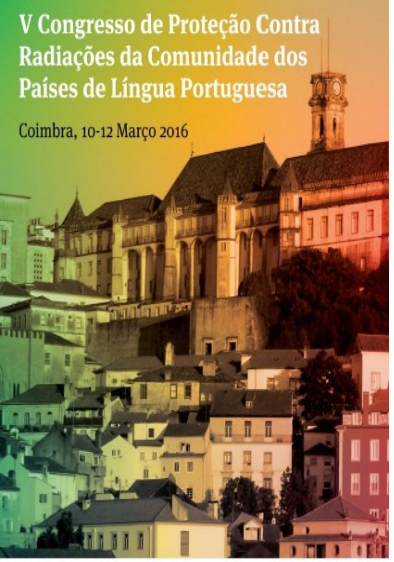


sp física
divisão de física médica

EFOMP

Novas recomendações da EFOMP e CE para a formação do Físico Médico

Rita Figueira
Chairperson Professional Matters Committee EFOMP
Coordenadora da DFM-SPF
Centro Hospitalar de São João

OBJECTIVO

Que recomendações existem
que possam ser úteis na reformulação da formação dos Físicos Médicos em Portugal?

Do passado ….

Diretiva 97/43/Euratom

Definição de
"Medical Physics Expert"
(MPE)

Dec-Lei Nº 180/2002

Definições de
Físico Qualificado em FM
Especialista em FM

Estabelece
N.º mínimo de FM nas instalações de Radioterapia e Medicina Nuclear

Dec-Lei Nº 414/99

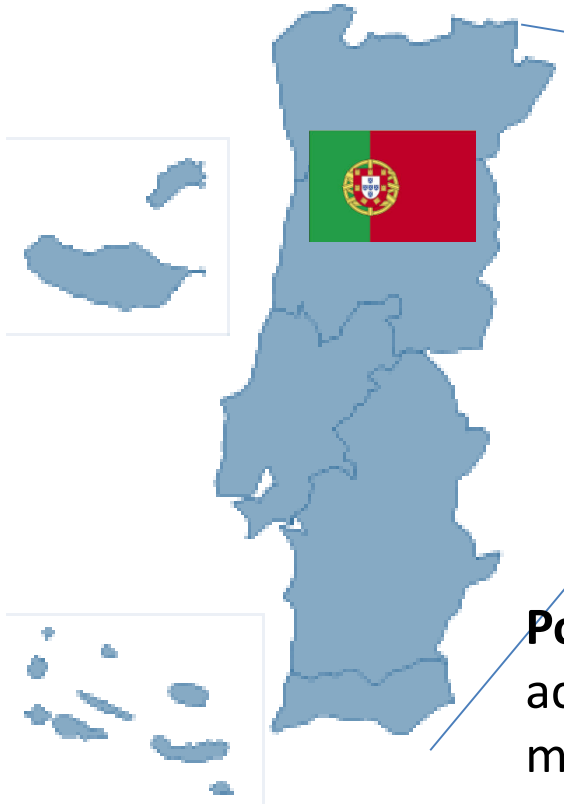
Carreira dos Téc. Sup. de Saúde
Incluindo **Físicos Hospitalares**

Condições de acesso:
Licenciatura (Física ou Eng. Física)
+
Estágio Hospitalar de 2 anos em hospitais acreditados pela ACSS

Entretanto…

Novos dados científicos
Incidentes / Acidentes

Novas recomendações



UE – Revisão directivas

CE + EFOMP / ESTRO / EANM / ESR - novas recomendações

Portugal e outros estados-membros – actualização/adaptação da legislação e dos modelos nacionais

Situação Actual

Diretiva 2013/59/Euratom

ISSN 1977-0774

Jornal Oficial
da União Europeia

L 13

Edição em língua portuguesa

Legislação

57.º ano
17 de janeiro de 2014

Índice

II *Atos não legislativos*

DIRETIVAS

Diretiva 2013/59/Euratom do Conselho, de 5 de dezembro de 2013, que fixa as normas de segurança de base relativas à proteção contra os perigos resultantes da exposição a radiações ionizantes, e que revoga as Diretivas 89/618/Euratom, 90/641/Euratom, 96/29/Euratom, 97/43/Euratom e 2003/122/Euratom

Situação Actual

Diretiva 2013/59/Euratom

Nova definição de MPE

Reforço do papel do MPE

(envolvimentos obrigatório na Radioterapia, Medicina Nuclear e Radiologia de Intervenção)

Definição de RPE

....

