

NUCLEAR MEDICINE TECHNOLOGY



WHAT IS IT?

Nuclear Medicine Technologists are involved with direct patient care to outpatients, inpatients, ED patients, oncology patients, etc. They start each exam by explaining the process of the particular exam to the patient. Following the explanation, the technologist begins an IV and injects a radioactive tracer into the patient. Some tracers go directly to the area of interest and some are “tagged” to a pharmaceutical (drug) to direct our radioisotope to the correct area.

HOW DO WE GET AN IMAGE?

Most radioisotopes need a certain length of time after injection to go where we need them to. After the wait-time, we bring the patient into our camera room where the imaging process begins. The patient is radioactive from our injection. They give off emissions, in which our camera detects, and forms an image.

IS IT AN X-RAY, CT, OR MRI?

No! Nuclear Medicine is its own modality under the Radiology umbrella. However, many departments have either SPECT/CT or PET/CT machines. This means we are able to take our Nuclear Medicine image and then fuse it with a CT image for attenuation correction and anatomical correlation.

HOW DID I LEARN ABOUT NUCLEAR MEDICINE?

I am a Registered Radiologic Technologist and learned about Nuclear Medicine during my time in x-ray school. I quickly realized how interested I was in this field and applied to an accredited program as soon as possible, knowing this field is popular and can be extremely hard to get into.

HOW CAN YOU BECOME A NUCLEAR MEDICINE TECHNOLOGIST?

First, I recommend going on a job shadow to get a better understanding of the modality. Following the shadow, you should look for an accredited program in your area. The programs near me are few and far between. I live in Maine, but I am a student at Massachusetts College of Pharmacy and Health Sciences. My course consists of mostly online classes, in-person clinical, and full hands-on lab-days in Massachusetts two times every semester.

IS IT WORTH IT?

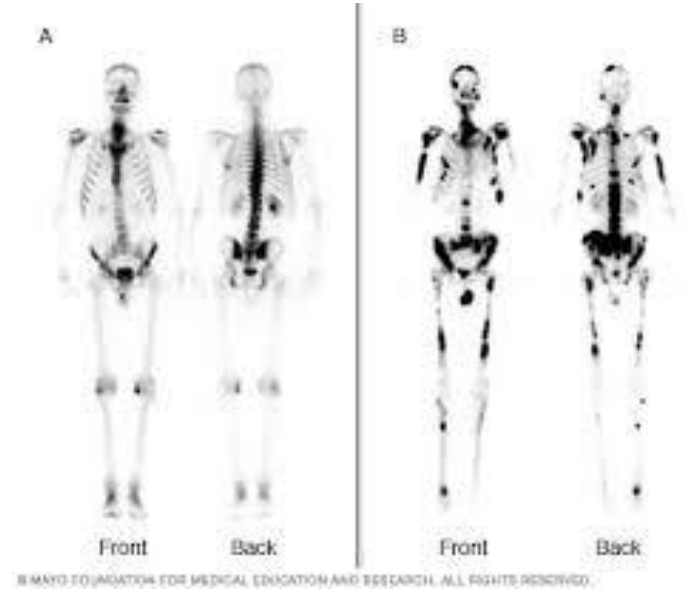
School is very demanding, but so rewarding! I have really enjoyed going back to school and learning Nuclear Medicine. This modality fits me, and my career goals much better than just being a Radiologic Technologist did. I could not recommend going into this field enough! It is so rewarding to be apart of a team to help our patients and they are just as thankful for us. I am lucky in that my program is accredited for CT as well, meaning when I graduate I can sit for my NMT and CT boards, to become registered in both!

EDUCATION

There are many subparts of this field that may be intriguing to you. If healthcare interests you, we are involved in direct patient care. Good at chemistry? We deal with isotopes everyday! We “pull” radioactive isotope doses and inject them through an IV! Like math? We have several equations that we use to determine half-lives of radioactive tracers, determining radiation safety, calculating doses, etc.

