What's New in the Patient Safety World

February 2013

Checklists for Surgical Crises

There are some emergency situations that are so rare that it is hard to prepare for them, yet your actions during such situations may determine life or death. Pilots prepare for such emergencies (for example, they all have to simulate an aerodynamic "stall" so they know what steps to immediately take to right the aircraft). And pilots have standard operating procedures in their myriad of manuals pertaining to a whole host of seldom-encountered emergency situations. Often those standard operating procedures use checklists so that the crew can rapidly go through all the steps required in such emergencies.

Our August 16, 2011 Patient Safety Tip of the Week "Crisis Checklists for the OR" highlighted the work done by Atul Gawande and colleagues (Ziewacz 2011) on use of checklists for various crises that might be encountered in the OR. They had developed a series of "crisis checklists" for 12 of the most frequently occurring operating room crises and tested their use in a high-fidelity surgical simulator. They had OR teams in the surgical simulator address 4 crisis situations with checklists and 4 without. In simulated crises without checklists, the teams' failure rate to perform critical steps was 24%. When using checklist, the failure rate was only 4%. Surveys of the participating OR teams found that the crisis checklists were very well-received, usable, and likely to prepare the teams well for real crises.

Gawande and colleagues have now expanded on that experience and tested the crises checklists in multiple settings with multiple teams in simulated scenarios (Arriaga 2013). They had 17 teams in one academic and two community hospital settings participate in the scenarios, randomized to either using the checklists or dealing with the crises simply by memory. There were a total of 106 simulated crisis scenarios in all. They found that 6% of necessary steps were missed when the checklists were used, compared to 23% of steps missed when memory alone was used. That translates to a 75% improvement! Those numbers are similar to those found in their initial 2011 study. Virtually every team performed better when using the checklists. And 97% of respondents to a survey stated that they would want checklists used if they were a patient undergoing surgery.

The appendices to the 2011 article (Ziewacz 2011) contain the actual checklists they developed and, for each "crisis" a list of the key processes and steps identified as being important. The conditions for which this group developed crisis checklists include malignant hyperthermia, surgical fires, air embolism, anaphylaxis, unstable bradycardia,

unstable tachycardia, cardiac arrest (asystolic and VF/VT), failed airway, unexpected hemorrhage, hypotension and hypoxia.

The authors do acknowledge that good performance in simulation is no guarantee that outcomes will be good in real-life OR crises and that there are no definitive studies in aviation or nuclear power that demonstrate simulation exercises improve safety, though simulation is widely accepted. But even if you don't have access to a surgical simulator, it would be well worth your while having your OR teams become familiar with these tools and run "drills" on each of these. Especially if you combine these with other team training programs, such as TeamSTEPPS™, your OR teams will likely be better prepared to handle these relatively rare but critical scenarios.

References:

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