Status of the MP Profession in Europe

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EFOMP

European Federation of Organisations for Medical Physics

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Mission Statement

1. General

In most European countries there are National Organisations comprising as principal category of members medical physicists.

EFOMP was founded in May 1980 in London to serve as an umbrella to all National Member Organisations (NMO) in Europe.

2. Mission Statement

The mission of the Federation is

- to harmonize and advance medical physics both in its professional clinical and scientific expression throughout Europe,
- to strengthen and make more effective the activities of the NMOs by bringing about and maintaining systematic exchange of professional and scientific information, by the formulation of common policies, and by promoting education and training programmes.

ACCI EFOMP Talk

ICTP Master in Medical Physics

Basic education: License in Physical Science, Chemistry, Eng. or equiv.

Min. qualification to work as a MP: MSc + training

CPD: Compulsory formal system

Register: Yes

Basic education: BSc in Physics, Astronomy, Eng.

Min. qualification to work as a MP: BSc + training

CPD: No

Register: No

Basic education: License in Physics

Min. qualification to work as a MP: MSc + training

CPD: No

Register: No

Basic education: BSc in Physics, Eng. or allied science.

Min. qualification to work as a MP: Registration as a 'Clinical Scientist'

CPD: Compulsory formal system

Register: Yes

Basic education: BSc in Physics

Min. qualification to work as a MP: MSc + training

CPD: Formal system, not compulsory

Register: Yes

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available at www.sciencedirect.com

ScienceDirect

journal homepage: http://intl.elsevierhealth.com/journals/ejmp

ORIGINAL PAPER

The present status of Medical Physics Education and Training in Europe: An EFOMP survey☆

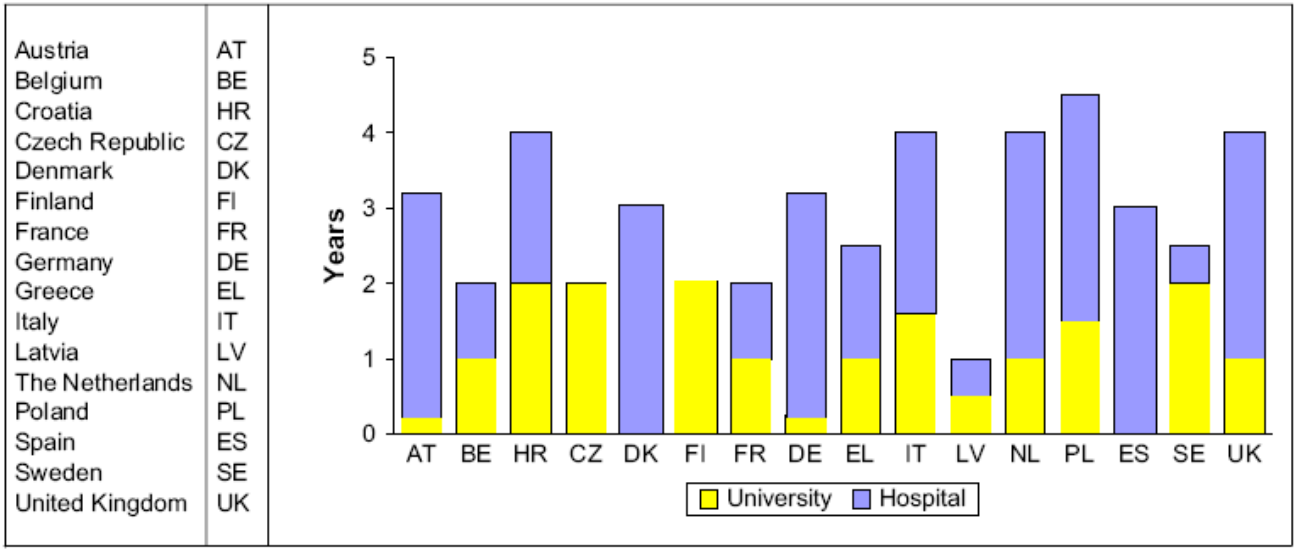


Figure 4 Duration (in years) of the post-graduate training for the 16 countries with a nationally approved programme. The figure shows the time spent at the university and the time spent at the hospital.