Ver artigos:

14, 22, 57, 59, 79, 82, 83

Situação Actual

Artigo 83.º

Especialista em física médica

1. Os Estados-Membros exigem que o especialista em física médica atue ou preste aconselhamento especializado, conforme adequado, sobre questões relacionadas com a física das radiações com vista à aplicação dos requisitos estabelecidos no Capítulo VII e no artigo 22.º, n.º 4, alínea c), da presente diretiva.

2. Os Estados-Membros asseguram que, consoante a prática de medicina radiológica, o especialista em física médica se responsabilize pela dosimetria, incluindo as medições físicas para a avaliação da dose administrada ao paciente e a outros indivíduos sujeitos a exposição médica, preste aconselhamento sobre o equipamento radiológico médico e contribua, em especial, para:

a) A otimização da proteção contra radiações de pacientes e outros indivíduos sujeitos a exposição médica, incluindo a aplicação e utilização dos níveis de referência de diagnóstico;

Recomendações CE e EFOMP

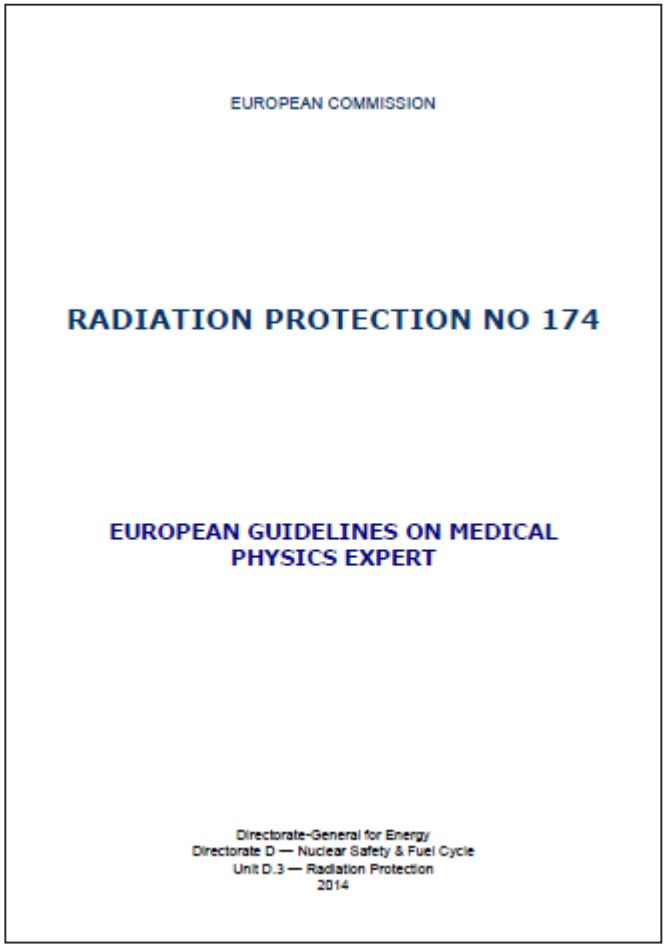
EUROPEAN GUI … T RP174

GUIDELINES ON … I AND TRAINING
OF MEDICAL PR… ON RP175

IAEA
International Atomic Energy Agency

Basic Safety Standards
Documentos
Recursos Formativos

EC EUROPEAN GUIDELINES ON MEDICAL PHYSICS EXPERT RP174



EUROPEAN COMMISSION

RADIATION PROTECTION NO 174

EUROPEAN GUIDELINES ON MEDICAL PHYSICS EXPERT

Directorate-General for Energy
Directorate D — Nuclear Safety & Fuel Cycle
Unit D.3 — Radiation Protection
2014

CONTENTS

These "European Guidelines on Medical Physics Expert" have been prepared in the context of the EC project **"Guidelines on Medical Physics Expert**", financed by the EC (Contract TREN/ 09 /NUCL /SI2.549828). The report was prepared by a consortium led by the **European Federation of Organizations for Medical Physics (EFOMP)**

Quadro de Qualificação do Especialista em Física Médica (MPE) na Europa

MPE:"Pessoa detentora dos conhecimentos, da formação e da experiência que a tornam capaz de atuar ou dar conselho em matérias relacionadas com a física da radiação aplicada às exposições médicas, cuja competência para esta atuação é reconhecida pelas autoridades competentes" (Revisão das Normas Básicas de Segurança – BSS)

