SUBJECT/TITLE:  CLINICAL ALARMS MANAGEMENT- CONSCIOUS SEDATION PROCEDURAL PATIENTS

PURPOSE: To establish departmental guidelines for clinical alarm system management that ensure safe and accurate patient monitoring while reducing false alarms.

DEFINITION:

1. **Physiologic monitoring alarms:** Used to measure and alert staff when numerical values, such as, heart rate, blood pressure, SpO₂, respiratory rate, and oxygen saturation fall outside the preset upper and lower limits.

2. **Arrhythmia monitoring:** Used to identify and alert staff of irregular heart rhythms. An arrhythmia detector and alarm is a system that monitors the electrocardiogram (ECG) and is designed to produce a visible and/or audible signal or alarm when a dysrhythmia exists.

3. **False Alarms:** Occur when there is no valid patient-related triggering.

4. **Non-actionable alarms:** Alarms correctly sound but for an event that has no clinical relevance (e.g. baseline chronic A-Fib).

5. **Actionable alarms:** Alarms correctly sound for an event that has clinical relevance (e.g. lead off, Asystole, Ventricular-Fibrillation)

POLICY:

A. UIHC Bioengineering will maintain an inventory of devices used in high-risk areas and for high-risk clinical conditions, and identify the default alarm settings and the limits appropriate for each care area. [refer to Biomedical Department]

B. All clinical devices will be evaluated and tested by bioengineering prior to trial and installation in a clinical area.
   1. All equipment with clinical alarm systems will receive regular preventive maintenance.
   2. Equipment with malfunctioning alarms will be immediately pulled from the clinical area and repaired prior to use.

C. Clinical devices will be evaluated for default configuration settings by clinical experts before equipment is installed and put into clinical use. Configurations will also be re-evaluated with any software upgrades. [Default Philips Configurations settings]
D. To the extent possible, when a critical alarm is triggered the technology will be configured and utilized in a manner that requires caregivers to evaluate the patient at the point of care.

E. Alarms are to be audible with respect to the distances and competing noises within the clinical area/unit.

F. Alarms used for monitoring critical vital signs and values cannot be silenced or turned off indefinitely without a licensed independent practitioner (LIP) order.

G. Any alarm on a medical device needs to be checked at the beginning of each staff’s patient care assignment to assure that they are on and set appropriately.

PROCEDURE:

A. Upon initial assessment of the patient the nurse will assure that alarms are activated and set appropriately based on patient’s clinical condition.

B. With ongoing assessment and with changes in the patient’s condition/treatment goals, alarm limit parameters can be adjusted according to the patient’s clinical condition.
   
   a) Clinical alarm settings: Standard default settings: refer to: Default Philips Clinical alarms configuration

   b) The clinical alarms will be activated and set appropriately based on patient’s clinical condition and appropriate profile for age. The nurse may use critical thinking to adjust alarms based on patient presentation, need, acuity, false alarms, and non-actionable alarms. The nurse will discuss with the responsible LIP whenever the standard default settings are adjusted outside of a ±10% buffer.

   c) LIP-ordered: The LIP can order specific clinical alarm settings.

C. Only alarms that offer significant clinical benefit should be used for the patient. This will reduce the number of false alarms. There needs to be an LIP order to turn off alarms.

D. Every alarm must be addressed immediately by the bedside healthcare providers.

E. The mechanism to Reset alarm default settings between patients differs per monitor/device brand and model.

   1. For Phillips multiparameter monitors, the patient will be discharged and the monitor placed in monitor standby between patients.
   2. For all monitors other than Phillips, at patient discharge or transfer, the bedside monitor will be turned completely off for more than 60 seconds.
F. Audibility Testing

1. An initial environmental audibility assessment will be completed for all critical alarms systems by unit/area including:
   
a) Assessment of the competing noise levels in the unit/area to determine if all critical alarms are audible as described in Table 1.

b) Unit specific documentation indicating which critical alarms have been identified and tested.

2. An annual reassessment will be triggered and performed in each clinical area/unit if changes on the unit have occurred including:
   
a) Implementation of new equipment with critical clinical alarms that need tested.

b) The physical characteristics of the area/unit which may impact audibility of critical alarms from the previous year.

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Audibility Standard</th>
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<tbody>
<tr>
<td>Physiological Monitor</td>
<td><strong>In-Room Monitor</strong>: must be audible within the patient room</td>
</tr>
<tr>
<td>without Client Station</td>
<td><strong>Central Station</strong>: must be audible outside the furthest patient room monitored by the central station</td>
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<td><strong>Client Station</strong>: must be audible outside the furthest patient room monitored by the client station</td>
</tr>
<tr>
<td></td>
<td><strong>Central Station</strong>: must be audible in area of nursing station</td>
</tr>
</tbody>
</table>

Table 1- Audibility Standards

RELATED/CORRESPONDING POLICIES & PROTOCOLS:

MOSBY Procedure: Cardiac Monitor Setup and Lead Placement
Philips Configuration Default Parameters
Clinical Alarm Management Protocol

REFERENCES:


7. Funk, M. (2012). CVS.411 Cardiac Monitoring & Alarm Fatigue Toward a Possible Solution: Are We Over-monitoring?


10. Philips 5-Lead ECG Electrode Placement. PN: LTM8000E-4002A