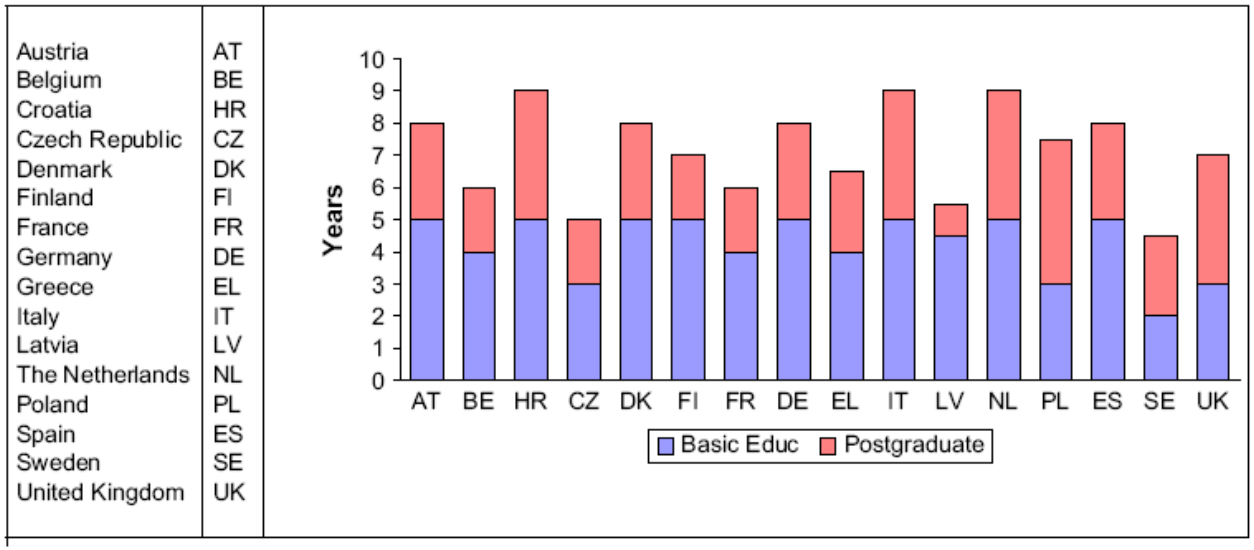


Figure 5 Duration (in years) of total training to become a Medical Physicist in the 16 countries with a nationally-approved programme. The two parts of training: basic education and post-graduate education, are clearly identified in the figure.