O Quadro de Qualificação é baseado no Quadro Europeu de Qualificações (EQF). No EQF os resultados das aprendizagens são definidos em termos de Conhecimentos, Aptidões e Competências (KSC) (Recomendação do Parlamento Europeu e do Conselho 2008/C 111/01 http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2008:111:0001:0007:PT:PDF)

EDUCAÇÃO

EQF Nível 6
(ex: 1º ciclo de Bolonha, Licenciatura, com 180-240 ECTS)
(i)

Física ou equivalente
(ii)

EQF Nível 7
(ex: 2º ciclo de Bolonha, Mestrado, com 90-120 ECTS)
(iii)

Física Médica* ou equivalente
(iv)

TREINO CLÍNICO

Certificação Clínica na Especialidade de Física Médica (V)

Formação estruturada e acreditada sob a forma de internato clínico na especialidade de Física Médica correspondente à candidatura a certificação. A duração deve ser tipicamente equivalente a 2 anos de tempo integral **
(vi)

EXPERIÊNCIA AVANÇADA E FPC

EQF Nível 8
na Especialidade de FM (vii)

Experiência avançada estruturada e acreditada e Formação Profissional Contínua (FPC) na especialidade de Física Médica correspondente à candidatura a certificação como MPE. A duração adicional mínima deve ser equivalente a outros 2 anos de tempo integral ***
(viii)

RECONHECIMENTO

Pelas Autoridades Competentes como MPE na Especialidade de FM (ix)

RE-CERTIFICAÇÃO

Ciclo de FPC de 5 anos
(x)

*Deve incluir, como mínimo, as componentes educacionais do núcleo central de KSC em Física Médica e as KSC da especialidade de Física Médica (i.e., Radiologia de Diagnóstico e Intervenção ou Medicina Nuclear ou Radioterapia) correspondente à candidatura a certificação. Quando este elemento de especialização não estiver incluído, deve sê-lo no internato clínico.

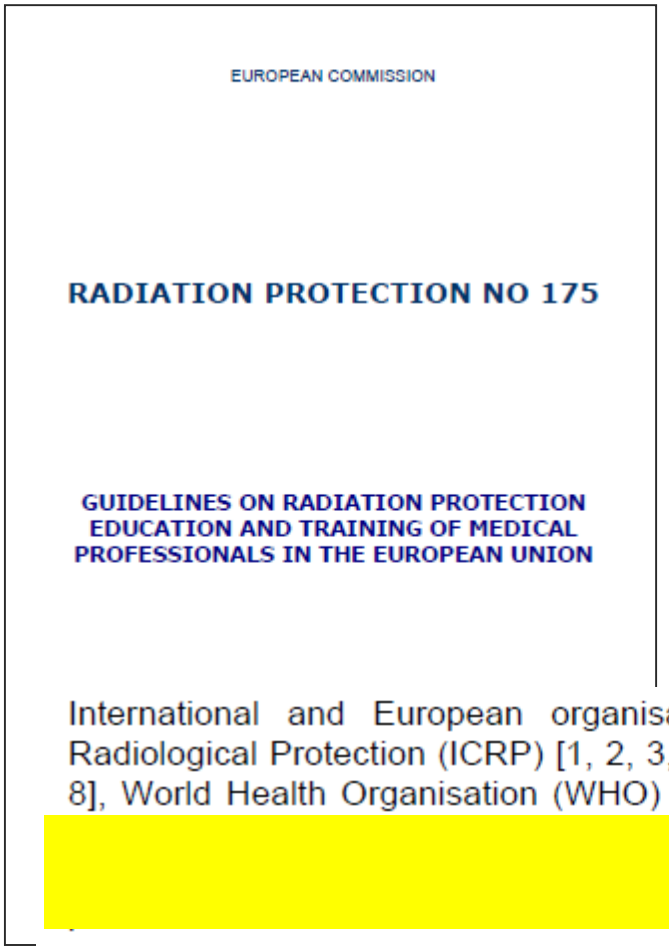
** O nível EQF do internato é intermédio entre os níveis 7 e 8

*** Nos países em que for requerida a certificação como MPE em mais do que uma especialidade de FM o número de anos terá que ser expandido de forma a que o nível 8 seja atingido pelo MPE em cada uma das especialidades.

