

The European Federation of Organisations for Medical Physics  
Policy Statement Nr. 8

# Continuing Professional Development for the Medical Physicist

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EFOMP Education, Training and Professional Committee: Working Group on Continuing Professional Development

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## **Abstract**

Modern Health Care Services are met with ever-increasing demands on competence, specialisation and cost effectiveness. The Medical Physics Service in hospital faces the same demands, and Continuing Professional Development (CPD) is vital to the Medical Physics Profession to embrace the pace of change occurring in medical practice; it promotes excellence within the profession and protects the Profession and Public against incompetence. CPD is the planned acquisition of knowledge, experience and skills required for professional practice throughout one's working life.

## **1. Introduction**

The requirement for knowledge, skill and experience in the field of medical physics has been the subject of a number of EFOMP publications [1,2,3,4]. A certain level of education and training are recommended to commence practice [1,4] and to register as a medical physicist [3]. Continuing Professional Development (CPD) builds on this foundation and ensures increasing competence and expertise post registration, so that the medical physicist may, for example, act as an expert in radiation physics [2,4,5]. The Council of the European Union has adopted a Directive 97/43/Euratom of 30 June 1997 on health protection of individuals against the dangers of ionising radiation in relation to medical exposure, and repealing Directive 84/466/Euratom [5]. According to the new directive, member states are required to ensure that medical physicists have access to continuing education and training after qualification in addition to their basic theoretical and practical training. At present CPD is undertaken and managed largely by each individual member of the profession. This document, which follows from a recent EFOMP discussion paper on CPD [6], aims to support these individuals and to foster the growth of formal, standardised CPD schemes.

## **2. The Necessity of CPD in Medical Physics**

CPD is the planned acquisition of knowledge, experience and skills (both technical and personal) required for professional practice throughout one's working life. CPD is therefore at the heart of the professional ideal. CPD is also necessitated by the pace of change of medical technology and methods, as illustrated in the following examples:

*Diagnostic Imaging:* The traditional radiograph and nuclear medicine image are being replaced or supplemented by computer based acquisition processes such as Spiral CT, MRI, SPECT, and PET; together these extend our diagnostic

capabilities into three dimensional anatomical and functional imaging. Computer management systems now challenge conventional film based procedures, particularly since the introduction of Computed Radiography. Ultrasound has developed from it's A-mode and B-scan prototypes to offer real-time imaging and blood flow information. High frequency X-Ray generators facilitate mobile fluoroscopy, which has found a particularly useful niche in surgical services.

*Radiotherapy:* True three-dimensional treatment planning is increasingly based on multi-dimensional imaging and volume oriented dose calculation algorithms. Megavoltage treatment units with computer controlled multi-leaf collimators and on-line portal imaging systems allow for more complex treatment techniques with their verification. Computer controlled high dose-rate afterloading equipment for brachytherapy opens up new possibilities for individualised treatments. Hyperthermia combined with radiotherapy is becoming more routine. Other techniques in high-precision radiotherapy are on the horizon, including XRay tomo-therapy, protons, robot linac etc.

*Clinical Physics:* The technological explosion over the past few decades has had an impact on all medical services. Medical lasers, high-powered ultrasound beams and diathermy have largely replaced traditional surgical tools, while fibre-optic and video endoscopes extend the range of visual examination to the internal organs. The proliferation of technology brings the need for management to optimise performance, safety and cost-effectiveness. The role of the physicist now extends beyond the traditional sphere of radiation physics, to encompass scientific, technical and management support for medical technology throughout the hospital.

These examples show that the knowledge base suitable for those entering the profession a decade ago is insufficient for present-day services. The medical physicist is responsible in his area of expertise for equipment, techniques and methods used in routine as well as new clinical services. His personal store of knowledge and skills must be updated to match the pace of change in medical techniques.

At the very minimum CPD can be seen as necessary to the individual, the employer and the profession in order to maintain competence and to protect against challenges from competitors or even the courts. On a more positive note, the individual gains stimulation, job satisfaction and prospects for promotion, the profession gains repute and status, while the employer enjoys good staff morale and a positive attitude toward the introduction of new services. The patient, and thereby the public in general, benefits by good scientific / technical support for medical procedures, and the introduction of new techniques to routine practice.