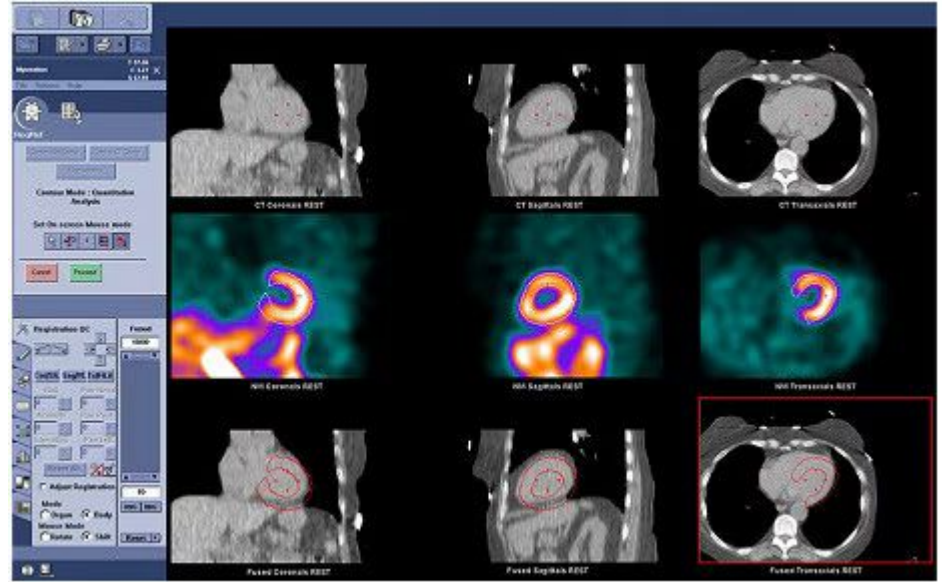
WHAT KIND OF STUDIES DO YOU DO?

BONE SCANS



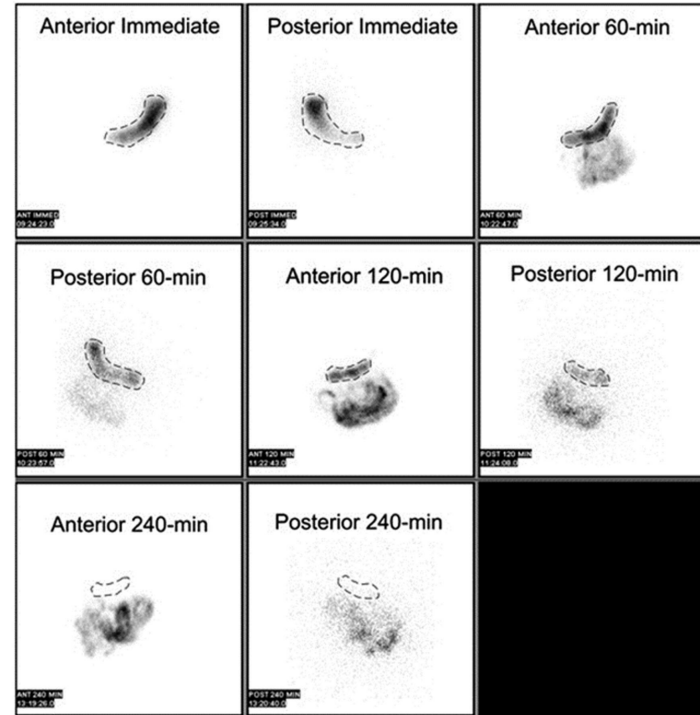
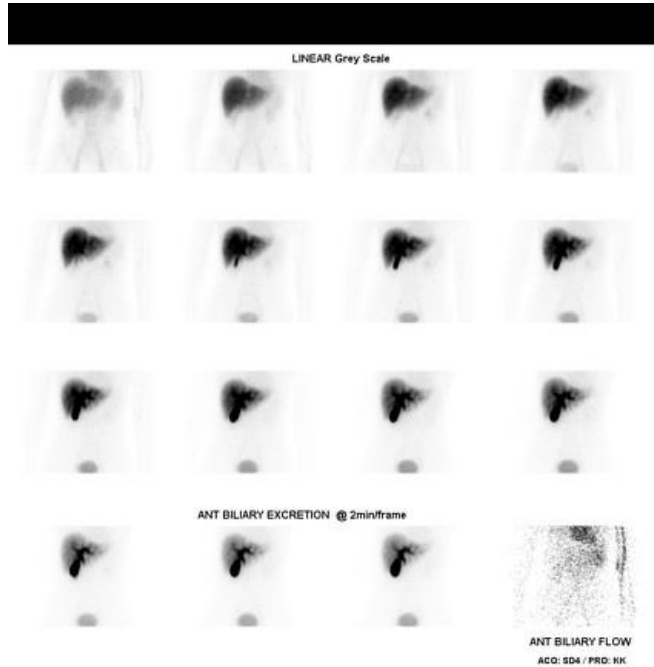
Indications: cancer, infection, injury, reason for unknown bone pain, etc.