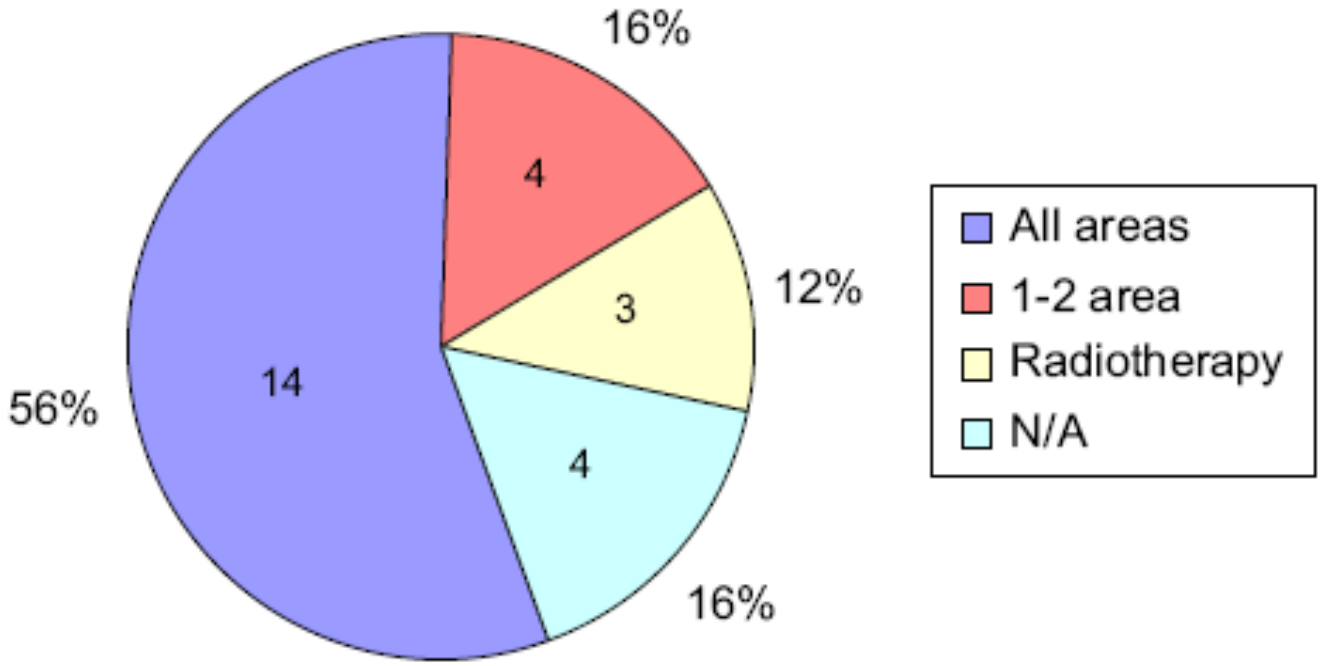


Figure 6 Distribution of the areas of competence in which the Medical Physics graduate is qualified to work, in the 25 countries.

Proposal for a

COUNCIL DIRECTIVE

laying down basic safety standards for protection against the dangers arising from exposure to ionising radiation

Member States shall ensure that depending on the medical radiological practice, the medical physics expert takes responsibility for dosimetry, including physical measurements for evaluation of the dose delivered to the patient and other individuals subject to medical exposure, give advice on medical radiological equipment, and contribute in particular to the following:

(a) optimisation of the radiation protection of patients and other individuals subject~~ed~~ to medical exposure, including the application and use of diagnostic reference levels;

(b) the definition and performance of quality assurance of the medical radiological equipment;

(c) acceptance testing of medical radiological equipment;

(d) the preparation of technical specifications for medical radiological equipment and installation design;

(e) the surveillance of the medical radiological installations;

(f) the analysis of events involving, or potentially involving, accidental or unintended medical exposures;

(g) the selection of equipment required to perform radiation protection measurements;

(h) the training of practitioners and other staff in relevant aspects of radiation protection;

MPE Project

Objective: to provide for improved implementation of the Medical Exposures Directive (MED) provisions related to the MPE and to facilitate the harmonization of the MPE among the MS aiming at their cross-border mobility.

Three major tasks:

