Making the Transition from Biomed to Medical Imaging

Presented by Brian Wilson, CBET, CRES.

TechNation

Advancing the Biomedical/HTM Professional

Biomed vs Imaging

Workload

Service Expectations

Hours

Stress!!!

Youth Movement

50% of the current workforce is over 50

Getting Started

Let someone know your intentions

Help out on projects and installations

Job Shadowing

Work with Vendors on Repairs

Ultrasound


PHILIPS


A. PATIENT
doctor today
27 Apr 07
10:15am

Injectors


224 224

Education

- OJT
- ISO and Third Party
- Manufacturer

Internship

- In House Mentorship
- ISO and Third Party
- Manufacturer

Imaging Modalities

Diagnostic Radiographic X-Ray.

Diagnostic Fluoroscopic X-Ray.

Linear Tomography.

Computed Tomography (CT).

Imaging Modalities

Diagnostic Ultrasound.

Magnetic Resonance Imaging (MR)

Nuclear Medicine.

Mammography.

Radiographic Systems

Diagnostic X-Ray

Uses a X-Ray tube to produce ionizing radiation.

An image receptor is used to record the radiographic image.

The image can be recorded with a digital detector, CR or film cassette.


SIEMENS
Multix Fusion

X-Ray Tube

X-Ray tubes in conjunction with a generator, produce ionizing radiation.

It has a Cathode, Anode, filaments and in most cases a rotor.

It is placed in a vacuum sealed enclosure, surrounded by lead and aluminum shielding.

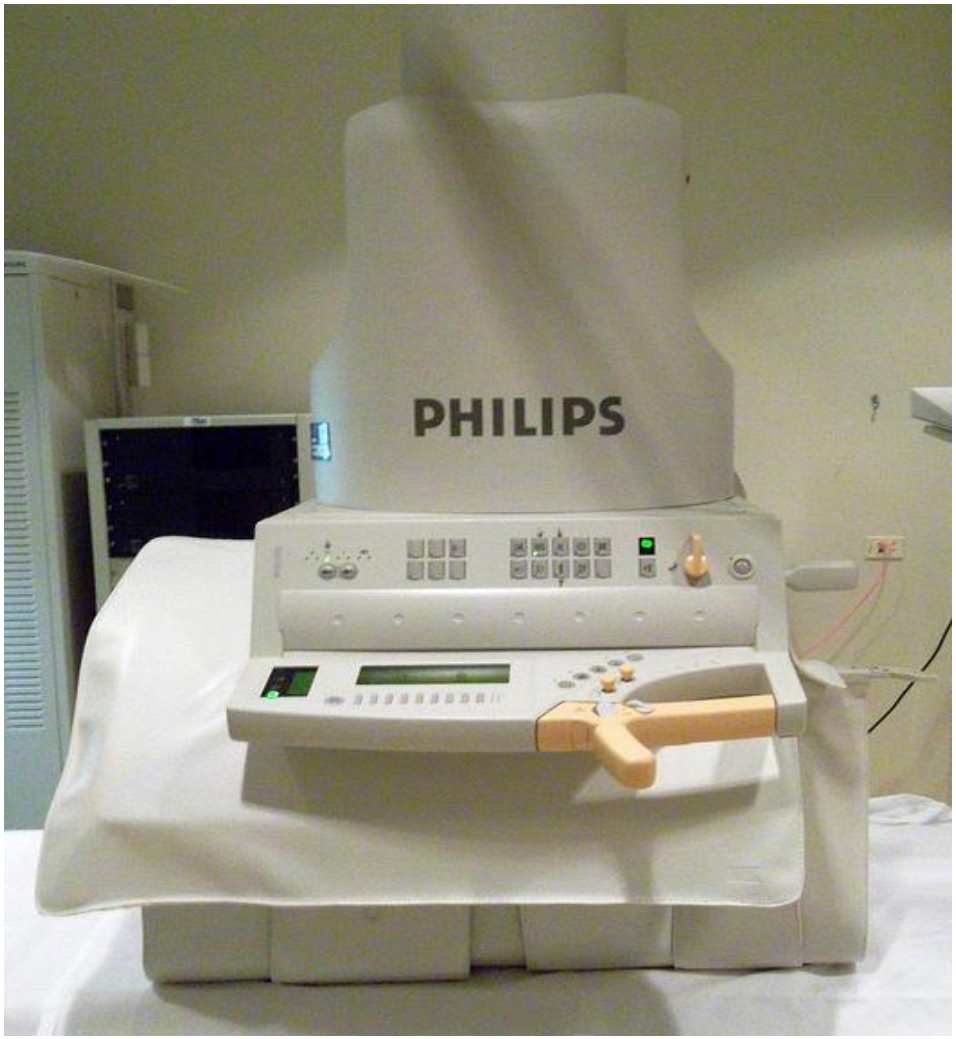

Selected Manual
0 mm Cu 13.3 in X 13.6 in 40.0 in
M

Portable X-Ray

C-Arm


Please inform the technologist if you are pregnant or think you might be pregnant.
OEC
5