EC GUIDELINES ON RADIATION PROTECTION EDUCATION AND TRAINING OF MEDICAL PROFESSIONALS IN THE EUROPEAN UNION RP175

Therefore, in 2010, the EC initiated a project to study the implementation of the MED requirements in radiation protection education and training of medical professionals in the member states and to develop European Guidance containing appropriate recommendations for harmonisation at the EU level [20].

This project, with the title, *Study on the Implementation of the Medical Exposures Directive's Requirements on Radiation Protection Training of Medical Professionals in the EU* (MEDRAPET), was awarded to a consortium consisting of the following organisations:



EUROPEAN COMMISSION

RADIATION PROTECTION NO 175

GUIDELINES ON RADIATION PROTECTION EDUCATION AND TRAINING OF MEDICAL PROFESSIONALS IN THE EUROPEAN UNION

This document has been endorsed by:

European Society of Radiology

EFRS European Federation of Radiographer Societies

EFOMP

CIRSE

EANM European Association of Nuclear Medicine

ESTRO European Society for RADIOTHERAPY & ONCOLOGY

EUTERP

esvs

International and European organisations such as the International Commission on Radiological Protection (ICRP) [1, 2, 3, 5], International Atomic Energy Agency (IAEA) [6, 7, 8], World Health Organisation (WHO) [9, 10, 11, 12], and the European Commission (EC)

EC GUIDELINES ON RADIATION PROTECTION EDUCATION AND TRAINING OF MEDICAL PROFESSIONALS IN THE EUROPEAN UNION RP175

CONTENTS

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Especialidades Médicas de Radiologia, Medicina Nuclear e Radioncologia

4.1.1 Radiation protection professional entry requirements

The professional entry requirements for Diagnostic Radiologists should be equivalent to [redacted] Radiation protection is a major subject for Diagnostic Radiologists and should be at the same level as their professional entry level requirements for the EQF [8].

4.4.1 Radiation protection professional entry requirements

NM is a medical specialty and the basic radiation protection KSC should be acquired during the period of general medical education at level 5 of the EQF[5] (see chapter 2) [1]. During specialisation their level of radiation protection KSC is expected to be enhanced to the same level as the overall profession a[redacted], with radiation protection forming an integral part of their specialisation [2, 3].

If required by national regulations, certification in radiation protection should be part of the certification as NM Specialist through a national board after education and training as detailed in the 'Syllabus for postgraduate specialisation in NM' [2].

4.5.1 Radiation protection professional entry requirements

The professional entry requirements for Radiation Oncologists should be equivalent to EQF [redacted] Radiation protection is a major subject for Radiation Oncologists and should be at the same level as their professional EQF entry level requirements.

Técnicos de Diagnóstico e Terapêutica

6.1 Radiation protection professional entry requirements

According to the Tuning Template for Radiography, developed under the EU project HENRE (Higher Education Network for Radiography in Europe) [7], the professional entry requirements for radiographers should be equivalent to [redacted] [8]. Radiation protection is a major subject for radiographers and should be at the same level as their professional entry-level requirements in the EQF.

7.1 Radiation protection professional entry requirements

The entry level certification requirement in radiation protection for MPs in a given specialty is [redacted] in all Core KSC, and the KSC specific to that particular specialty[8] [1].

ANNEX: ICRP 113 TABLES 3.1 AND 3.2

The ICRP 113 tables 3.1 and 3.2 are reproduced below with the kind permission of the ICRP.

