Trinity Health

Electrical Safety

TRINITY HEALTH REQUIRED EDUCATION

Electrical Safety

Version Date: 11/30/2024

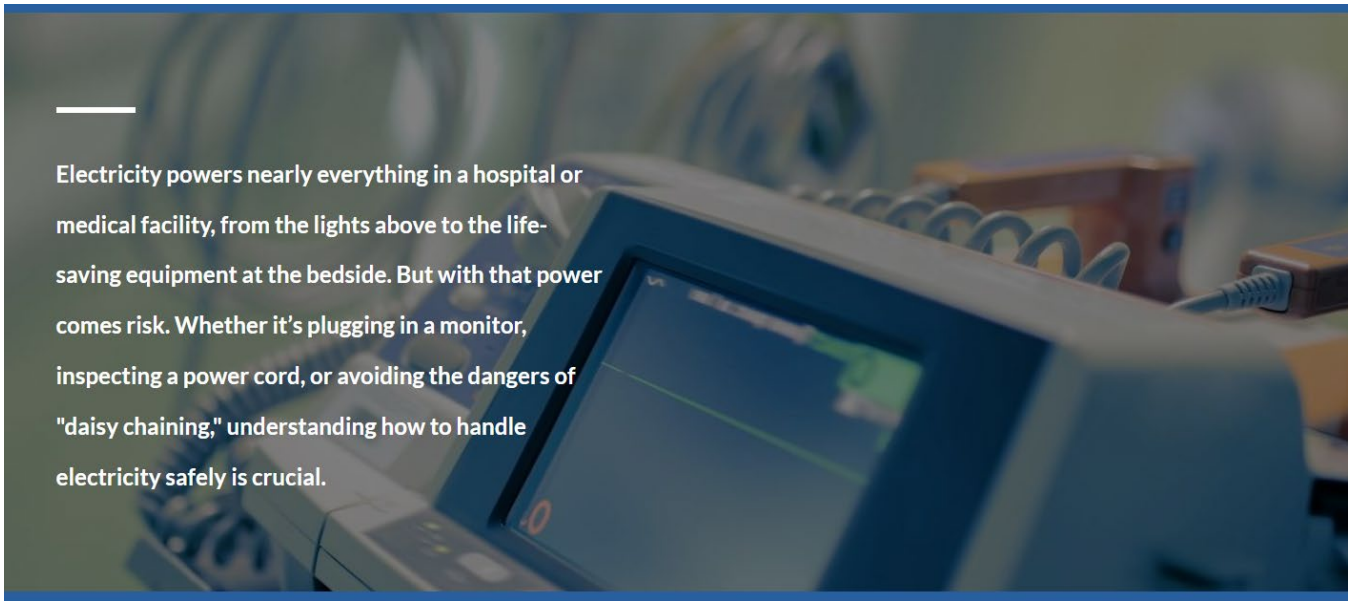
Course Description

Welcome to our annual course on Electrical Safety for healthcare professionals. This course will provide you with an overview of electrical hazards in the workplace and ways that you can protect yourself and others from them.

Table of Contents

Introduction

Lesson 1 of 4



Course Overview

This course will provide you with the knowledge to keep yourself and others safe when using electric devices.

- Key topics covered in this course include:
- How electricity is harmful

A Quick Glossary of Terms

Adapter
A device used to connect one electric device to another electric device so they work together.

Conductors
Materials that let electricity flow through them easily. Examples include water (i.e., standing in water) or exposed skin (bare feet).

Electric shock
When electricity passes through the body, causing pain, injury, or death.

Electrocution
Being injured or killed by an electric shock.

Emergency power supply
A backup source of electricity used during a power outage.

Daisy chain
Connecting multiple power strips or extension cords together, which can lead to electric hazards.

Ground-fault device
A safety device on an outlet that shuts off electricity to prevent electric shock.

Lockout/tagout method
A means by which an electric device is locked and physically disabled from being used to prevent injury.

How Electricity Can Harm You

Lesson 2 of 4

You or someone you know has probably experienced a shock before when using an electric device. As you know, it can be painful!

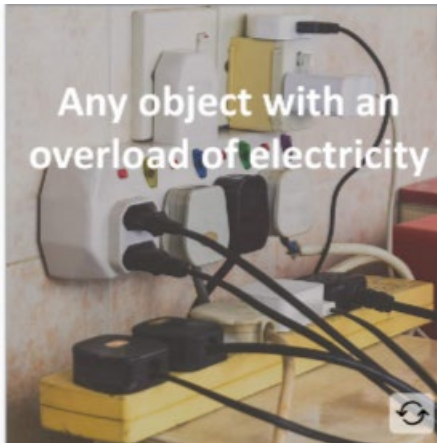
An electric shock is the main danger you face when working with electricity. Knowing the causes and effects of an electric shock and who is at most risk from them is the first step in protecting yourself and others.

Causes of Electric Shock

An electric shock can happen if you touch:

Devices or outlets that have cracked or broken outer covers can expose live wires and electric components.

Live cables may be visible in wires or plugs with cracked or frayed outer wrappings resulting in the risk of shock.



Too many electric devices connected to a single circuit can cause an electric shock or fire.

Effects of Electric Shock

An electric shock can cause different types of injuries, including:

- Burns
- Numbness or tingling
- Muscle cramps
- Issues breathing
- Strange heartbeats
- Death (electrocution)

Now that you understand the causes and risks of an electric shock, let's look at how you can prevent them.

