



Increasing Your Access to Power in Patient Care Areas

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All power access points in patient care areas must be strategically coordinated to uphold patient safety. Increasing access to safe power while navigating compliance with electrical codes and standards can be overwhelming.

This guide will discuss best practices for using supplementary power options in patient care areas, with tools and tips for understanding certifications, regulations, terminology, and requirements to help you and your facility choose the right power solution products.

Pointers for Increasing Power Access in Patient Care Areas

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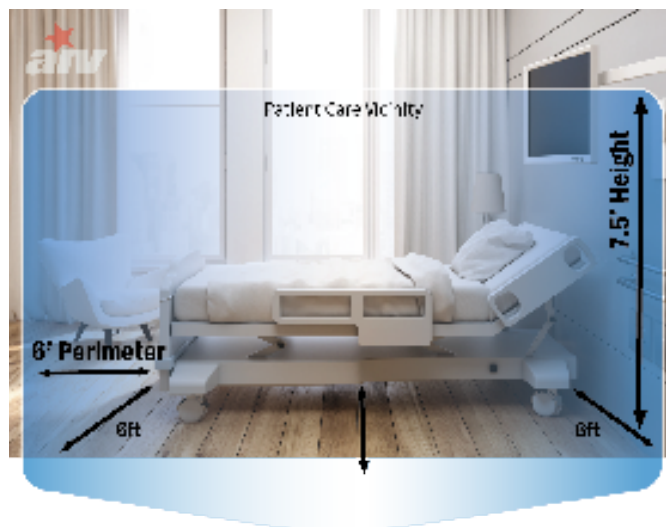
1. Recognize Patient Care Area Vs. Patient Care Vicinity

The hospital or medical facility is responsible for providing a safe environment for employees, visitors, and patients. This includes ensuring all areas of the facility follow electrical safety requirements from the National Fire Protection Association (NFPA).

Patient care area and patient care vicinity may sound similar but they have different technical meanings and therefore different regulatory requirements. In the Standard for Health Care Facilities (NFPA 99)(1), the NFPA defines a patient care area or room as “any portion of a health care facility wherein patients are intended to be examined or treated”.

This includes patient, examining, and treatment rooms, as well as any similar areas in which the patient is likely to come into contact with electrical devices. This can also be referred to as patient care space.

The patient care vicinity is then further specified with strict parameters within the patient care area/room. It is defined by the NFPA as a space within a location intended for the examination and treatment of patients, extending 1.8m (6ft) beyond the normal location of the bed, chair, or any other device that supports the patient during examination and treatment and extending vertically to 2.3m (7.5ft) above the floor. So simply put, the patient vicinity is the space within the wingspan of the patient.



2. Get to Know the Common Power Disturbances

Familiarizing yourself with popular power disturbances and grasping key terms will improve troubleshooting efficiency and help identify the equipment best suited for your healthcare facility.

- **Surge:** a rapid increase in voltage, this often happens to high-power devices.
- **Outage:** a loss of power in a system due to high power demand.
- **Spike:** similar to surge, but on a much more extreme level. It occurs after an outage, so best practice involves turning off medical equipment.
- **Noise:** resembles a glitch in equipment performance, also known as electromagnetic interference (EMI).

3. Identify Amperage Limitations

Amperage, commonly referred to as 'amps', is the strength of an electric current measured in amperes. Most power strips and other power relocation devices are available in 15 or 20 amp models. It is a common assumption that the number of vacant outlets is the maximum limit of power, but depending on the equipment being used, more amps could be drawn than available and/or allowable.

When power draw reaches the maximum limit, the power strip is then susceptible to disturbances and could compromise the safety of patients. Should a connected device momentarily draw more than its nominal rated current and the maximum-current is met, the internal safety circuit breakers will trip and disconnect power to the patient care equipment. The safety circuit breakers are there to prevent outages elsewhere in the healthcare facility connected to the same building branch circuit.



The best way to avert power disturbances is to monitor the power being supplied through the power relocation product and limit the maximum ampacity of the devices that are to be connected to it. The NFPA99 Healthcare Facilities Code requires that while in use, "the sum of the ampacity of all appliances connected to the [power device] does not exceed 75% of the ampacity of the flexible cord supplying the [power device]". For example, if you purchase a 20 amp power strip, the ampacity of its power cord is rated at 20 amps, and it is therefore required to only plug in equipment that together draws a total of 15 amps. Similarly, for the 15 amp model, the maximum allowed current draw is 12 amp because the supply cord is rated at 15 amps. Limiting the amps drawn assures safe operation below the maximum rated current.