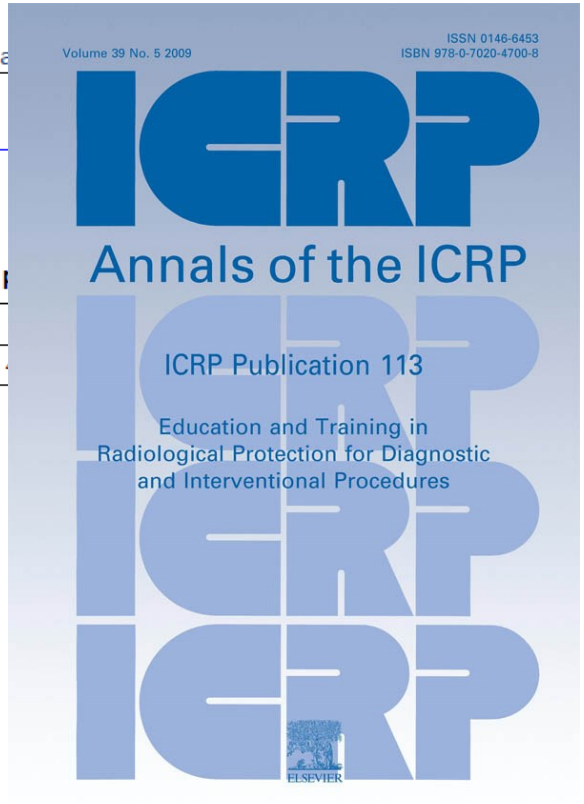

Table 3.1. Recommended radiological protection training requirements for different categories of p

Training area	1DR	2NM	3CDIMDI					
Atomic structure, x-ray production, and interaction of radiation	m	h	l					
Nuclear structure and radioactivity	m	h	l					
Radiological quantities and units	m	h	m					
Physical characteristics of x-ray machines	m	l	m					
Fundamentals of radiation detection	m	h	l					
Principle and process of justification	h	h	h					
Fundamentals of radiobiology, biological effects of radiation	h	h	m					
Risks of cancer and hereditary disease	h	h	m					
Risk of deterministic effects	h	h	h					
General principles of radiation protection including optimisation	h	h	h					
Operational radiation protection	h	h	h					
Particular patient radiation protection aspects	h	h	h	h	h	m	h	l
Particular staff radiation protection aspects	h	h	h	h	h	m	h	l
Typical doses from diagnostic procedures	h	h	m	m	m	m	m	m
Risks from foetal exposure	h	h	l	m	m	l	l	l
Quality control and quality assurance	m	h	m	l	l	–	l	–
National regulations and international standards	m	m	m	m	m	l	m	l
Suggested number of training hours								

RP, radiological protection; DR, diagnostic radiology specialists; NM, nuclear medicine specialists; CDI, interventional cardiologists; MDI, interventionalists from other specialties; MDX, other medical specialists using x-ray systems; MDN, other medical specialists using nuclear medicine; MDA, other medical doctors assisting with fluoroscopy procedures such as an aesthetists and occupational health physicians; DT, dentists; MD, medical doctors referring for medical exposures and medical students; l, low level of knowledge indicating a general awareness and understanding of principles; m, medium level of knowledge indicating a basic understanding of the topic, sufficient to influence practices undertaken; h, high level of detailed knowledge and understanding, sufficient to be able to educate others.

Table 3.2. Recommended radiological protection training requirements for categories of health care professionals other than physicians or dentists.

Training area	Category							
	10RDNM	11ME	12HCP	13NU	14DCP	15CH	16RL	17REG
Atomic structure, x-ray production, and interaction of radiation	m	m	l	l	m	l	m	l
Nuclear structure and radioactivity	m	m	–	–	–	–	m	l
Radiological quantities and units	m	m	l	l	l	m	m	m
Physical characteristics of x-ray machines	h	h	m	–	l	m	l	l
Fundamentals of radiation detection	h	h	l	l	l	l	m	l
Principle and process of justification	h	–	l	l	l	h	–	m
Fundamentals of radiobiology, biological effects of radiation	m	l	m	l	l	m	m	L
Risks of cancer and hereditary disease	h	l	m	l	m	m	m	m
Risks of deterministic effects	h	–	l	l	l	m	l	m
General principles of radiation protection including optimisation	h	m	m	m	m	m	m	m
Operational radiation protection	h	m	m	m	m	m	h	m
Particular patient radiation protection aspects	h	m	h	m	m	h	–	m
Particular staff radiation protection aspects	h	m	h	m	m	h	h	m
Typical doses from diagnostic procedures	h	l	l	–	l	m	–	l
Risks from foetal exposure	h	l	m	l	l	m	m	l
Quality control and quality assurance	h	h	l	–	m	m	l	m
National regulations and international standards	m	h	m	l	l	m	m	h
Suggested number of training hours								

RP, radiological protection; MP, medical physicists specialising in radiation protection, nuclear medicine, and diagnostic radiology; RDNM, radiographers, nuclear medicine technologists, and x-ray technologists; HCP, health care professionals directly involved in x-ray procedures; NU, nurses assisting in x-ray or nuclear medicine procedures; DCP, dental care professionals including hygienists, dental nurses, and dental care assistants; ME, maintenance engineers and applications specialists; CH, chiropractors and other healthcare professionals referring for, justifying, and delivering radiography procedures (amount of training depends on range of tasks performed); RL, radiopharmacists and radionuclide laboratory staff; REG, regulators; l, low level of knowledge indicating a general awareness and understanding of principles; m, medium level of knowledge indicating a basic understanding of the topic, sufficient to influence practices undertaken; h, high level of detailed knowledge and understanding, sufficient to be able to educate others.