CARDIOLOGY



Indications: coronary artery disease, ischemia, myocardial infarction, hypertension, etc.

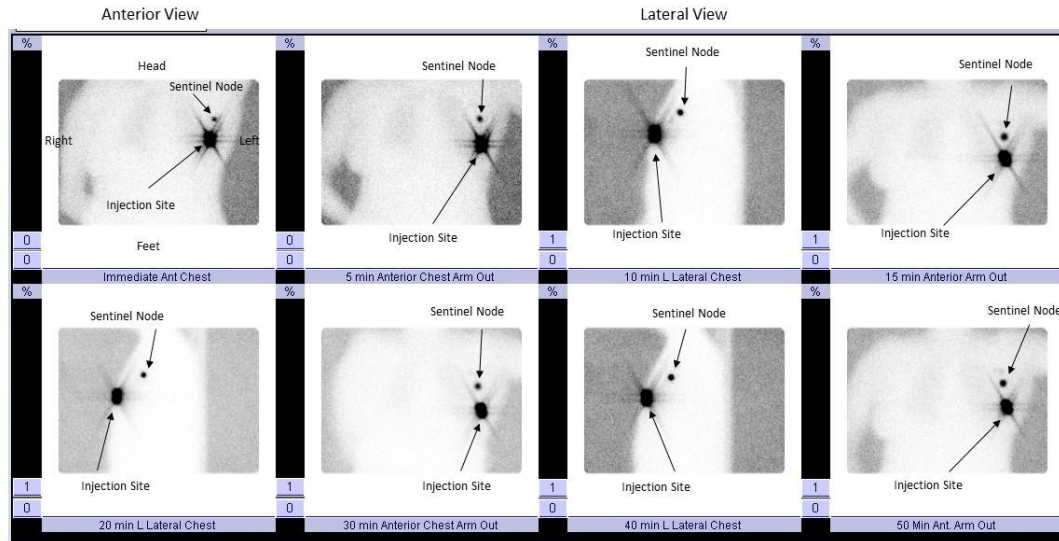
HEPATOBIILIARY/GASTRIC



Indications: cholecystitis, nausea, vomiting, fullness, abdominal distension, etc.

