



[Medical physicist (R) consults with diagnostic radiologist (L) during image interpretation.]

Advances in medical imaging have made it possible to get accurate information about your condition quickly and easily. Your examination may include traditional x-ray (radiography), fluoroscopy, computed tomography (CT), ultrasound, nuclear medicine, or magnetic resonance imaging (MRI). In addition to the Technologist who administers your examination and the Physician who interprets your images, your caregivers include the Medical Physicist.

The Medical Physicist is part of the medical imaging team, ensuring patient images are of the highest quality. The Medical Physicist is also a resource for the Physician and Technologist, helping them better understand the technical aspects of the imaging methods so they can use them most effectively.

X-ray Images

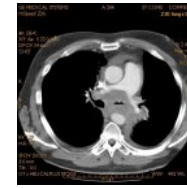
To produce quality x-ray images of all parts of your body safely, the x-ray equipment must be well maintained and operated properly. The Medical Physicist uses sophisticated detection equipment to

test and measure the radiation produced by x-ray machines. To minimize radiation risk, the Medical Physicist makes sure that the radiation-producing equipment is operating within safe limits defined by regulatory agencies and that the amount of radiation patients are exposed to is within an accepted range.

X-ray images can be viewed on film or on television monitors. Your Physician uses the information on the images to reach a diagnosis. To help your Physician make the right diagnosis, the Medical Physicist performs tests to ensure that all images are of the highest quality.

CT, Ultrasound, Nuclear Medicine, and MRI

The Medical Physicist is also involved with other imaging procedures that may be used to establish your diagnosis. CT uses both x-rays and a computer to produce diagnostic images of your body. Ultrasound uses reflected sound waves; nuclear medicine imaging, including positron emission tomography (PET), uses small amounts of radioactive materials; and MRI uses strong magnetic fields and radio waves to create images of the body's tissues and their function. The equipment used to perform these diagnostic studies is very complex and must function properly to get high-quality images. The Medical Physicist evaluates the equipment's operation and image quality and oversees the routine quality control testing of these imaging systems to ensure the images meet widely accepted standards.



Lung CT



4D Ultrasound



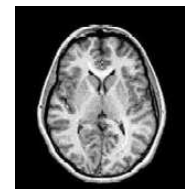
Nuclear Bone Scan



Colon Fluoroscopy



Aortic Arch Angiogram



Brain MRI

If You Are Pregnant

If your Physician decides that an x-ray or nuclear medicine examination is needed during your pregnancy, a Medical Physicist may be asked to calculate the radiation dose that your unborn child will receive during the imaging procedure. This information will help your Physician explain the risks of the procedure to you and make any necessary recommendations. Please note that radiation risks are small for most diagnostic procedures, and there are no known risks associated with ultrasound or MRI examinations.

The science of medical imaging began in 1895 and has produced multiple Nobel prizes for Physicists. Today, medical imaging is an important tool for the diagnosis of many diseases, and Medical Physicists are an essential part of the safe and accurate diagnostic imaging process. The results of continuing research in the diagnosis and treatment of disease by Medical Physicists has given hope and health to thousands of patients.

[Front cover: Medical physicist performs measurement to assure that mammography unit meets federal standards.]

Certification

Medical Physicists have advanced science degrees and clinical training. In addition, the American Board of Radiology, the American Board of Medical Physics, the Canadian College of Physicists in Medicine, and the American Board of Science in Nuclear Medicine examine and certify Medical Physicists. The high standards of these organizations make board certification an important indicator of qualification for a Medical Physicist. Some states also require licensure.

Whether or not you have an opportunity to meet the Medical Physicist who is involved in your care, you can be assured that he or she brings skills, knowledge, and commitment that you can rely on during your diagnostic imaging procedure.

To verify Medical Physicist certification:

The American Board of Radiology

5441 E. Williams Blvd., Suite 200, Tucson, AZ 85711
Phone: (520) 790-2900 • Fax: (520) 790-3200
www.theabr.org

American Board of Medical Physics

P. O. Box 1498, Galesburg, IL 61401
Phone: (309) 343-1202 • Fax: (309) 344-1715
www.acmp.org/abmp/index.html

Canadian College of Physicists in Medicine

P. O. Box 39059, Edmonton, AB, T5B 4T8 Canada
Phone: (780) 488-4334 • Fax: (780) 482-4425
www.medphys.ca

American Board of Science in Nuclear Medicine

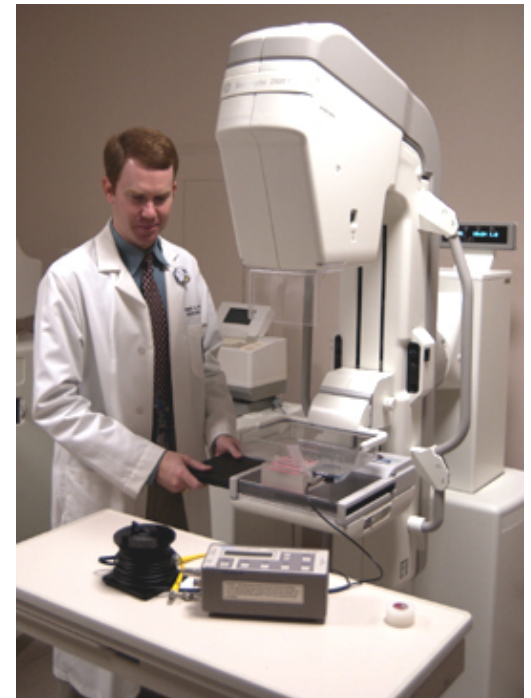
1850 Samuel Morse Drive, Reston, VA 20190
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The Medical Physicist in Diagnostic Medical Imaging



*American Association of
Physicists in Medicine*