- **33 NMOs** (National Members Organizations) representando mais de **7500 Físicos Médicos** de toda a Europa.
  - NMO Portugal - Divisão de Física Médica da Sociedade Portuguesa de Física
- Parceiro em diversos projectos europeus
- Entre os principais objectivos e propósitos da EFOMP, tal como definido na sua constituição estão:
  - propor e desenvolver directrizes para a educação, formação e programas de acreditação;
  - fazer recomendações sobre as responsabilidades gerais adequadas, relações organizacionais e papel dos profissionais no campo da física médica.
- Este objectivos são concretizados nomeadamente através da publicação da **Policy Statements**.

Physica Medica 32 (2016) 1–6

Contents lists available at ScienceDirect

Physica Medica

journal homepage: http://www.physicamedica.com

EFOMP Policy Statement

The European Federation of Organisations for Medical Physics Policy Statement No. 6.1: Recommended Guidelines on National Registration Schemes for Medical Physicists ☆

Stelios Christofides [a,*], Jorge Isidoro [b], Csilla Pesznyak [c], Lada Bumbure [d], Florian Cremers [e], Werner F.O. Schmidt [f]

Physica Medica 32 (2016) 7–11

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journal homepage: http://www.physicamedica.com

EFOMP Policy Statement

The European Federation of Organisations for Medical Physics Policy Statement No. 10.1: Recommended Guidelines on National Schemes for Continuing Professional Development of Medical Physicists [1]

Stelios Christofides [a,*], Jorge Isidoro [b], Csilla Pesznyak [c], Florian Cremers [d], Rita Figueira [e], Christiaan van Swol [f], Stephen Evans [g], Alberto Torresin [h]

THE EUROPEAN FEDERATION OF ORGANISATIONS FOR MEDICAL PHYSICS

Policy Statement No 7.1

The Roles, Responsibilities and Status of the Medical Physicist

Including the criteria for the staffing levels in a Medical Physics Department

	IAEA/EFOMP Survey (medical physicists per million population) (2015)					EFOMP (medical physicists per million population)
Medical Physics Sub-speciality	Minimum no.	Maximum no.	Average no.* (wpop**)	Median no.		Recommended minimum no.*
Radiotherapy	3.8	22	9.6 (9.1)	8.2		9
Nuclear medicine	0.3	6.9	2.6 (2.0)	2.2		2
Diagnostic & interventional radiology	0.1	25	5.0 (3.0)	3.5		5
Radiation Protection	0	5.0	1.8 (2.2)	1.5		2
TOTAL			19 (16.3)			18

**for hospitals in Europe that provide the average level of healthcare per million population as derived from the IAEA/EFOMP survey 2015*

*** wpop – weighted population mean is the average obtained after weighting each country's value by their percentage contribution to the total European population.*

Portugal
Mínimo de 180 FM qualificados.
Na resposta foram identificados 135 Físicos. Destes apenas uma reduzida % tem qualificações reconhecidas pelas autoridades

EFOMP DECLARATION

of 6th of June 2015

regarding the role of the Medical Physics Expert as the Radiation Protection Expert in the Hospital Environment

On the 6th of June 2015 the Council of EFOMP declared that:

"The Medical Physics Expert as defined in the directive 2013/59/Euratom must be the professional to supervise and assume the responsibilities of the radiation protection activities in hospitals, including patients, working staff, members of the public and visitors to the hospitals". So, a "Medical Physics Expert" should be the "Radiation Protection Expert" in the hospital environment.

This declaration is addressed to the organised bodies in Europe with vested interest in the protection of the workers and the population in general, from the effects of ionising radiation used in diagnostic and therapeutic procedures.