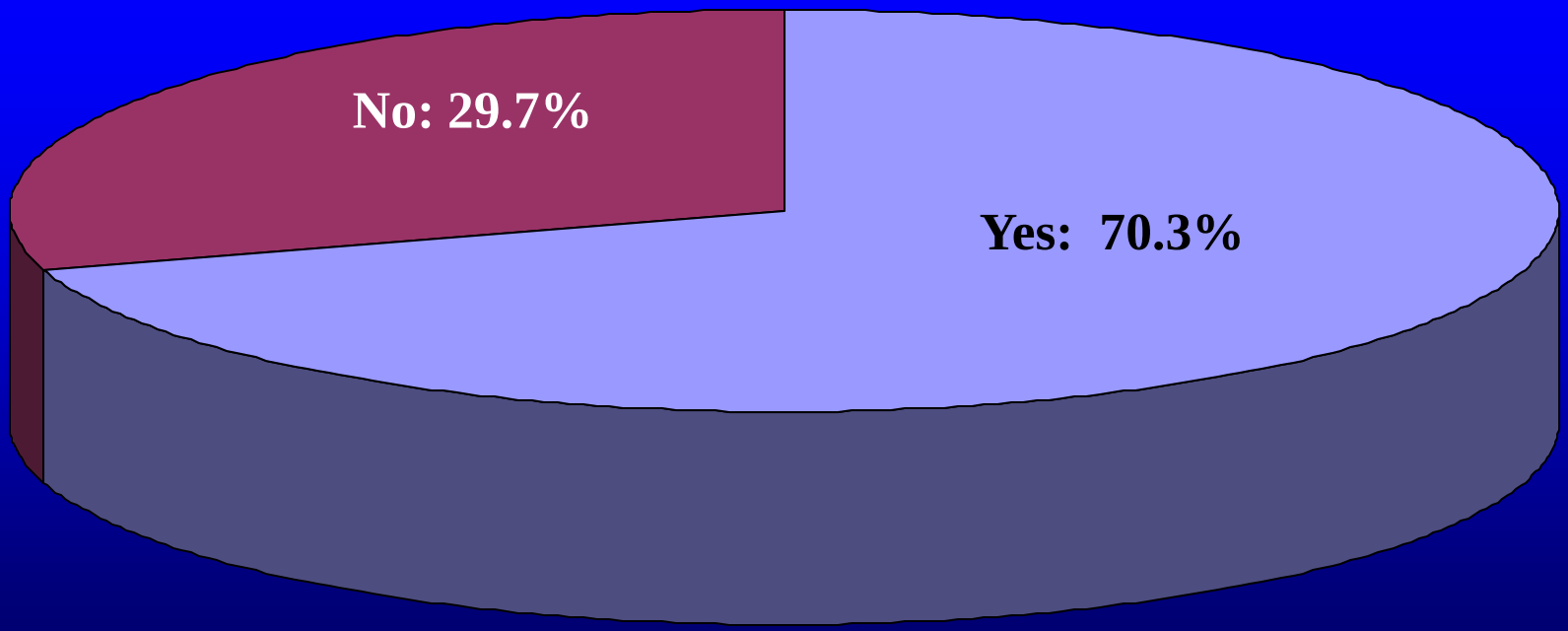
1. **Conduct an EU-wide study on the MPE**
2. **Organize a European Workshop on MPE**
3. **Develop EU Guidance on MPE**

