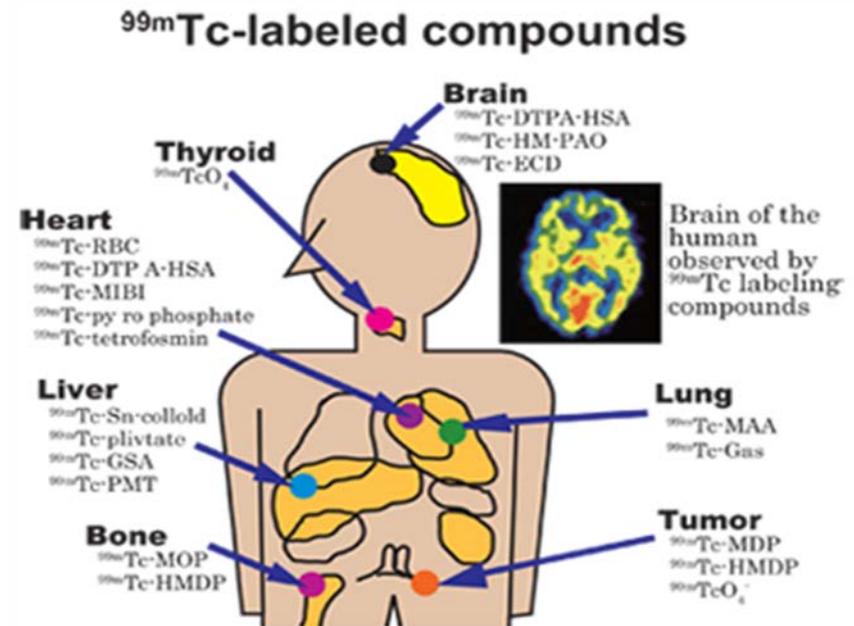


# Nuclear Diagnostic Applications

- 40M Tc-99m doses worldwide per year
  - Rapid diagnostic procedures
  - USA uses 50% of supply
- Medical Isotope Mo-99 Produced in a Reactor
  - Tc-99m daily “milked” from Mo-99 in Lab
  - Tc-99m injected into patient
  - Scan and image body
  - Short half-life – Safe
- Tc-99m most popular diagnostic radioisotope
  - Continual Production and Distribution



## Targeting trouble

In nuclear medicine, radioactive substances known as radioisotopes are administered to patients in order to diagnose disease.

**Mo**

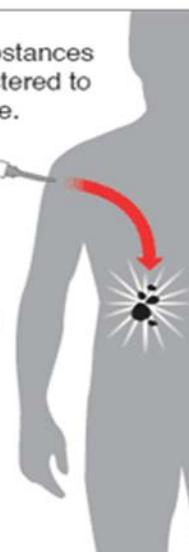
A nuclear reactor produces radioactive molybdenum (Mo) which is packaged in a small container and distributed.

**Tc**

Molybdenum decays into the radioisotope technetium (Tc) and is combined with a substance specific to a tumor or organ targeted. The mixture is called a tracer.



Once injected, the tracer outlines the target, making it visible to screeners by emission of radioactive energy.



The radiotracer, injected into a vein, emits gamma radiation as it decays. A gamma camera scans the radiation area and creates an image.



SOURCE: National Cancer Institute

AP