Fluoroscopy




SIEMENS
Healthineers
ARTIS icono

Nuclear Medicine

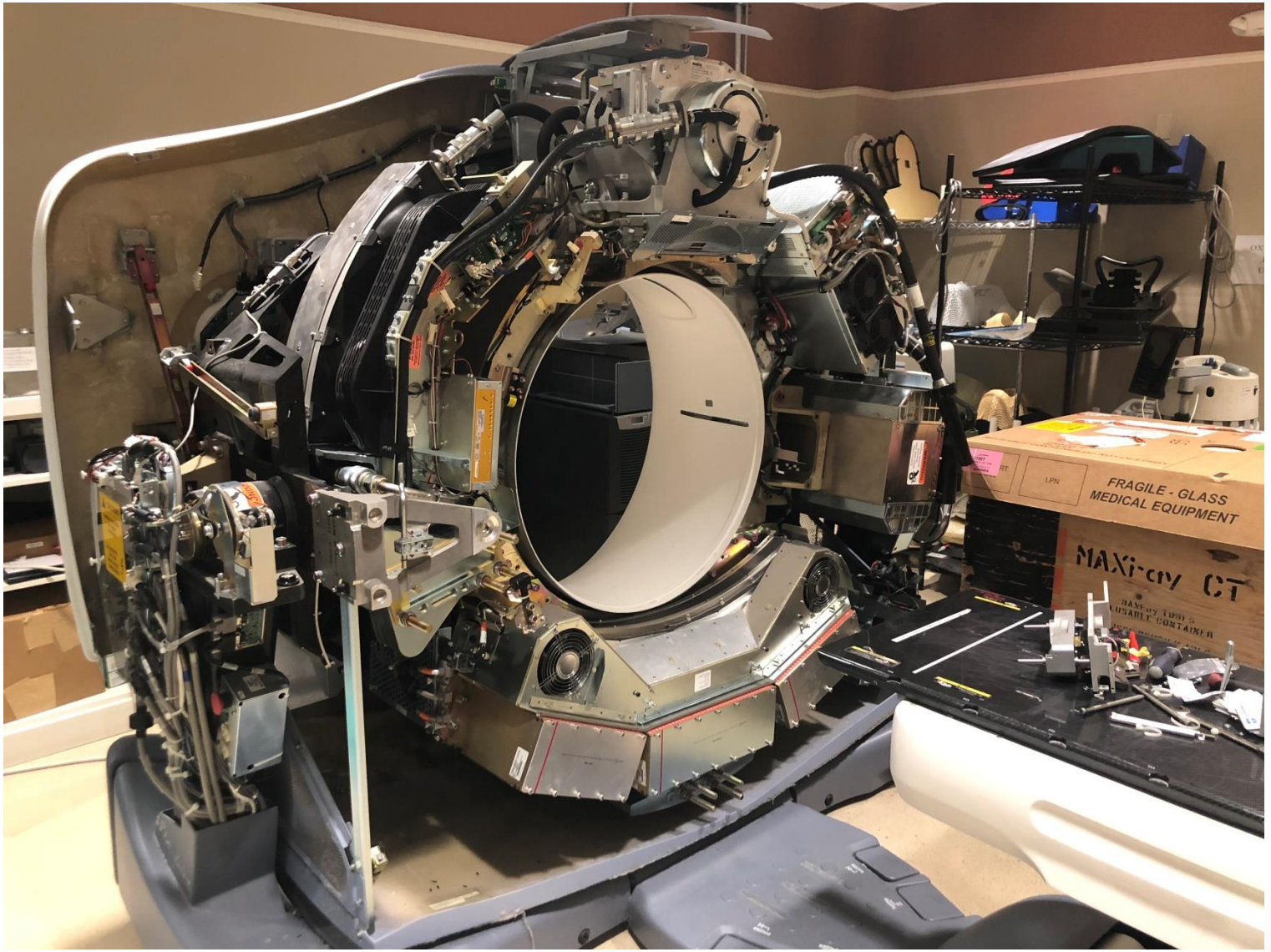
PET CT

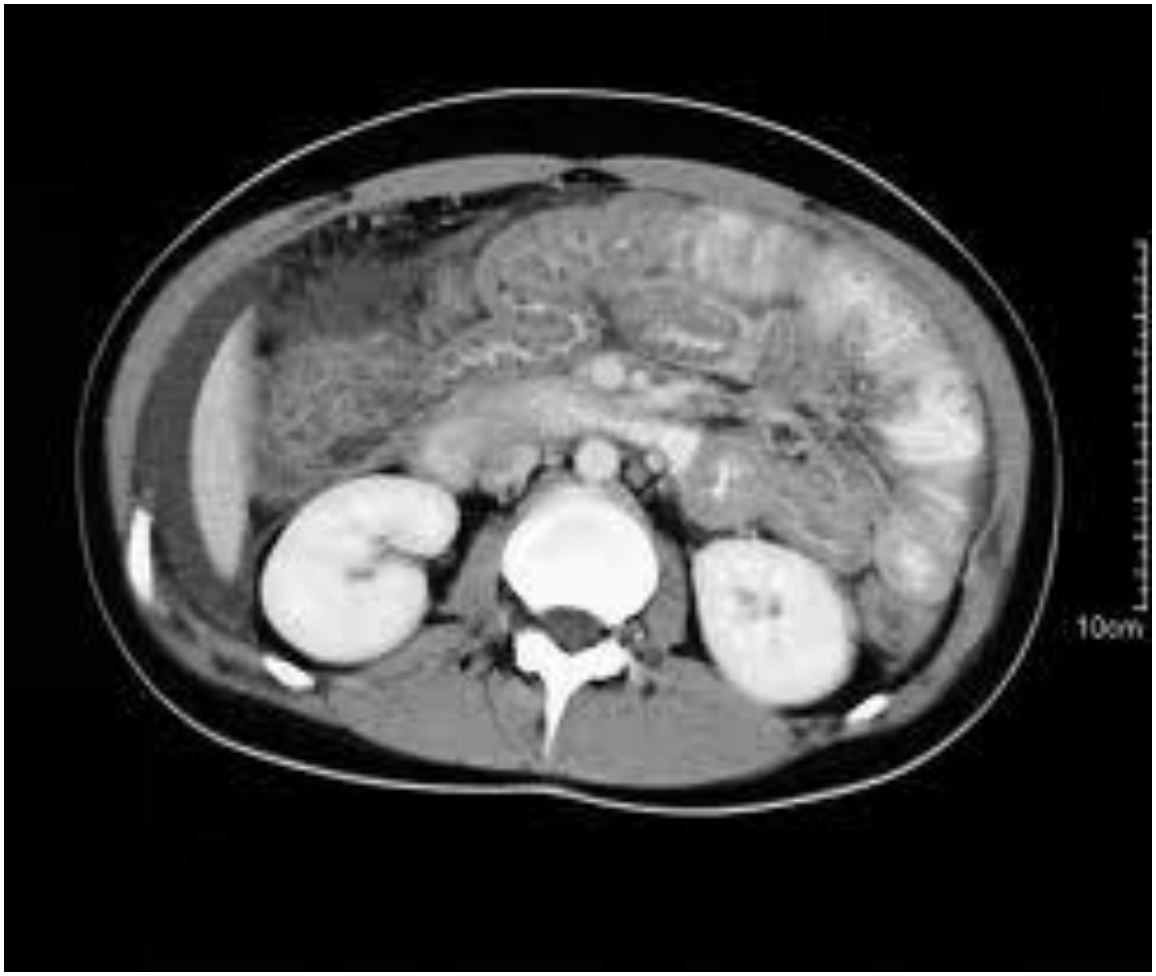

PHILIPS

Computed Tomography (CT).

Computed Tomography

- Introduced in the early 1970's.
- Developed by a division of EMI Records.
- Was originally referred as a Computed Axial Tomography (CAT Scan).
- Now commonly referred as Computed Tomography (CT Scan).


