fields of surgery must fully embrace this type of training. We, and our patients, have not a moment to lose.