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Radiation Oncology Physics and Medical Physics Education

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Medical physics, an applied field of physics, is the applications of physics in medicine. Medical physicists are essential professionals in contemporary healthcare, contributing primarily to the diagnosis and treatment of diseases through numerous inventions, advances, and improvements in medical imaging and cancer treatment. Clinical service, research, and teaching by medical physicists benefits thousands of patients and other individuals every day. This talk will cover three main topics. First, exciting current research and development areas in the medical physics sub-specialty of radiation oncology physics will be described, including advanced oncology imaging for treatment simulation, image-guided radiation therapy, and biologically-optimized radiation treatment. Challenges in patient safety in high-technology radiation treatments will be briefly reviewed. Second, the educational path to becoming a medical physicist will be reviewed, including undergraduate foundations, graduate training, residency, board certification, and career opportunities. Third, I will introduce the American Association of Physicists in Medicine (AAPM), which is the professional society that represents, advocates, and advances the field of medical physics (www.aapm.org).