# **Policy**: Clinical Alarm Management

| **ORGANIZATIONAL: Affects two or more departments.** | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Folder** | Organizational Choices: Patient Safety and Performance Imp | | | **Sub-Folder** (If Applicable) | **n/a** | | |
| **Original Effective Date** | 11/1/2015 | **Scope** | *What departments does this policy apply to? State "All" as is may apply to the entire organization.* *All* | | | | |
| **Approved** (Approver/Date) | MDPRC 5/16/2019; MEC 5/28/2019 | | | | | | |
| **Last Reviewed/ Revised Date** | 5/28/2019 | **OSHA Category** (If Applicable) | III | **Standard** (If Applicable) | NPSG.06.01.01 | **Number of pages** | 4 |

**PURPOSE**: To define an alarm management process and promote the monitoring of patients through the safe use of and response to clinical alarms

**GUIDELINES**:

1. Biomedical Engineering (Biomed) is responsible for performing regular preventative maintenance and testing on all alarms on patient physiological monitoring and patient care equipment except on contracted equipment, loaners or demos.
2. Clinical Directors/Managers are responsible for assuring individuals adhere to the requirements of this policy and these procedures are implemented and followed. Instances of non-compliance are reported via the event reporting process.
3. The patient's primary nurse and Centralized Telemetry Monitoring (CTM) will be made aware of changes in the alarm parameters.
4. Cardiac monitor alarm functionality is monitored through Preventative Maintenance (PM) performed by Biomed; this validation report is presented to the Environment of Care (EOC) Committee which then reports to the Quality Committee of the Board.

**PROCEDURE**:

A. Medical Equipment/Device Alarms/ Patient Monitoring Alarms
    1. Staff that use equipment with alarms must check settings to ensure they are appropriate and that audible alarms will be clearly discernible relative to ambient and competing noise on their respective clinical unit.
    2. Staff that use medical equipment will know how to adjust the alarm parameters if the equipment allows them to be changed.
    3. Staff shall not bypass, shut off, or adjust alarm volumes to a level that cannot be readily heard when the alarm activates. Bypass of an alarm function is reported as a patient safety event.
    4. Hospital staff trained to treat the patient must respond to alarms.
    5. The following table, which is not all inclusive of all alarms, includes details for the equipment with alarms that have been identified as possibly contributing to alarm fatigue for SoutheastHEALTH:

| Type of Equipment | What are the clinically appropriate settings for the alarm signals? | Who has the authority to set default alarm parameters? | When should alarm parameters be changed? | Who has the authority to change alarm parameters? | When should alarm parameters be disabled? | What is the PM schedule? |
|---|---|---|---|---|---|---|
| Central Monitor with Nihon Kohden (NK) Bedside Monitors - Telemetry (Heart Rate/Rhythm) >17 years old | Low HR 50<br>High HR 130 | MDPRC or MEC | Per the patient condition | Designated, trained personnel (LIP and/or staff who have passed Arrhythmia Exam) | At no time in general, unless it is patient specific with physician order | Alternative equipment management (AEM) |
| Central Monitor with NK Bedside Monitors - Blood Pressure >17 years old | High SBP 160<br>Low SBP 90<br>High DBP 90<br>Low DBP 50 | MDPRC or MEC | Per the patient condition | Designated, trained personnel | At no time in general, unless it is patient specific with physician order | AEM |
| Central Monitor with NK Bedside Monitors - Pulse Ox (Oxygen Saturation) >17 years old | High OFF<br>Low 90 | MDPRC or MEC | Per the patient condition | Designated, trained personnel | At no time in general, unless it is patient specific with physician order | AEM |
| Corometrics | *Fetal Heart Rate* - Default (100-180) Min/Max (30-240)<br>*Blood Pressure* - Default (90-160/50-90) Min/Max (30-50/130/240)<br>*Mom's Heart Rate* - Default (50-130) Min/Max (35-250)<br>*Pulse Ox* - Default (95-100%) Min/Max (80-100%) | MDPRC or MEC | Per the mom's or baby's condition | Designated, trained personnel | Fetal Heart Rate - Fetal Demise | AEM |
| EtCO2 Monitor | EtCO2 – 10-55 mmHg<br>RR – 6-40<br>SpO2 - <90%<br>HR - 50-130 | MDPRC or MEC | Per the patient condition | Designated, trained personnel | At no time or per a physician order | AEM |
| Infant Warmers | Not to exceed 37°C | Manufacturer | Per the patient condition | Physician and RN per a physician order according to the patient's condition. | At no time or per a physician order | 1) RT checks air & O2 tanks every night and if needed re-stocks supplies<br>2) AEM |
| Bed Alarms / Call Lights | *Bed Alarms*: 3 levels of alarms including: Off, Starting to get up, and Out of bed<br><br>*Call Lights*: First goes to the Patient Care Tech and if no response within 30 seconds it goes to the nurse and if no response within another 30 seconds it goes to the overhead<br><br>*Emergency Room* – There are no settings on the call lights | Bed Alarms: Designated, trained personnel<br><br>Call Lights: N/A | Bed Alarms: Per the patient condition<br><br>Call Lights: At no time | Bed Alarm: Designated, trained personnel<br><br>Call Lights: N/A | Bed Alarms: Getting patient out of bed for transport, bathroom, etc.<br><br>Call Lights: N/A | Bed Alarms: Per manufacturer guidelines<br><br>Call Lights: Per manufacturer guidelines |

