

# Electrical safety on a hemodialysis ward.



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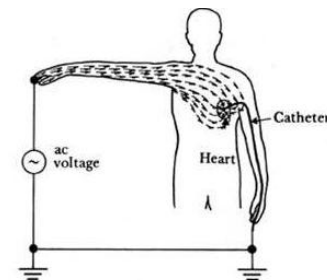
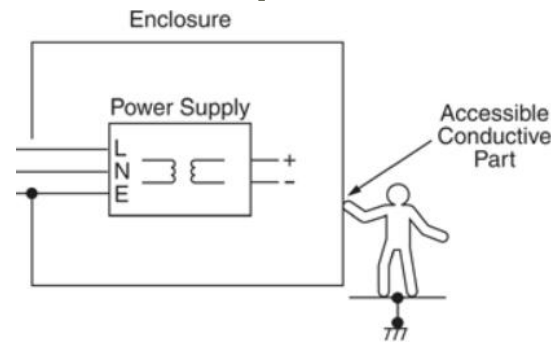
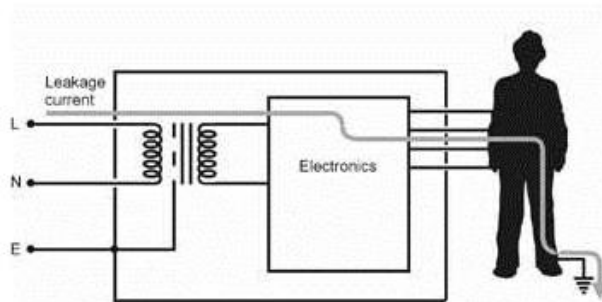
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# Background

- Microshock hazards in hospitals (1970)
  - Invisible, inaudible and dangerous!
  - Concern about safety of medical devices.
- Leakage current = unwanted ac/dc current.
  - Flows in circuits, even when power is off.



- Leakage current close to the heart
  - unwanted stimulation, contractions or arrest.

# Regulations and situation in a hemodialysis unit.

- Safe medical device IEC 60601 / 62353

- Class I to III and type B, BF, CF.

- Class I type B used in dialysis.



B type BF type CF type

- Dialysis ward

- Group 2 medical location.

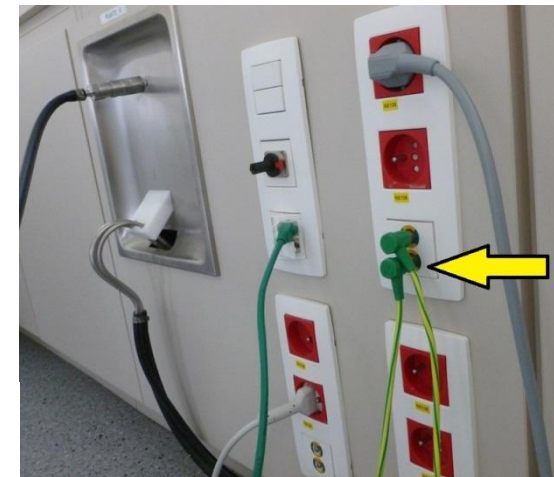
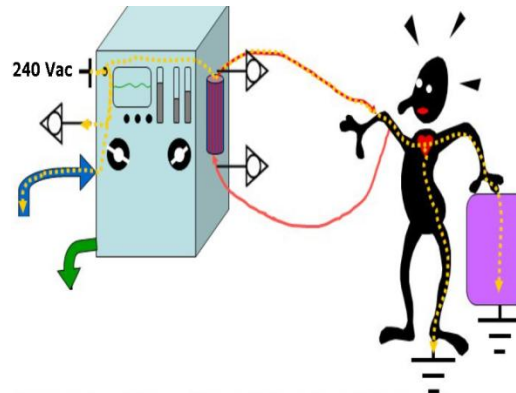
- Equipotential connections.



- Dialysis equipment

- Class I, type B

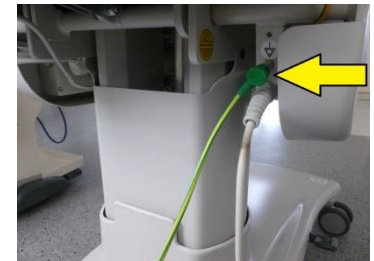
- Protective earth



Equipotential

# Recommended practices

- Dialysis is SAFE from risk or injury if:
  - Yellow/green cable connected. (both sides)



- Avoid use off extension cords.
- Avoid pulling plugs out by cord.
- Don't roll devices over power cords.



→ Regularly check electrical equipment!