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THE IMPLEMENTATION OF A
NEW OPERATING ROOM EMERGENCY MANUAL AT UNM
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INTRODUCTION
The occurrence of life threatening emergency situations in the operating room is an ever present danger to patients. Quick identification and response to such situations is vital to prevent severe consequences to patient morbidity and mortality (1,2). Here we present the implementation of a new University of New Mexico Hospital (UNMH) Operating Room Emergency Manual (EM) as an improvement process conducted by the Department of Anesthesia in partnership with the operating room and surgical services. Cognitive aids such as an emergency manual have been demonstrated to facilitate the ease and speed of life saving actions during emergency situations (see figures 1), (3,4). To improve and standardize our handling of emergency situations we undertook this project to upgrade our operating room emergency manual.

METHODS AND MATERIALS

Our new manual was created using an established template pioneered by the Stanford University Cognitive Aids Group. The template manual contained standardized actions for response to a list of emergency situations (see figures 1 and 2). Where necessary, we modified these actions to reflect local practice at UNMH. We introduced our new EM to the anesthesia department with education on its use during emergency situations. The EM was also introduced to surgical services and the operating room staff. An emergency manual is now located in all anesthetizing locations across the UNM system such as the Main Operating Rooms and Labor and Delivery. Checking for the presence of a manual is now integrated as a standard part of the anesthesia time out. We collect data on the use of the emergency manual via the electronic anesthesia record (AR). The AR contains a mandatory field regarding improvements and additions to incorporate into the next iteration of the emergency manual.

RESULTS AND DISCUSSION

The emergency manual is now present at all anesthetizing locations within the UNM system. It has now been standardized as part of the time out procedure and most anesthesia providers ensure its presence before the start of a case (see charts 1 and 2). The data collected from our anesthesia records demonstrate its use in notable emergency situations such as intraoperative cardiac arrest, anaphylaxis and massive obstetric hemorrhage. The most often used portion of the EM is the drug dosing chart! Drug dosing errors are a common medical error and our data suggests that expanding upon our drug dosing chart can improve OR safety.

CONCLUSION

The UNM Operating Room Emergency Manual is now a well-integrated part of anesthetic practice at our institution. Anesthetic providers have appreciated its usefulness as a cognitive adjunct during operating room emergencies as well as for routine review. We continue to assess for weaknesses in the manual and are implementing an iterative process of manual improvement. Based on the success of the current emergency manual, a pediatric specific emergency manual has been introduced to the UNM pediatric operating rooms. Our next goals are to introduce an obstetric specific manual to labor and delivery and to update the current manual based on current feedback.

Table 1: The frequency of emergency situations across all UNM anesthetizing locations for Fiscal Year 2017. Data extracted from quality control documentation in anesthesia record for more than 10,000 anesthetic administrations.

<table>
<thead>
<tr>
<th>Category</th>
<th>Number of Incidents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anaphylaxis</td>
<td>6</td>
</tr>
<tr>
<td>Bradycardia/Tachycardia requiring treatment</td>
<td>13</td>
</tr>
<tr>
<td>Bronchospasms</td>
<td>34</td>
</tr>
<tr>
<td>Cardiac arrest/CPR</td>
<td>23</td>
</tr>
<tr>
<td>Hypotension (severe)</td>
<td>59</td>
</tr>
<tr>
<td>Hypoxia (&lt;90%, &gt;5min)</td>
<td>29</td>
</tr>
<tr>
<td>Laryngospasm</td>
<td>5</td>
</tr>
<tr>
<td>Pneumothorax</td>
<td>2</td>
</tr>
</tbody>
</table>

References:
(3) Gaba DM. Anesth Analg 2013 November.
(4) Harrison et al. Anesth Analg 2006; 103:551-6