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|---|---|---|---|---|---|---|
| Fluid Pumps - IV Infusion, PCA, Epidural and Kangaroo (Feeding)<br><br>Need to separate PCA out of this category. PCA is required to be manufacturer PM. | Infusion complete, air in line, occlusions, low battery or pump failures | Manufacturer | At no time | N/A | At no time or per a physician order | AEM |
| Dialysis Machine | Venous & Arterial alarm limits are adjusted to achieve the prescribed flow rate | Critical Care Committee | Per the patient condition | Designated, trained personnel | At no time or per a physician order | Per manufacturer guidelines |
| BIPAP Machine | 10-15% above or below the settings ordered by the physician | Critical Care Committee | Per the patient condition | Respiratory Therapy based on physician order | At no time or per a physician order | Per manufacturer guidelines |
| Ventilators | 10-15% above or below the settings ordered by the physician | Critical Care Committee | Per the patient condition | Respiratory Therapy based on physician order | At no time or per a physician order | Every 6 months by the vendor & Biomed performs PMs per manufacturer guidelines |

6. Pediatric Unit Specific Alarm Limits
    i. The below parameters will be updated on each cardiac monitor according to the child's normal vital sign range or as specified by the LIP:

| Age | Respiratory Rate | Pulse | Systolic Blood Pressure |
|---|---|---|---|
| Preterm newborn | 55-65 | 120-180 | 40-60 |
| Term newborn | 40-60 | 90-170 | 52-92 |
| 1 month | 30-50 | 110-180 | 60-104 |
| 6 months | 25-35 | 110-180 | 65-125 |
| 1 year | 20-30 | 80-160 | 70-118 |
| 2 years | 20-30 | 80-130 | 73-117 |
| 4 years | 20-30 | 80-120 | 65-117 |
| 6 years | 18-24 | 75-115 | 76-116 |
| 8 years | 18-22 | 70-110 | 76-119 |
| 10 years | 16-20 | 70-110 | 82-122 |
| 12 years | 16-20 | 60-110 | 84-128 |
| 14-17 years | 16-20 | 60-105 | 85-136 |

B. Alarm Failure and Alarm-Related Incidents
    1. When faulty equipment is identified, staff will:
        i. Remove the faulty equipment from service
        ii. Submit a work order to Biomed
        iii. Place a copy of the work order and an "out of service" sign on the faulty equipment
C. Auditing and Monitoring
    1. The hospital will monitor compliance with this policy as part of its Quality, Patient Safety, and Process Improvement plan. The Regulatory Compliance Committee will define what to monitor and add the items to the Joint Commission tracers as appropriate.
D. Education
    1. Appropriate staff will be educated about the purpose and proper operation of alarm systems for which they are responsible during their orientation or as needed when new equipment or new processes are put in service.

**REFERENCES**:

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