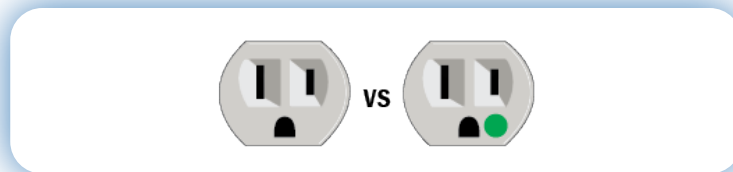
4. Use Appropriate Medical Power Supply Products

Understanding power supply limitations, location differences, and issues are all key elements to choosing the appropriate power supply product, but making sure to only use equipment labeled for hospital use is paramount.

Medical Power Strips Vs Regular Power Strips

Hospitals and medical facilities consume a substantial amount of power that can aggregate quickly and become harmful if not monitored and managed properly.

All power strips and similar power products are subject to compliance with the National Electric Code's (NEC) standards for safe installation of electrical wiring and equipment. However, unlike regular power strips commonly used in offices and homes, power strips used in healthcare facilities that will be used in healthcare facilities are subject to additional safety requirements in Article 517 of the NEC.



To further protect staff and patients, healthcare facilities may specify that power strips be certified by recognized agencies and testing laboratories such as Underwriters Laboratory, Inc. (UL). UL refers to a power strip as a “relocatable power tap” (RTP).

In order to use an RTP in a healthcare facility where patients are receiving treatment or being examined, the RTP must meet both requirements from article 517 of the NEC and UL Standard 60601-1 or UL1363A. Though both qualify for use, there is a slight difference between UL60601-1 and UL1363A, and this can be found on page 6 of this guide.

A component of each UL certification is verifying that the receptacles are physically reliable for use within patient care areas/vicinities. To ensure durability, each hospital grade receptacle on the RTP, as indicated with a green dot on the face of the receptacle (shown on previous page), must provide greater contact tension than ordinary receptacles.

“A receptacle with a greater contact tension is provided to minimize possibilities that an attachment plug supplying medical or life support equipment may be disconnected because the attachment plug slipped out of the receptacle.”

- M. Johnston, Executive Director of Standards and Safety, NECA



The receptacles are subjected to additional grounding, reliability, integrity, strength and durability testing that goes beyond the general requirement of the Standard for Safety for Attachment Plugs and Receptacles (UL498).

Because of the increased safety and health concerns when using electrical devices in a health care facility, only medical grade RPTs and power products are permitted for use.

What Are the Different Certifications?

Each UL certification of product safety is comprehensive in policy requirements and determines variation in accepted uses.

UL1363

RPTs under this certification are not intended to be permanently mounted nor are they intended for use with medical equipment. Though some are manufactured with hospital grade receptacles, they should denote a warning that they are not for use in areas where the NEC requires hospital grade receptacles. Devices under this certification can only be used with non-patient-care-related equipment.

UL1363A

This certification describes the safety standards for Special Purpose Relocatable Power Taps (SPRPT). Under this certification, SPRPTs must be permanently attached to the medical equipment assembly and require a tool for removal. They are meant to be used with carts, racks, tables, pedestals, and other similar mobile apparatus. The SPRPT is certified for use as a mobile component within patient care vicinities. AIV's 15 amp and 20 amp PowerMATE® are special purpose relocatable power taps and recognized components under UL1363A.

UL1449

This is UL's certification for Surge Protective Devices (SPD) safety standards. Surges are common in high-power devices and can stress out sensitive components, causing premature failure. SPDs help prevent this from happening by protecting the AC electrical circuits.

UL 60601-1

Though similar to UL1363A, this certification is slightly different and has an added measure of protection. Power strips, RPTs, or SPRPTs that are labeled as “UL60601-1 Listed” contain increased means of protection to isolate patients and operators from the risks of shock in the event of a single-fault condition and are therefore certified for standalone use in patient care vicinities.

Protect Your Patients with AIV's PowerMATE® Products

With over 35 years in expertise of extending the life of medical equipment, AIV has created a power solution for all. The AIV PowerMATE® family of Special Purpose Relocatable Power Taps provides a safe solution for additional outlets, cord management, and increased equipment mobility.

The PowerMATE® offers six outlets on an angled surface to accommodate multiple adapters/plugs, a 15 foot hospital grade power cord, and a drip guard to protect the outlets from fluid intrusion. The included thumbwheel with locking nut allows them to be permanently attached to an IV pole or leg of a cart. There is also the option to permanently attach the unit to a mobile flat surface using the included template and screw cap cover.



AIV's power distribution products come in a variety of models to suit the needs of various healthcare facilities. The PowerMATE® family consists of four medical models: 15 amp, 20 amp, Tamper-Resistant (TR), and the UL60601-1. The original 15 and 20 amp medical models, and tamper-resistant (TR) model are UL1363A recognized for use in patient care areas. All PowerMATEs® are shipped from AIV's ISO 13485:2016 certified facility in Maryland, USA. [View AIV's PowerMATE® products here.](#)



Need more help in choosing medical power strips?
Contact AIV today at **888-509-8760** or send an email to aivsales@aiv-inc.com.

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