



GENERAL COMPETENCIES AND COMPONENTS OF MEDICAL PHYSICS

Based on MOC Competencies required by the American Board of Medical Specialties

Guidelines for the ABR MOC Letters of Attestation – Section on Evaluation

The practice of medical physics encompasses a diversity of specialties. Some are directly related to patient care through acquisition of data and development of customized tools, while others involve optimization of complex radiological procedures and their applications to patient management. Therapeutic medical physics, diagnostic medical physics, and nuclear medical physics are specialties with these characteristics, and their practices impact directly on the quality of patient care.

Medical Knowledge

- Know current scientific knowledge underlying medical imaging and radiation oncology.
- Apply scientific knowledge to the use and improvement of medical images and treatment procedures in radiation oncology.
- Use accepted protocols in the calibration, use and evaluation of radiological equipment used for image acquisition and processing, and for treatment in radiation oncology.
- Employ information technologies in support of medical imaging and radiation oncology.
- Consult with physicians and other personnel in the optimization of imaging and treatment procedures for patients.
- Contribute to decision-making concerning deployment of new devices and procedures for imaging and treatment.

Patient Care and Procedural Skills

- Gather essential and accurate information about the patient using the following tools.
 - Imaging and therapeutic tools and equipment
 - Physical measurements
 - Computational techniques
- Analyze patient and equipment performance data and make informed decisions by:
 - demonstrating effective and appropriate problem-solving skills
 - understanding the limits of one's knowledge and expertise
 - using radiation devices and ancillary equipment in an appropriate and safe manner
- Contribute effectively to patient care management plans
- Perform in a competent manner all medical physics procedures considered essential for the scope of practice
- Counsel patients and families by providing information necessary to understand diagnostic imaging, treatment plans, and procedural safety.
- Use information technology to optimize patient care.

Interpersonal and Communication Skills

- Communicate effectively with colleagues, including physicians, other physicists and technical support personnel, to create and sustain a professional relationship.
- Interact with patients, families and the public in a professional and knowledgeable manner.
- Serve as a consultant to others desiring information and collaboration.
- Maintain comprehensive, timely and legible records.

Professionalism

- Consistently demonstrate high standards of ethical behavior
- Respect the dignity of patients and colleagues as persons including their age, culture, disabilities, ethnicity, gender and sexual orientation
- Demonstrate respect for and a responsiveness to the needs of patients and society by:
 - accepting responsibility for appropriate aspects of patient care including continuity of care
 - demonstrating integrity, honesty, compassion and empathy in one's role as a medical physicist
 - respecting the patient's privacy and autonomy
 - demonstrating dependability and commitment

Practice-based Learning and Improvement

- Demonstrate continuous practice improvement by:
 - engaging in lifelong learning to improve knowledge, skills and performance
 - analyzing one's practice experience to recognize one's strengths, deficiencies and limits in knowledge and expertise.
 - using evaluation of performance provided by peers, superiors, and subordinates to improve practice
 - seeking ways to improve patient care quality
- Use information technology to optimize lifelong learning
- Facilitate education of patients, families, students, residents and other health professionals.

Systems-based Practice

- Demonstrate understanding that medical physics is one part of a continuum of patient care by:
 - understanding how one's professional practices affect other health care professionals, the health care organization, and the larger society and how these elements of the system affect one's own practice
 - knowing how types of medical practice and delivery systems differ from one another, including methods of controlling health care costs and allocating resources
- Work towards integration and continuous improvement measurements individually and within the health care network by:
 - practicing cost-effective health care and resource allocation that does not compromise quality of care
 - advocating for quality patient care and assist patients in dealing with system complexities
 - knowing how to partner with health care managers and health care providers to assess, coordinate, and improve health care and know how these activities can affect system performance