MPE Project: Survey results

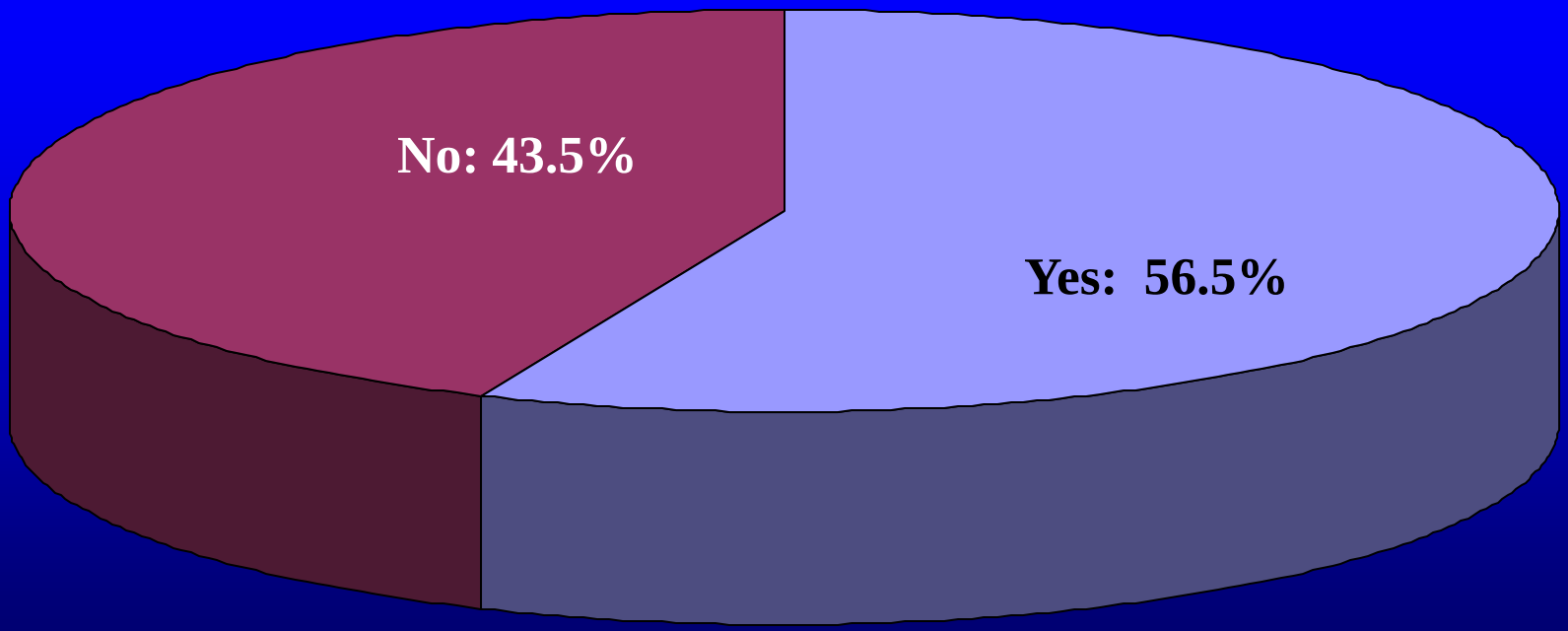
Within your organization what is the job title of the individuals who carry out the MPE role? (Please tick all that apply)

Title	Percentage (%)
Medical Physicist	66.1
Hospital Physicist	19.0
Other	13.3
Specialist Medical Physicist	11.5
Medical Radiation Physicist	9.8
Radiological Physicist	9.1
Hospital Radiation Physicist	6.8
Clinical Physicist	6.2
Imaging Physicist	3.6
Biomedical Physicist	3.0
Biophysicist	1.6

