



Profile of the Medical Physics Expert

Background and position

The Medical Physics Expert (MPE) is a postgraduate trained physicist working in a clinical environment. After obtaining a Master's Degree in physics¹, the MPE completes a 4 year educational program and will be listed in the registry of the MPE Training and Registry Foundation (Opleiding Klinische Fysica, OKF). The acknowledgement and certification as supporting medical specialist for his subspecialty is valid for 5 years after which re-accreditation and certification needs to be obtained. The Dutch MPE degree is formally and legally protected by article 34 of the Dutch Wet BIG, a national law on healthcare professionals.

The basic physics MSc training assures ample expertise with respect to mechanics, acoustics and (ultra)sound, electricity and magnetism, ionising radiation, light and lasers, MRI and in conducting scientific research in a broad sense, performing experiments and system-analytics reasoning and performing error and risk assessments. The subsequent 4 year medical physics training increases this knowledge and practical skills for the benefit of patients, medicine and clinical practice.

With this broad medical physics, biophysics and physiological knowledge the medical physicist is able to act as a medical physics expert in specialised medical care in order to support and being responsible for diagnosis and therapy of individual patients and patient groups. MPE's are employed by general hospitals, university medical centres and health care institutes specialised in radiation oncology, audiology and rehabilitation.

The MPE is full member of the medical staff of the health care institute. The Society for Medical Physics of the Netherlands (NVKF) is represented in the Federation of Medical Specialists (FMS).

Tasks and responsibilities

The MPE, as content expert, is responsible for adequate and appropriate application of medical physics knowledge in health care. This concerns, among others, diagnosis and therapy in audiology, radiation oncology, advanced patient monitoring, diagnosis and therapies using ionising radiation and other physical agents. His knowledge regarding physics, measurement techniques, processing and interpretation of data makes the MPE responsible for the correct interpretation of medical image information or physiological data. Moreover, he ensures the correct application of physico-mathematical principles and evaluates the value of medical devices and/or software. The MPE has the authority to act, intervene and give recommendations regarding matters dealing with radiation physics and exposure.

The medical physicist is responsible for optimising and guaranteeing the efficient use and safety of the available medical technology infrastructure. Depending on the MPE's subspecialty, the nature of the institute and the institutional procedures the MPE may conduct these responsibilities as scientist, innovator, policymaker, manager and controller, but also as a medical advisor or a therapist. The MPE acts as coordinator for medical technology and is often the radiation protection expert as laid down in the EU Basic Safety Standards (BSS). The MPE is trained to provide education on medical physics aspects of health care to both medical colleagues, registered nurses and patients. In addition, the MPE plays a key role regarding the establishment of (medical) policy when this concerns the use and application of medical physics. Close involvement with the introduction, the maintenance and replacement (cycle) of medical technology infrastructure of the institute is part of his tasks. Because of his expertise, knowledge and scientific education, he contributes, together with other professionals, to the development of guidelines with respect to all medical physics aspects. By his broad knowledge, often beyond his own specialism, he is able to make connections and assess relationships that otherwise may be overlooked.

The scope of the medical physicist is wide and continuously subject to change. The education in basic science, such as mathematics and physics, on one hand and his specialisation in and continuous education on medical physics on the other hand enable the MPE to act quickly on new developments.

NVKF committee European Affairs
Friday, 09 February 2018

¹Or equivalent scientific degree