Patient Safety and the MRI Machine
What is an MRI?

- A painless radiology technique
- Avoids x-ray radiation exposure
- No known side effects
- Precise accuracy in detecting structural abnormalities of the body
MRI Precautions

• The following can significantly distort the MRI image
  – Metallic chips
  – Surgical clips
  – Foreign materials
    • Artificial joints
    • Metallic bone plates
    • Prosthetic devices

Remember: All patients must be screened prior to the MRI Exam.
MRI Restrictions

- People with the following CANNOT be scanned or enter the scan room
  - Heart pacemakers
  - Metal implants
  - Metal chips or clips in or around the eyeballs
  - Artificial heart valves
  - Metallic ear implants
  - Bullet fragments
  - Chemotherapy or insulin pumps
Department Safety Issues

No one is allowed in the MR Scanner Room unless they have been screened by MRI personnel. This includes: doctors, nurses, administrators, housekeepers, maintenance workers, patients, visitors, radiology staff.

ABSOLUTELY NO EXCEPTIONS.
Department Safety Issues

• Housekeeping/Maintenance
  – Do not enter the room unless directed by an MRI Technologist

• Transporters
  – Always bring patient to reception area
  – Never enter the MRI room with the patient
Department Safety Issues (continued)

• Respiratory Therapists:
  – $O_2$ tanks are not permitted in the MRI area. The MRI room has wall $O_2$ and suction built in.

• Nursing/Emergency Room Staff
  – Heart monitors and or immobilizers are not permitted.
REMEMBER

ALL STAFF MEMBERS MUST BE SCREENED PRIOR TO ENTERING THE MRI ROOM
MRI Related Incidents

• Over the last decade the following objects have crashed into or been pulled into the chamber of the MRI systems causing patient injuries:
  – Oxygen cylinders
  – IV poles
  – Mop bucket
  – Laundry cart
  – A chair
  – A floor buffer
  – A ladder
  – Patient lift
  – Pulse oximeter
  – Scissors
  – Traction weights
  – Light fixture
Samples of MRI Related Incidents

• A 6 year old boy died after undergoing an MRI exam at a New York area hospital when the machine’s powerful magnetic field jerked a metal oxygen tank across the room.  (Chen DW. Boy, 6, dies of skull injury during M.R.I. New York Times. July 31, 2001:B1, B5.)

• An IV pole was attracted to the magnet and struck a patient, cutting his arm. The patient required stapling of the cut.  Chaljub G, Kramer LA, Johnson RF III, Johnson RF Jr, Singh H, Crow WN. Projectile cylinder accidents resulting from the presence of ferromagnetic nitrous oxide or oxygen tanks in the MR suite. AJR Am J Roentgenol 2001;177:27-30
A pair of scissors was pulled out of a nurse's hand as she entered the magnet room. The scissors hit a patient causing a cut on the patient's head.*

Two steel tines (parts of a fork lift) weighing 80 pounds each were accelerated by the magnet striking a technician and knocking him over 15 feet resulting in serious injury.*

REMEMBER

THE MRI MACHINE NEVER SHUTS DOWN – IT ALWAYS PRESENTS A HAZARDOUS WORK AREA.