Applications of Diagnostic Imaging
Nuclear Medicine
Gerald R. Aben, MD FACR
Department of Radiology
College of Osteopathic Medicine
Nuclear Medicine / PET

- Ionizing radiation
- Radio-isotopes attached to molecules targeting specific organs or metabolic processes
- Spatial resolution limited
- Able to evaluate temporal resolution of uptake/events
Nuclear Medicine / PET

• Primary applications:
  • First line evaluation of biliary function evaluation
  • First line evaluation of cardiac perfusion
  • First line evaluation of solid pulmonary nodules
  • First line evaluation for many neoplasms, staging – treatment response
Nuclear Medicine / PET

• Primary applications:
  • Head & Neck
    • Brain death evaluation – cerebral blood flow
    • CSF flow evaluation
    • Bone abnormality evaluation
  • Thorax
    • V-Q Scanning – Ventilation Perfusion scanning for Pulmonary Embolism detection – secondary exam
    • Pulmonary nodule evaluation (PET)
    • Cancer staging (PET)
Nuclear Medicine / PET

• Primary applications:
  • Abdomen & Pelvis
    • Liver – spleen scanning
    • Hepatobiliary scanning
    • Renal scanning
    • Bladder & Reflux evaluation
    • GI bleed evaluation
    • Cancer staging (PET)
  • Soft tissues – Bone & Joints
    • Bone scanning
    • Tumor scanning (Gallium, PET)
    • Infection scanning (labeled white cells, Gallium)