FRAGILE - GLASS
MEDICAL EQUIPMENT
MAXi-ray CT


10cm

MR Unit

MR

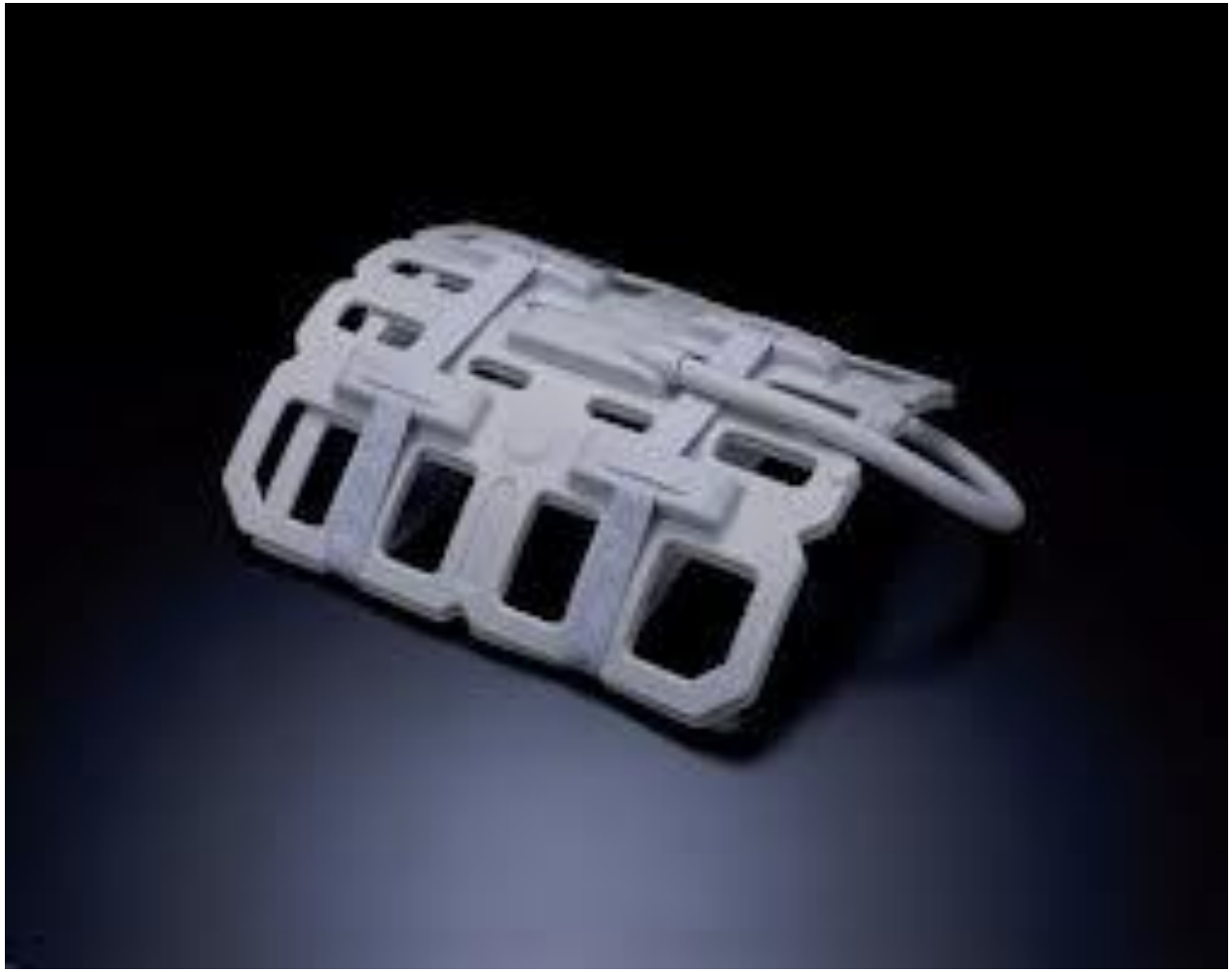
- Magnetic Resonance Imaging – Is a imaging process that uses a magnetic field to produce scans of body structures.
- Does not expose the patient to ionizing radiation.
- Can give better resolution on soft tissue than traditional imaging techniques.
- MRI works best on tissues with lots of hydrogen atoms.

MR Coils

- Gradient Coils – adjust the main magnetic field.
- They are positioned in the x, y and z axis .
- They are the source of most of the noise that is associated with MR systems.
- They help maintain the magnetic field uniformity.

MR Coils

- Volume Coils – RF coils that surround the whole body or a specific region.
- Have better image resolution than surface coils.
- Volume coils can both transmit and receive signals.



Mammography System

Mammography System

- A typical mammography system is made up of three major components.
- X-Ray generator, to provide power to the tube assembly.
- Operator control console to operate the system and to set exposure parameters.
- Gantry / C-Arm stand. Houses the tube assembly and image receptor.

Radiation Therapy

- It uses computer controlled linear accelerators for precise treatment of cancerous tumors.
- It has found wide use in treating prostate cancer and tumors in the head and neck.
- It is now being used for limited treatment of breast cancer tumors.

Pros and Cons

- Better Pay
- Career Advancement
- Training Opportunities

- Complicated Repairs
- Long & Chaotic Work Hours
- Stress!!!

Recommendations

- Work with Management
- Consider Work/Life Needs
- Certification

Thank You for Your Time!!!


MDEXPO
New England • October 8-10, 2024