

## Three Major Components of Equipment Maintenance

### Definition of Medical Equipment

Medical equipment is defined as any patient-related equipment that is facility owned, borrowed, leased, consigned; or, equipment used for patient procedures, demonstration purposes, and data collection.

### The Purpose of Equipment Maintenance

A routine schedule for the inspection and maintenance of all patient-related equipment helps ensure the safety of patients and personnel as well as accurate and uninterrupted operation.



### 1. Staff conducts regular inspection of equipment for defects

- Visually inspect the physical condition of equipment for flaws, cracks, deformities, tears, or any other apparent defects. Inspect for: loose knobs or switches, frayed or cracked power cords, loose or broken plug pins, loose power plug or any medical equipment with a two-pronged plug.
- Ensure equipment is labeled with a current electrical safety inspection sticker.
- Ensure no electrical cords are used and that patients are not using personal electrical appliances.
- When the unit is being used, complete a performance test to check for appropriate lights or tones. If any problems are noted, remove the equipment, ensure it is appropriately tagged, and send the equipment to an authorized technician to be repaired.



### 2. Certified electrician or biomedical engineer conducts annual electrical and mechanical safety testing

Diagnostic equipment will have biomedical checks performed at least annually or more frequently to adhere to manufacturers' recommendations, and per IEC safety standards for Medical Electrical Equipment 60601-1.

Electrical and mechanical safety checks include the following:

- If a detachable power supply cord is used, a maximum 0.20 ohm total protective earth pathway is required.
- The allowable values of the touch current are 100uA in normal condition and 500 uA in single fault condition.
- The allowable values of the earth leakage current are 5 mA in normal condition and 10 mA in single fault condition.
- For type BF equipment, the allowable values of the patient leakage currents: From patient connection to earth (a.c.) 100uA (NC) / 500uA (SFC)



### 3. Documentation of Compliance

#### Recommended

Obtain a report signed by the certified electrician or biomedical engineer that includes the following for each piece of equipment:

- Description
- Serial number
- Ground fault
- Current leakage

Keep a policy for monthly visual inspections and electrical reports for your internal records and indicate where they will be filed. Details about documentation required for accreditation are listed on the following page.

## Required for Accreditation

- The Annual Compliance Report (ACR) and the Reaccreditation application will require yearly documentation of passed electrical inspections.
- Documentation can include a photo of the sticker on the machine stating that it has been inspected (must be dated), a report from the inspection company, or a receipt indicating the machine(s) passed inspection.
- An Equipment Maintenance Policy that includes monthly visual inspections is currently not required for accreditation.

## Equipment Maintenance Policy

- The plan should address: monthly visual inspection of equipment by staff for apparent defects; adhering to manufacturers' recommendations for monitoring and maintenance of recording equipment; and, electrical safety testing by a certified electrician or biomedical engineer to include at least annual testing for ground fault.
- A written plan regarding the monitoring of all patient-related equipment for electrical and mechanical safety is recommended, but not required for accreditation.

## Electrical Safety Rules for Staff

Remove from service and report any piece of equipment if:

- Any wire or cord is frayed, worn, cut, or burned
- A plug is broken, bent, or loose
- Switches or knobs are loose
- Cables do not connect securely
- Any concern of overheating by smell or touch
- Equipment has been dropped or physically damaged
- There has been liquid spilled on equipment or equipment is leaking

Additionally:

- Do not use extension cords in patient areas.
- Never disconnect any electrical plug from the wall by grasping the power cord; always firmly grasp and pull the plug.
- Do not allow patients to use personal electrical appliances.

Please contact us at [accreditation@aanem.org](mailto:accreditation@aanem.org) or 507.288.0100 with questions.



## Key Things to Keep in Mind

An electrical and mechanical inspection of equipment should be conducted annually by a certified electrician or biomedical engineer.

The Annual Compliance Report (ACR) and the Reaccreditation application will require documentation of passed electrical inspections.

Visual inspections of patient-related equipment should be conducted on a regular basis.