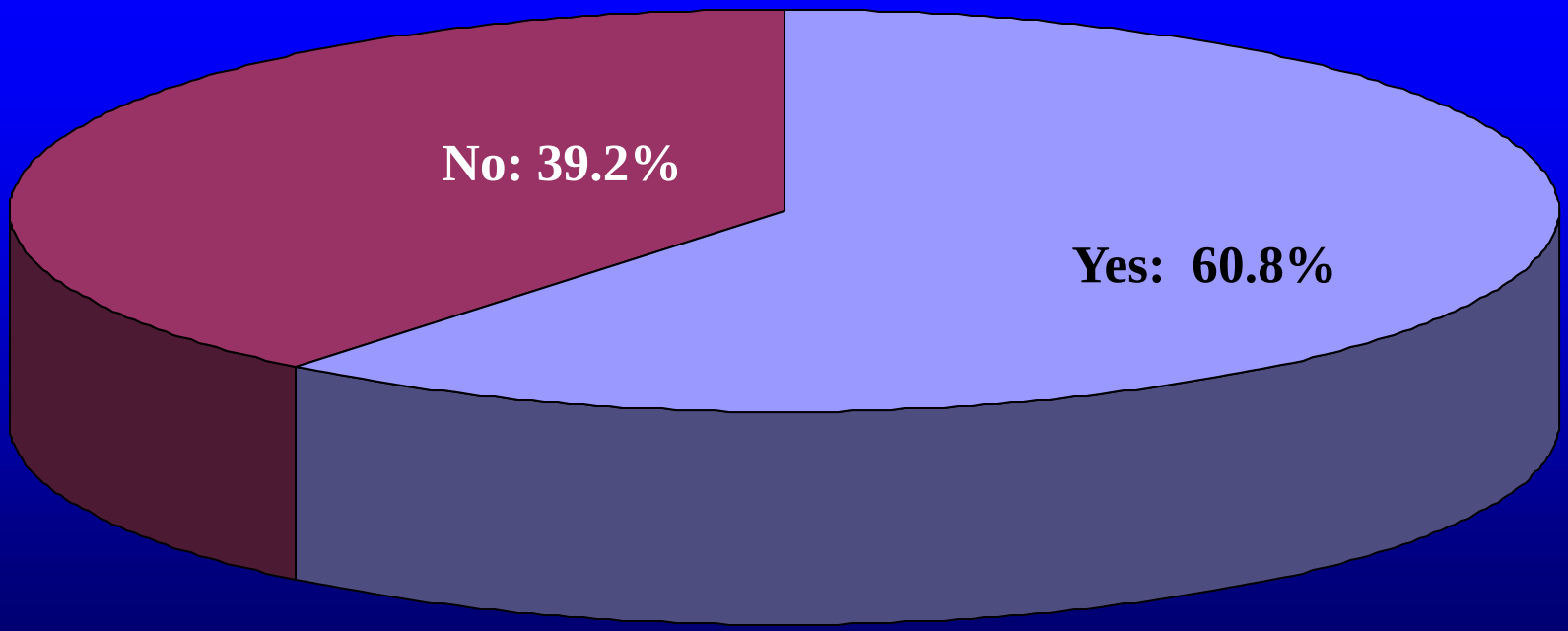
Is there a formal system of CPD or lifelong learning for MPEs within the country in which you currently work?



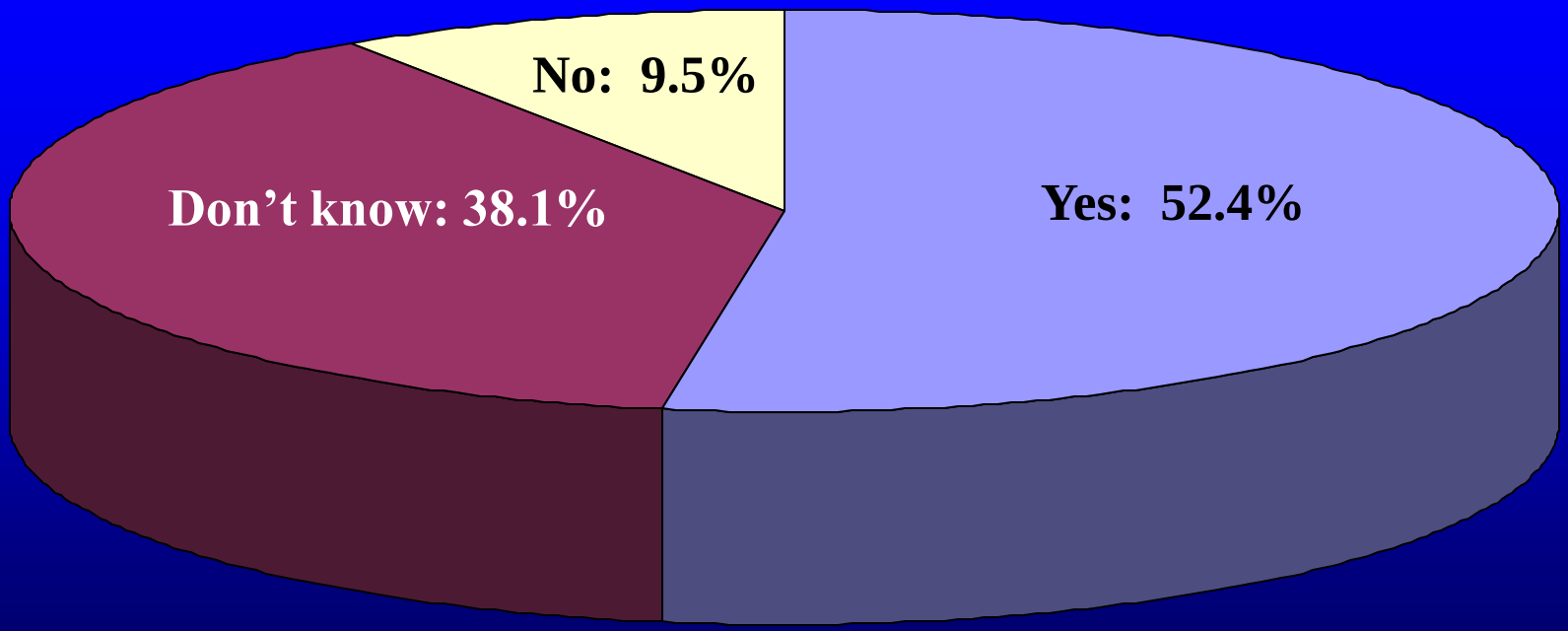
Is there a formal system of clinical training for MPEs within the country in which you currently work?