IAEA
International Atomic Energy Agency

Recommendations of the Regional Meeting on Medical Physics in Europe: Current Status and Future Perspectives

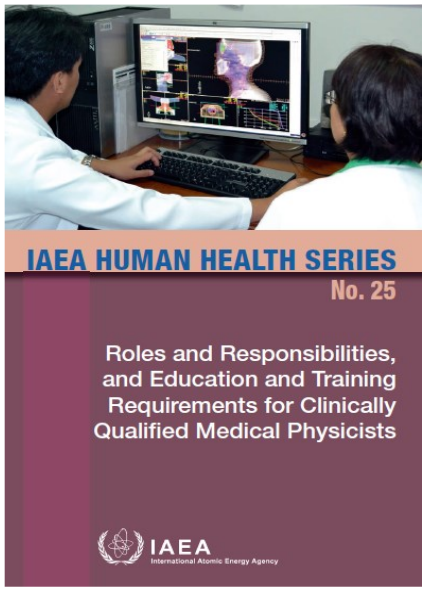
7 – 8 May 2015, IAEA, Vienna, Austria

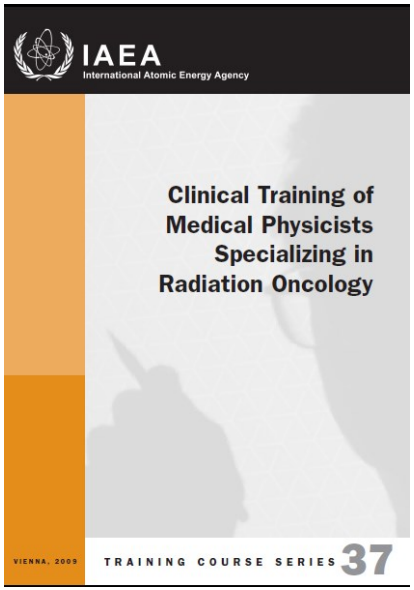
The Meeting also recommended that Member States of the Europe Region should, in particular:

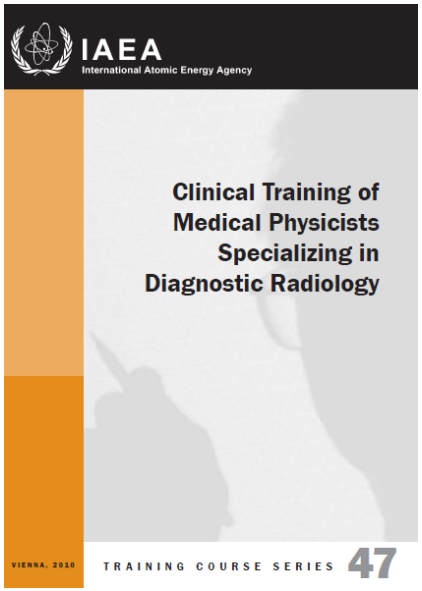
2. **Ensure** that medical physics aspects of therapeutic and diagnostic procedures, including patient and equipment related tasks and activities, are performed by CQMPs or under their supervision;

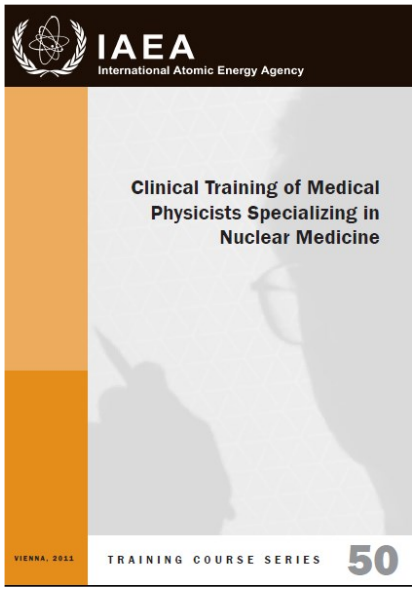
4. **Follow and fulfil** international recommendations regarding staffing levels in the field of medical physics;
5. **Establish** mechanisms for the integration of medical physics services in all centres practising radiation medicine, and establish, where appropriate, independent Medical Physics Departments in which accredited clinical training can take place;
6. **Promote** involvement of CQMPs in hospital governance boards and relevant national health committees;
7. **Establish and enforce** the legislative and regulatory requirements related to radiation safety in medical imaging and therapy where medical physics is concerned, in accordance with international and, where applicable, European basic safety standards.

