

IOMP Policy Statement No. 2

Basic Requirements for Education and Training of Medical Physicists

IOMP Working Group on Policy Statement No. 2¹

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1 Introduction

This policy statement provides general guidelines for member organizations in defining the basic requirements for education and training of medical physicists. It aims to serve as a reference for medical physics organizations, education institutions and health care providers and authorities in planning and development of their national infrastructures for education, training and certification of medical physicists and for maintenance of standards of practice. This policy document should be read in conjunction with IOMP Policy Statement No. 1 (The Medical Physicist: Role and Responsibilities) [1].

2 Education and Training of Medical Physicists

Medical physicists (MPs) working as health professionals shall demonstrate competency in their discipline by obtaining the appropriate educational qualification and clinical competency training in one or more sub-fields of medical physics. Basic knowledge of the other sub-fields is also required. MPs practicing in hospitals/clinical environments shall also participate in a continual professional development program. Recommendations on the minimum levels of education and professional training for MPs are given in the following sections.

3 Education Requirement

- 3.1 The minimum educational qualification for an MP is a university degree or equivalent (level corresponding to a master's degree) majoring in medical physics or an appropriate science subject.
- 3.2 Educational qualification could be accomplished in two phases. The first phase of the education program is completion of a bachelor's degree in physics or an equivalent degree in a relevant physical or engineering science subject. The second phase of the program is completion of a postgraduate program² at a master's degree level in medical physics or an equivalent degree in an appropriate physical science subject³.
- 3.3 The suitability of a certain education program to provide the necessary academic knowledge for the following professional training could be established through a suitable national or international validation/accreditation body.

4 Professional Training Requirement

¹ Membership: Kin Yin Cheung (Chairman), Stelios Christofides, Tomas Kron, Maria do Carmo Lopes, Colin Orton, George Starkschall, Raymond Wu

² Examples of appropriate master's degree syllabi in medical physics are available from the AAPM [2], IPEM [3] and being developed by the IOMP [4].

³ A master's degree in an engineering science subject is acceptable provided the trainee complete the core medical physics courses during clinical competency training.

Medical physicists who have clinical responsibilities should have received (additionally to their education) a clinical competency training, preferably in the form of a formal residency or an equivalent clinical training program, for a duration appropriate to their roles and responsibilities. For those jurisdictions in which an accreditation program exists for residencies, the residency should be an accredited program.

- 4.1 Minimum duration of training - The duration of clinical competency training should not be less than 2 years full-time equivalent. The training should be carried out under the direct supervision of a Certified Medical Physicist (CMP) specialized in the same sub-field or a qualified professional with a level of professional experience and expertise equivalent to that of the CMP.
- 4.2 Training for additional sub-fields - Not less than 1 year full-time equivalent clinical competency training is recommended for each additional sub-field.
- 4.3 The clinical training program for each sub-specialty should be well-structured and designed to provide the trainee with extensive hands-on experience on a comprehensive range of clinical physics work processes and services. While suitable clinical training programs exist in some countries, at international level the IAEA training programs for medical imaging physics [5], radiation oncology physics [6] and nuclear medicine physics [7] are for example, appropriate syllabi for such structured clinical training.

5 Professional Certification

Medical physicists practicing in medical institutions or those with clinical responsibilities should be subject to professional certification.

- 5.1 Certified Medical Physicist (CMP) - An MP who has fulfilled the education and training requirements as stated in Sections 3 and 4 above should, where possible, sit for a formal professional certification assessment. Upon passing the formal professional certification assessment the MP would become a CMP.
- 5.2 Medical physics organizations or health competent authorities should establish their own national professional certification systems to facilitate such process. In countries where the establishment of such a national certification system is impractical, considerations should be made to have their MPs certified by an appropriate external certification body. To ensure that an appropriate level of professional standard can be achieved and maintained, national certification systems should be subject to appropriate quality audits. This could be achieved through an independent accreditation process conducted by a well-established national or international certification or accreditation body.
- 5.3 A professional competency maintenance scheme should be implemented for CMPs who have clinical responsibilities. This could be in the form of re-certification after an appropriate period of time and/or participation in a mandatory CPD program as described in paragraph 6 below.

6 Continual Professional Development (CPD)

Each MP and CMP should enter a CPD program. Medical physics organizations should establish

and maintain their own national CPD systems to support the continual professional development of their members. In countries in which establishment of such a CPD system is impractical, arrangements should be made for the medical physicists to enter a well-established external CPD system. Detailed recommendations on CPD are given in a separate IOMP policy document.

7 Implementation

This document gives recommendations on the minimum requirements for education and clinical training of medical physicists. IOMP member organizations have the responsibility to establish the appropriate infrastructures in their own countries to achieve and maintain such quality standard in the education and training of their medical physicists.

References

- [1] International Organization for Medical Physics, The Medical Physicist: Role and Responsibilities, Policy Statement No. 1, IOMP, <http://www.iomp.org>
- [2] American Association of Physicists in Medicine, Report No. 197 (2009)- Academic Program Recommendations for Graduate Degrees in Medical Physics, AAPM, USA, http://www.aapm.org/pubs/reports/RPT_197.pdf
- [3] Institute of Physics and Engineering in Medicine, Training Prospectus for Medical Physicists and Clinical Engineers in Health Care, <http://www.ipem.ac.uk/docimages/2440.pdf>
- [4] Tabakov S, et al, IOMP Model Curriculum for Postgraduate (MSc-level) Education Programme on Medical Physics, Proceedings, World Congress on Medical Physics and Biomedical Engineering, 2009, Munich, Germany
- [5] International Atomic Energy Agency, Clinical Training of Medical Physicists Specializing in Diagnostic Radiology, IAEA, Vienna, Austria
- [6] International Atomic Energy Agency, Clinical Training of Medical Physicists Specializing in Radiation Oncology Physics, IAEA, Vienna, Austria, http://www-pub.iaea.org/MTCD/publications/PDF/TCS-37_web.pdf
- [7] International Atomic Energy Agency, Clinical Training of Medical Physicists Specializing in Nuclear Medicine, IAEA, Vienna, Austria