There is no stage in the Medical Physicists career where learning is complete. As one's career progresses, responsibilities grow and the knowledge base adapts to encompass new techniques, so that the need for CPD increases rather than decreases. Thus all Medical Physicists who have completed their basic education and training should be involved in CPD.

### **3. What constitutes Continuing Professional Development?**

CPD encompasses all activities which extend knowledge, skills and the personal qualities required to deliver services. Common activities include:

- attending and/or contributing to training courses, seminars, workshops etc. as well as scientific meetings such as conferences, professional sessions etc.
- self-study, research and publication (e.g. regular reading of journals / text books / standards literature / legislation etc., & contributing to such literature).
- service innovation (adapting / creating protocols, introduction of new services etc.)
- education and training of medical physicists and related professions.

### **4. Resources for Continuing Professional Development**

CPD requires resources in the form of finance, time and education / training expertise. All beneficiaries (the individual, the employer, the public and the professional body) must share the responsibility for providing the necessary resources. The individual, in tandem with the employer, contributes time and finance towards his individual CPD program, while the professional body organises workshops / conferences etc. as well as developing and

administering a formal CPD scheme; the public contribution emanates mainly from the expertise and resources of public teaching / training institutes; the latter satisfies not only the public's duty to CPD, but also the educational institute's duty toward support and maintenance of its "products" i.e. the graduate workforce [6].

## 5. Formal CPD Schemes

Traditionally CPD has been managed informally by individuals, as appropriate to a relatively new and developing profession. Maturation of the Medical Physics profession brings the need to standardise and formalise learning at all levels; this helps to protect against incompetence and excessive local variations in practice.

Formal programmes require some methods of quantifying CPD. This may be based on numeric values ("CPD Points") for activities which contribute toward or result from CPD. The scheme can then measure individual performance against a target (e.g. required number of "CPD points" to be achieved over a set period). National Registration Schemes for Medical Physicists are unlikely to receive full recognition by EFOMP unless the scheme requires evidence of continued activity in medical physics for registration renewal [4]; CPD schemes provide a mechanism for monitoring such activity. One example is the pilot scheme for the IPEM [7]. These moves towards formal, standard requirements for continued endeavour throughout professional life will enhance the status of the profession and its value to the patient and the employer. An EFOMP directory of CPD schemes is being opened so as to foster exchange of information among national organisations and the growth of new CPD schemes, with the future aim of establishing an EFOMP recommendation for CPD.

## 6. Recommendations

All medical physicists should be involved in CPD after qualification.

Formal CPD programmes should be developed to recognise individual effort.

Formal CPD programmes should set out clear objective guidance for the extent of CPD to be achieved within a defined timescale.

National organisations should have their CPD scheme included in the EFOMP Directory \*.

Renewal of professional registration should be linked to CPD performance.

The resources for CPD should be provided by the individual, the professional body, the employer and public education / training bodies.

## 7. Conclusions

CPD is vital to the ideal of Professionalism; it promotes excellence within the profession and protects the Profession and the Public against incompetence. Within the Medical Physics Profession CPD is vital to embrace the pace of change occurring in medical practice.

Formal, standardised CPD schemes foster the status and integrity of the Medical Physics Profession. CPD also benefits the individual medical physicist by maintaining competence and competitiveness, by promoting job satisfaction and career prospects. It benefits employers by ensuring minimal standards, and by encouraging competent, highly motivated staff, who can readily adapt to new techniques and practices. It benefits patients and therefore the public as a whole, by encouraging a high standard of technical and scientific support for patient care.

CPD requires commitment, time, finance and training expertise / materials. The responsibility for CPD resources must be shared by all beneficiaries, i.e. individual physicists, their employers, professional bodies and public training / education institutions. Failure to implement CPD results in poor standards of patient care. Thus the costs of not doing CPD far outweigh the costs of CPD.

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