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# Electrical safety in the clinical environment – good habits to maintain

There are many habits that clinical personnel can practise to help ensure an electrically safe environment. Here are twenty of these habits.

## Cords and plugs

- 1 Only use electrical devices with 3-conductor power cords and 3-prong plugs (Figure 1 shows a plug with a broken ground prong – do not use).
- 2 Do not use cheater plugs (3-prong to 2-prong adapters, Figure 2). They eliminate the ground connection and increase the possibility of serious shock hazards.
- 3 Always unplug equipment by grasping the plug, not the cord.
- 4 Routinely check equipment power cords for frayed, cracked, or exposed wiring (Figure 3 shows a plug with the ground wire pulled out, which is very dangerous).
- 5 Do not rest cords over hot or sharp objects.
- 6 Do not run cords where they may cause a tripping hazard (Figure 4).
- 7 Avoid rolling equipment over equipment cords.

## Wall receptacles

- 8 Do not plug equipment into defective receptacles.
- 9 Plug equipment into wall receptacles with power switches in the OFF position.
- 10 Avoid using extension cords and power bars.
- 11 Do not overload electrical outlets by plugging in devices exceeding the current limit for the circuit (Figure 5).

## Fuses

- 12 Replace fuses only with the same exact type (voltage, amperes, slow-blow vs. fast blow, physical size). If the fuse of the correct rating is not readily available, and if the instrument has to be used in an emergency situation, a fuse of a lower rating can be used while waiting for the fuse of the correct rating. For instance, if a 250 mA fuse is required and is not available, the instrument will work with a 200 mA fuse if it is available.
- 13 Do not continue to replace fuses if they keep burning out. Whatever is causing this must be found and corrected.

## General

- 14 Make sure your hospital engineering department performs regular safety and performance inspections on all equipment and electrical outlets.
- 15 Do not attempt to perform repairs yourself. A little knowledge can be a dangerous thing. Call your qualified biomedical equipment technician, the manufacturer or someone with technical troubleshooting and repair skills.
- 16 Make contingency plans for power failures.
- 17 If you suspect a fault, report it immediately to your engineering department. Never assume that someone else will take care of it.
- 18 Report any electrical tingling sensations promptly.
- 19 Keep equipment dry unless it is purposely designed to be wet.
- 20 Wear appropriately insulated shoes in wet areas.

**Figure 1** A plug with a broken ground prong. Do not use.



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**Figure 2** A 3-prong to 2-prong adapter. Do not use.



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**Figure 3** A plug with the ground wire pulled out, which is very dangerous. Do not use.



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**Figure 4** Do not run cords along the floor, as they may cause a tripping hazard.



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**Figure 5** Do not overload electrical outlets by plugging in devices that, together, will exceed the circuit's current limit.



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