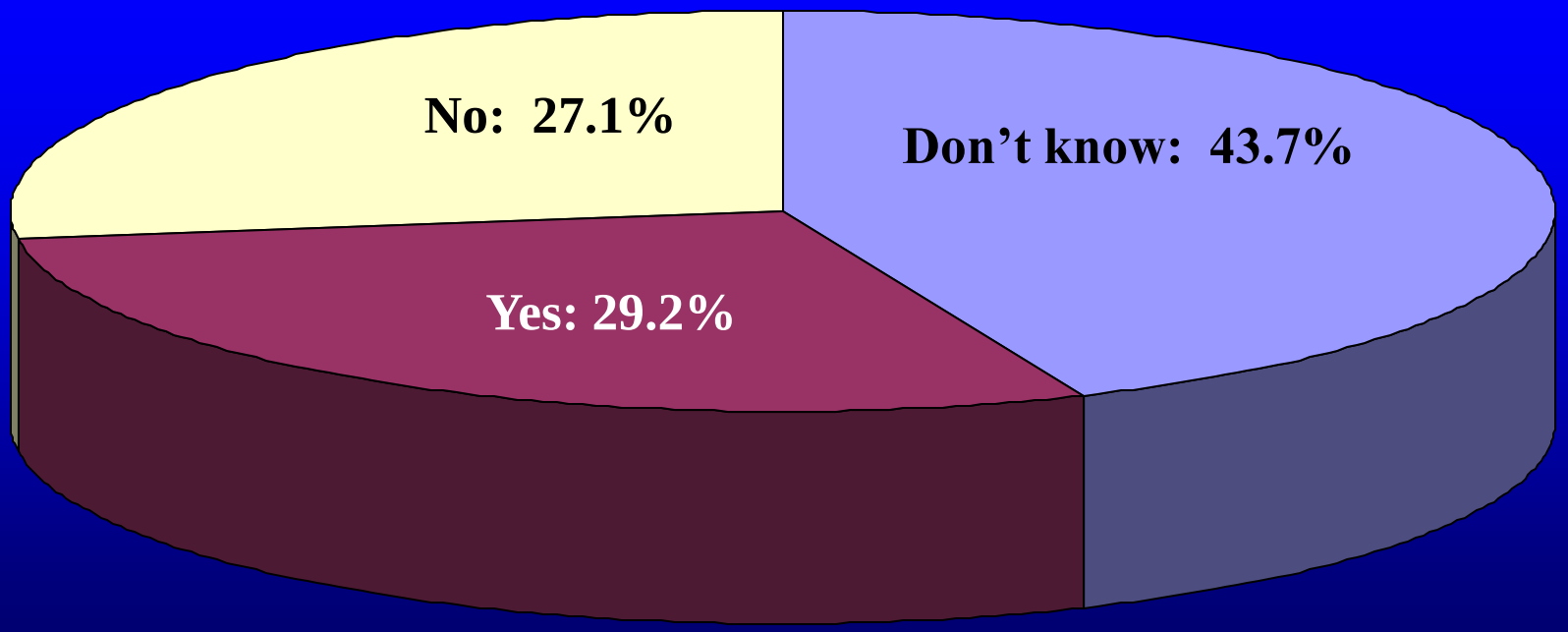
Is there a professional register for MPEs within the country in which you currently work?