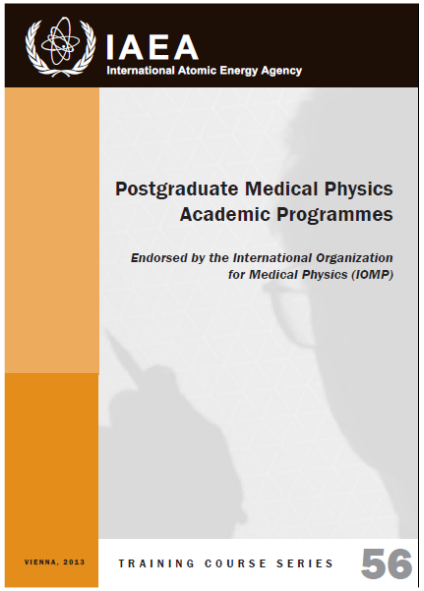
IAEA
International Atomic Energy Agency

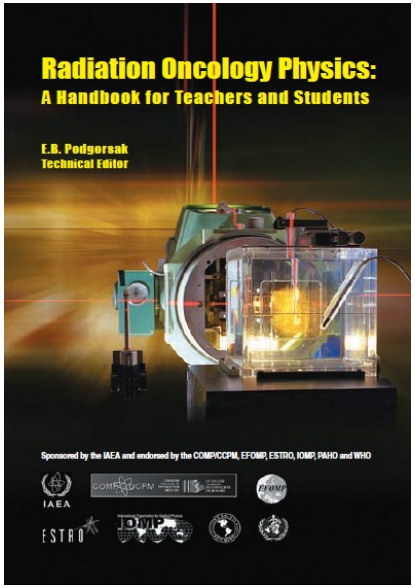




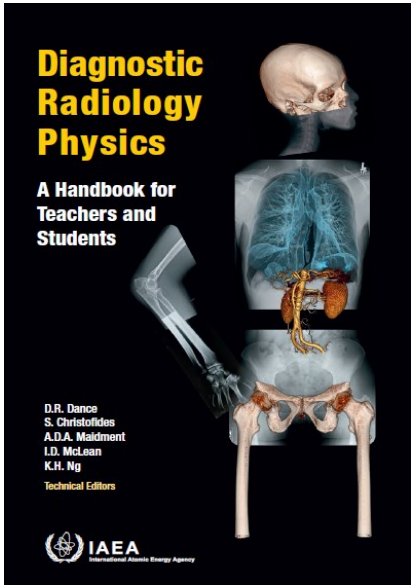








696 páginas



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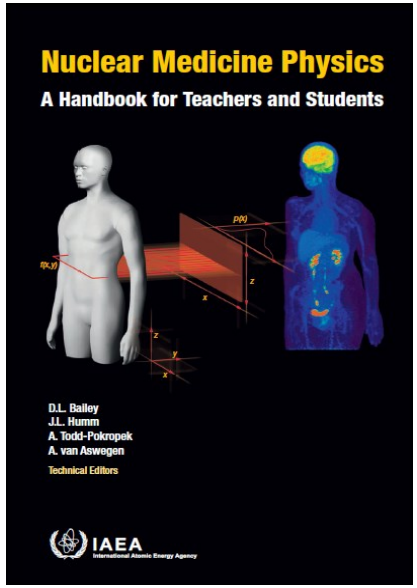

766 páginas

Conclusão

Para garantir o cumprimento das recomendações europeias e internacionais para a formação do Físico Médico, **Portugal necessita** de:

Definir/actualizar o papel e responsabilidades dos FM e EFM

- Reconhecendo o seu papel na **formação em PR** e como **o EPR em ambiente hospitalar**

Estabelecer/actualização o Quadro de Formação e Treino

- Coordenação entre as autoridades nacionais e as universidades para a aprovação de Mestrados em FM que cumpram o curriculum recomendado.
- Acreditação de hospitais como centros de treino (estabelecendo requisitos mínimos, número mínimo de físicos, etc...).
- Aprovação de um esquema de formação profissional contínua (CPD).

Assegurar o Reconhecimento Profissional dos FM e EFM

- Estabelecer um esquema de certificação e registo profissional pelas Autoridades de Saúde, respeitando recomendações RP174 e garantindo a livre mobilidade dos EFM portugueses.

Futuro….

Diretiva 2013/59/Euratom

Dec-Lei nº XXX /201?

Precedida de período de discussão pública e consulta dos principais intervenientes, nomeadamente organizações representando os profissionais, incluindo de Física Médica

Preservando o princípio fundamental da **segurança do paciente** e a qualidade dos procedimentos envolvendo radiações ionizantes