

**[High Priority ] - S0403 : [COVID-19] Recommendations for Emergency Power Outlet Management at Peak Resource Use [ECRI Exclusive Special Report]  
Medical Device Special Report**

**Published:** Wednesday, May 20, 2020

**Geographic Regions:** Worldwide

**Suggested Distribution:** Clinical/Biomedical Engineering, Nursing, Risk Management/Continuous Quality Improvement, Facilities/Building Management

**Problem:**

1. The COVID-19 pandemic will lead to increased use of intensive care devices.
  1. General Med/Surg floors could be converted to intensive care units.
2. Med/Surg units typically have fewer emergency outlets than intensive care units.
3. Interruptions of power to life support equipment could result in death.
4. Some devices are designed for less critical use but could be used for emergency life-support service. These devices may reset during power interruptions, potentially resulting in death.

**ECRI Recommendations:**

*Nursing Staff*

1. Ensure that life-support devices are plugged into emergency outlets. These include:
  1. Ventilators
  2. Physiologic monitors
  3. Dialysis Machines
2. Some medical devices can be plugged into normal outlets.
  1. Infusion pumps typically have batteries and can withstand temporary interruptions in power.
  2. Hospital beds have manual release mechanisms to flatten the bed to deliver CPR. Other uses are not critical.
3. Check all devices after power interruptions to ensure that they are working as expected.
4. Consider checking outlet usage when entering or leaving patient care rooms to ensure that the most critical devices have emergency power available.

*Biomedical Engineering/Facilities:*

1. If there are limited number of emergency outlets, consider labelling more critical devices as requiring emergency power.
2. Consider expanding the use of special purpose relocatable power taps (SPRT) to effectively increase the number of outlets on emergency power.
  1. Combinations of devices that are often used together may be assembled onto a single cart/pole that is reduced to a single plug through the use of a single SPRT. For example, a device that is modified to provide ventilation may be used with a hospital-grade humidifier.
  2. As with all SPRTs:
    1. Identify the devices to be plugged into the SPRT.
    2. The expected current draw should not exceed 75% of the ampacity of the cord, nor the plugs' NEMA rating.
    3. The SPRT should be permanently fixed (e.g., clamped to a pole).
  3. When using SPRTs, consider the expected current draw of other devices that may be on emergency power, as well as those on the SPRT, to ensure that circuit breakers will not trip because of overload.
3. Evaluate the expected current for the devices (e.g., ventilator, humidifier, physiologic monitor, infusion pumps, dialysis) used to treat an ICU patient moved into a lower acuity room. Ensure that the branches supplying that current will not trip circuit breakers.

**Background:**

1. COVID-19 will place extra demand on intensive care units, necessitating that intensive care be provided in areas that are not designed for it.
2. Devices using more electrical power, typically in intensive care, include life-support equipment such as ventilators, physiologic monitors, additional infusion pumps delivering critical medications, and dialysis machines.
3. Intensive care areas typically have more outlets per bed than code or general Med/Surg beds.
4. NFPA 99:2012 requires eight receptacles for a standard patient care bed and 14 for intensive care.

- It specifies that there should be at least one receptacle on the critical branch (emergency power) and one on the standard branch for both intensive care and standard care rooms.
5. It is conceivable that some devices forced into emergency life support service do not have the failsafe modes for power outage that devices cleared for sale as life support may have.
  6. ECRI does not have information on which, if any devices that pose this risk.

**Comments:**

- This alert is a living document and may be updated when ECRI receives additional information.

**Source(s):**

- 2020 May 20. ECRI researched report