Improving Electronic Medical Record (EMR) Usability: Critical Elements when Designing Perioperative Emergencies Template

MARY RACHEL ROMERO MSN, RN, CPAN, CAPA; ALLISON STAUB BSN, RN

Background

- Adverse events occasionally occur in preoperative and postanesthesia care units (PACU)
- Resuscitations are often chaotic and stressful with decisions needing to be made quickly (Boehm 2010)
- Accuracy in documentation is crucial in order to expedite intervention and for analysis and review
- Current EMR software systems are limited and features are not cohesive in recording adverse events resulting in poor usability
- Users chart in multiple areas for their assessment and interventions which is time consuming during these critical periods

Literature Review

- Fundamental elements in documentation of adverse events consist of vital signs, patient manifestation, intervention and communication
- The presentation of information in terms of layout and structure is important because it can influence data retrieval, interpretation and clinical decision making in fundamental ways (Yoo et al, 2013)
- Templates can guide documentation so that elements essential to demonstrating appropriate care are not ignored (Bowman, 2013)

Objectives

- Improve usability by creating documentation template that captures perioperative emergency conditions
- Improve quality of patient care documentation in the perioperative setting

Methodology

- Pre-implementation survey conducted to assess users’ concerns
- Designed a template that focused on perioperative emergency conditions such as airway obstruction, altered breathing pattern and residual muscle blockade
- Created a focus group to test and provide feedback on newly designed Periop Emergency Template
- Post-implementation survey to determine ongoing improvement needs

Staff Survey

| What kind of perioperative emergencies have you managed? | N = 37 |%
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Other</td>
<td>12.5</td>
<td>31.3</td>
</tr>
<tr>
<td>Hypotension</td>
<td>12.5</td>
<td>31.3</td>
</tr>
<tr>
<td>Cardiac Arrhythmia/Infant</td>
<td>12.5</td>
<td>31.3</td>
</tr>
<tr>
<td>Pulmonary Edema</td>
<td>12.5</td>
<td>31.3</td>
</tr>
<tr>
<td>Inadequate Reversal of Muscle Relaxation</td>
<td>12.5</td>
<td>31.3</td>
</tr>
<tr>
<td>Airway Obstruction (Pharyngeal)</td>
<td>12.5</td>
<td>31.3</td>
</tr>
</tbody>
</table>

Results

- Focus group survey responses with new charting templates:
  - Cohesiveness—documentation of events is organized
  - Comprehensive—captures all the essential details when managing crisis events
  - Convenient—prompts users in entering essential information
  - Accessible—data can be viewed by any department for review
  - Reportable—can be used for audit reporting versus using narrative entry

Implications for Practice

- Templates to capture data during emergency situation can be created.
- Data elements when documenting emergencies must include real time recording of vital signs, assessment, intervention and communication
- Documentation screens must be concise and should reflect workflow to improve user compliance and usability
- Feedback from users is highly recommended to avoid design flaws
- Template does not replace code documentation