LYMPHOSCINTIGRAPHY

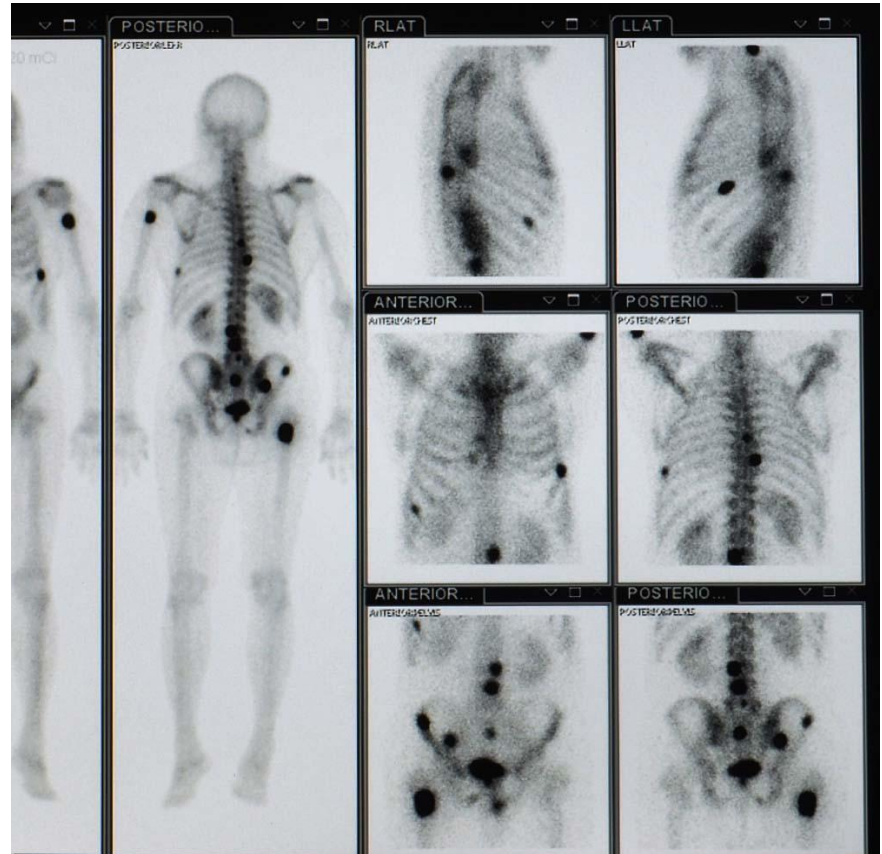
Breast Scintigraphy Scan Using Gamma Camera and Radioactive Tracer Agent



Indications: breast cancer lymph node mapping

ONCOLOGY

Indications: history of cancer, diagnosing of cancer, etc.



PET SCAN

Indications:
evaluation of
organs, cancer,
etc.

	MRI	CT	PET
Tech	Magnets + radio waves	X-rays (3D)	Radiation traces with CT Scan
Detect	Soft Tissue, Tendon, Ligament Brain	Bony structure and blood vessels	Cancer Heart Brain
Procedure Time	30 min	5 - 10 Min	60 - 90 Min

I TRULY FEEL THAT THIS IS THE ABSOLUTE BEST FIELD TO GO INTO. IT MIXES HEALTHCARE AND STEM CAREERS INTO ONE. IT IS SUCH A FULFILLING FEELING WALKING OUT OF CLINICAL EVERY SINGLE DAY AND I CANNOT RECOMMEND THIS CAREER ENOUGH, PLEASE APPLY TO YOUR NEAREST PROGRAM:)

REFERENCES

Farrell, M. B. (2019, June 1). *Gastric emptying scintigraphy*. Journal of Nuclear Medicine Technology. <https://tech.snmjournals.org/content/47/2/111/tab-figures-data>

Health, B. B. (n.d.). *BCHC introduces Cardiac Nuclear Medicine*. BCHC Introduces Cardiac Nuclear Medicine |. <https://bchealth.org/bchc-introduces-cardiac-nuclear-medicine/>

Lymphoscintigraphy. SNMMI. (n.d.). <https://snmmi.org/Patients/Patients/Procedures/Lymphoscintigraphy.aspx>

Mayo Foundation for Medical Education and Research. (2024, April 2). *Bone Scan*. Mayo Clinic. <https://www.mayoclinic.org/tests-procedures/bone-scan/about/pac-20393136>

MediLexicon International. (n.d.). *Bone Scan: What does it show?*. Medical News Today. <https://www.medicalnewstoday.com/articles/bone-scan>

Molecular imaging products | GE Healthcare (United States). (n.d.-a). <https://www.gehealthcare.com/products/molecular-imaging>

Normal hida scan | radiology case | radiopaedia.org. (n.d.-b). <https://radiopaedia.org/cases/normal-hida-scan-1>

Nuclear medicine imaging services. L&M Radiology. (2023, February 2). <https://www.lmradiology.com/services/nuclear-medicine/>

Shrestha, S. (2023, April 9). *Pet and spec scans: Nuclear imaging simplified*. LinkedIn. <https://www.linkedin.com/pulse/pet-spec-scans-nuclear-imaging-simplified-sushant-shrestha>