Using Electric Devices Safely

Lesson 3 of 4

How to Stay Safe

It is important to keep yourself, patients, and colleagues safe when using electric devices. Here are four key steps you can follow to protect against electric shocks and other electric hazards.

1. Inspect electric devices, power cords, and outlets.
2. Keep outlets and electric panels free of obstruction.
3. Report electric hazards.
4. Follow guidelines for equipment repair and maintenance.

Let's review each of these.

1

Inspect electric devices, outlets, and power cords.

Electric Devices

Always check electric devices before using to ensure they are safe.

Here are some warning signs to look for:

Look: Is the device working properly? Is there visible damage to it like cracks, holes, or missing parts? Is it near something that could start a fire, like a flammable liquid?

Smell: Do you notice a burning smell around the device?

Touch: If the device looks fine and does not smell like it's burning, check if it's hot to the touch. Did you receive a shock when you touched it?

Outlet & Cover

Check that the outlet has a cover and inspect it for any cracks or damage.

If the outlet looks fine and does not smell hot, touch the outlet to see if it's hot before using it.

Note: Some outlets will have a ground-fault circuit interrupter (GFCI) which helps prevent electric shock.

Plug

Make sure the plug fits into the outlet. The prongs on the plug should match the holes in the outlet. Using a three-prong plug is safer than a two-prong one.

Always plug directly into the wall outlet—avoid using adapters.

When unplugging, hold the plug itself, not the cord.

Cord

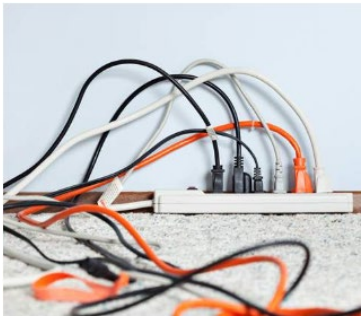
Check the cord regularly for damage or wear.

Keep the cord clear of objects. Do not place any objects on top of it, and avoid bending, stretching, or kinking it.

Place cords out of the way of walkways.

Avoid using extension cords.

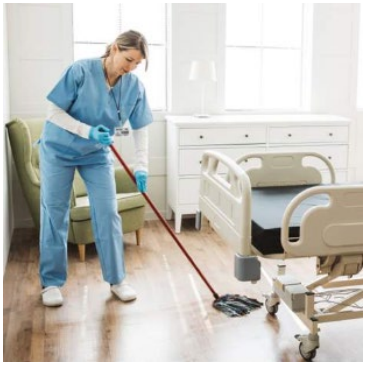
Daisy Chaining



Daisy chaining is when you connect multiple power strips or extension cords together. This can overload outlets and cause fires, damage equipment, or lead to electric shocks.

To stay safe, avoid daisy chaining altogether.

Patient Areas



Check around patient areas for electric hazards. This includes the following:

- Keep the floors in care areas dry to avoid any electric risks.
- Inspect personal devices brought in by patients or their families. (examples: hair dryers, CPAP machine) to make sure they are safe.
- Do not touch patients and electric devices at the same time.

2

Keep outlets and electric panels free of obstruction.

Keep electric outlets and panels in hallways and rooms clear of any devices or equipment. It’s important to leave enough space around outlets and panels to:

- Use them safely
- Inspect for any problems
- Perform proper maintenance

3

Report electric hazards.

You should always be on the lookout for electric hazards. If you see a hazard, report it to maintenance or inform your supervisor. Make sure to follow your facility's process for reporting repairs.

Lockout/tagout is a safety procedure that ensures electrical equipment is isolated from hazardous power sources before repair or maintenance is done. If you see this lock and/or tag on equipment, it means you cannot use it.

4

Follow guidelines for device repair and maintenance.

Your facility should have trained staff that regularly test and repair electric devices, especially when safety is a concern.

There should also be a plan in place for power outages, with a backup power source available to provide electricity when needed.

***Note**: Only qualified staff should test electric devices. Do not plug in damaged devices or try to fix them yourself.*

In this lesson, we have looked at the four steps you need to follow to keep yourself and others safe from electric hazards:

1. Inspect electric devices, power cords, and outlets.
2. Keep outlets and electric panels free of obstruction.
3. Report electric hazards.
4. Follow guidelines for equipment repair and maintenance.

Let's move on to the final lesson to wrap things up.

Wrap-up

Lesson 4 of 4

Course Summary

In this course you have learned important information on how to stay safe when using electric devices.

These topics were covered in the course:

- How electricity is harmful
- How to use electric devices safely

References

Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health (NIOSH). (February 14, 2024). Electrical Safety in the Workplace. https://www.cdc.gov/niosh/electrical-safety/about/?CDC_AAref_Val=https://www.cdc.gov/niosh/topics/electrical/default.html

Occupational Safety & Health Administration. (n.d.). Hospitals etool. U.S. Department of Labor. https://www.osha.gov/etools/hospitals/hospital-wide-hazards/electrical-safety

Occupational Safety and Health Administration. (1990, November 1). 1910.334 - Use of equipment. U.S. Department of Labor. https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.334

Medline Plus. (2021, November 13). Electrical injury. U.S. National Library of Medicine. https://medlineplus.gov/ency/article/000053.htm

