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Provider® 790 Application Brief

Medical Device Alarms through Nurse Call Improve Patient Safety

Application Overview:

Patient devices such as ventilators, I.V. pumps, pulse oximeters, and bed exit monitors are routinely used in hospitals to care for patients. When the device alarms because of an issue with the patient or the medical device, timely staff intervention is necessary to address the issue before the patient is affected. In the case of bed exit monitors, prompt response by the staff can often avert a life threatening fall by a patient.

Timely response to alarms is such a vital aspect of patient safety that guidelines were published in the Joint Commission's NPSG (National Patient Safety Goals) in the early to mid 2000's. These goals were relaxed as Joint Commission felt that facilities had addressed the issues with alarms by the late 2000's. However, an April 2011 report from The Boston Globe showing that poor response to alarms was still an issue, the Joint Commission is quoted as saying that response to alarms are again a "Top Priority".

The ¼" jack inputs on the Provider 790 patient stations and the additional ¼" jacks in the Auxiliary Input Station allow these devices to place alarms through the nurse call system to instantly notify staff of the alarm over the Dome Light outside the patient room, and the Zone Lights, Duty Stations, Nurse Consoles, and Staff Terminals within the same Nursing Unit. Other instant notification options include pocket pagers, wireless phones, and the PC Console display. Direct notification of alarms to caregivers fulfills Joint Commission's goals, allowing caregivers to respond without delay, preventing falls or potentially hazardous issues with equipment.

Feature/Benefits:

- **Bed Exit Alarms —** Patients who should not leave their beds without supervision can be monitored by a bed exit monitoring system either built into the bed or added to the bed as a separate pressure pad. When the patient gets out of bed the caregiver(s) are alerted allowing them to respond quickly before a fall can occur.
- **Device Alarms —** Devices such as IV pumps, respirators and pulse oximeters are often equipped with isolated contact closure outputs allowing them to readily alarm through other systems, such as nurse call. Through the Provider 790 system, the Device Alarms are sent to caregiver(s) who can resolve the issue before the patient is negatively affected.
- **Multiple and Redundant Modes of Alarm Notification —** With Provider 790, alarms are annunciated simultaneously to multiple devices to ensures the alarm isn't missed and the first available staff member can respond as soon as possible:
    - **Dome Light Notification —** When an alarm is activated, the dome light outside the patient room and any related zone lights are automatically illuminated, making it easy for

caregivers to identify the location of the alarm (instead of only trying to listen for an alarm sounding from the device itself).

- **Nurse Console(s), Staff Terminal(s) and Duty Station(s) —** The Alarm annunciates at the respective Nurse Console(s), Staff Terminal(s) and Duty Station(s) in the area, immediately notifying staff of the alarm condition.
- **Wireless Devices Integration —** Optional wireless phones and pocket pagers can notify caregivers of a patient alarm regardless of the staff member's location in the nursing unit or even throughout the entire facility.
    - Pocket Page Notification – The caregiver(s) assigned to the patient receives text notification of the alarm including the room, bed (if applicable), and alarm's call priority such as "IV Alarm". If the first caregiver does not respond within a set time period the message is automatically routed to another caregiver assigned to the patient. In addition to the primary caregiving teams, other teams of caregivers can be automatically notified of an alarm event within or near their nursing unit so the first available caregiver can respond as quickly as possible
    - Wireless Phone Notification – The caregiver(s) assign to the patient receive a call over their wireless phone to notify them of the alarm. The phone's call display includes the room, bed (if applicable), and alarm's call priority. The caregiver can answer the call and will be direct communication with the patient over the closest intercom station. If the first caregiver does not respond within a set time period the message is automatically routed to another caregiver assigned to the patient
- **PC Console Display —** The optional PC Console runs on any Windows® computer on the facility's LAN. The PC Console shows call activity, including alarm conditions, for rooms in the coverage area of the PC Console. The PC Console can drive monitors mounted in key areas to alert staff of any alarms.

- **Quiet Notification —** Wireless devices, nurse consoles and dome lights quickly direct caregivers to the source of the alarm, eliminating noisy alarms in the patient room that disturb other patients in adjoining areas.
- **Configurable Labels —** Station labels on the Auxiliary Input Stations can be customized according to the corresponding device, making them fully configurable to meet the facility's terminology.
- **Unique Call Levels —** Individual inputs on the Patient Station and Auxiliary Input Station can trigger any one of over 1,000 call priority levels available on the Provider 790 systems.
- **Latching or Momentary Alarm Outputs —** The Auxiliary Input station can be configured to accept momentary or latching alarm outputs. For devices that alarm and reset themselves without needing any staff intervention, such as a ventilator when a patient coughs, this saves the staff the wasted time of going to the patient room when they aren't needed.
- **Call Cancel Notification** – If another caregiver tends to the alarm and for device alarms that reset and in turn don't need staff attention, such as a patient coughing into a ventilator, Provider 790 sends out a "Call Canceled" message to staff that receive a pocket page/text message notification of the alarm. This "Call Canceled" notification saves the staff from going all the way to the patient room to find out it was already addressed or was a false alarm.
- **Alarm Reporting —** The optional Executive Information System (EIS) reporting software documents all alarm activity, to document staff response to alarms.

Key Users and Managers:

Nursing Managers/Nurses/Caregivers — Caregivers don't waste time listening and searching the floor for an alarm that is activated; dome lights indicate the room and bed and a phone or pager can spell out the exact location of the problem. Caregivers can immediately respond to the issue before it affects patient satisfaction or worse yet leads to complications which extend a patient's stay. If the call is cleared, the "Call Canceled" message saves the caregivers from an unnecessary trip to the patient's room

Administration /Nursing Management — Staff are more productive because they do not have to spend time searching the floor for active alarming devices. Patients have a quiet healing environment because alarms notify caregivers silently, while still meeting the Joint Commission's Patient Safety Goals of alarm notification. Alarms and corresponding response times can be documented through EIS reporting software to measure performance and manage liability. Multiple and redundant modes of alarm notification ensures no alarm event goes unnoticed.

IT/Biomed — Devices with alarm outputs are simply interfaced to the Provider 790 system through a contact closure output from the device. Each Provider 790 alarm input can be programmed for latching or momentary inputs from the alarm device; saving the technicians from need to stock different types of alarm input stations for different alarm outputs. All of the Provider 790 components are continuously supervised with notification of any issues at Nurse Consoles and optionally to a page or wireless phone carried by a technician. If a problem occurs a technician is notified of it immediately and can address it as soon as possible. For the IT department, having the nurse call system (including the Device Alarm functionality), on its own separate network is important for a life safety system as other systems or issues with the data LAN cannot affect the ability for alarms to annunciate.