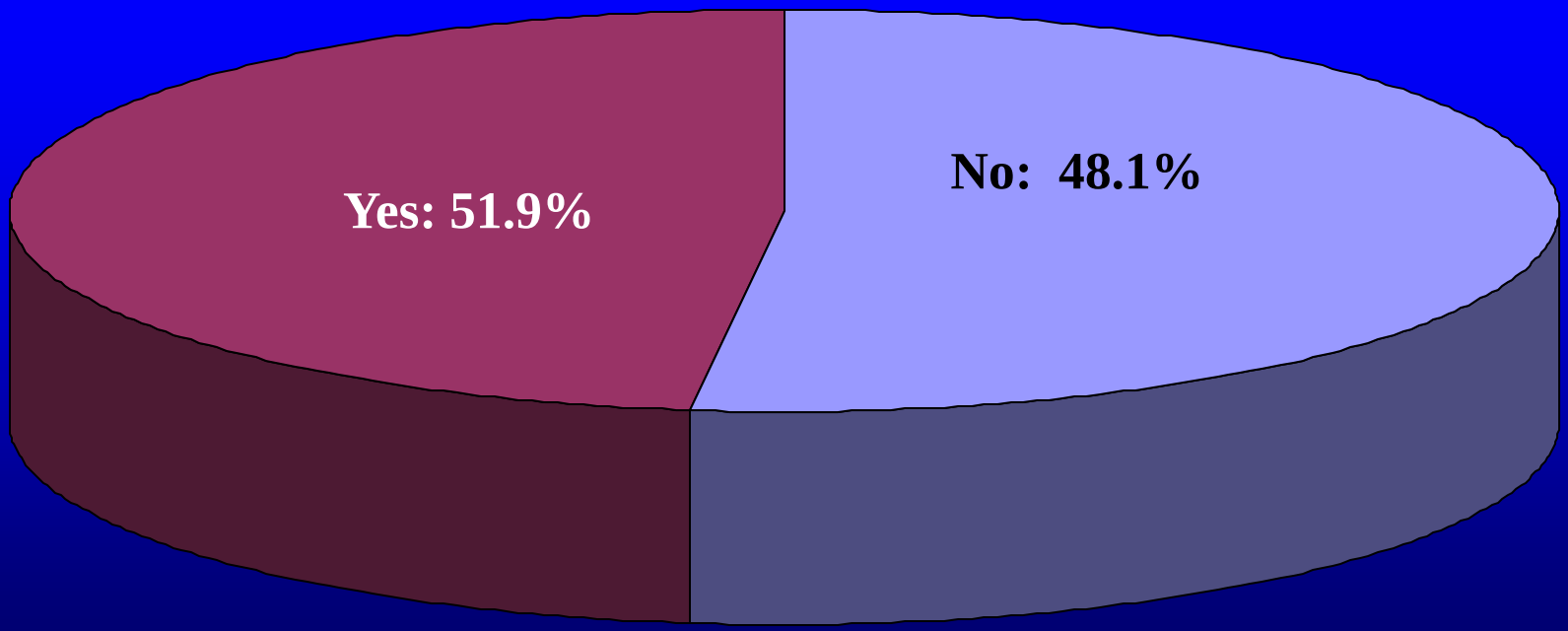
Is it possible to be recognized/appointed as a MPE in your organization if you were trained in another country?



Do you perceive any barriers to moving to/working in a country other than that in which you received your training?

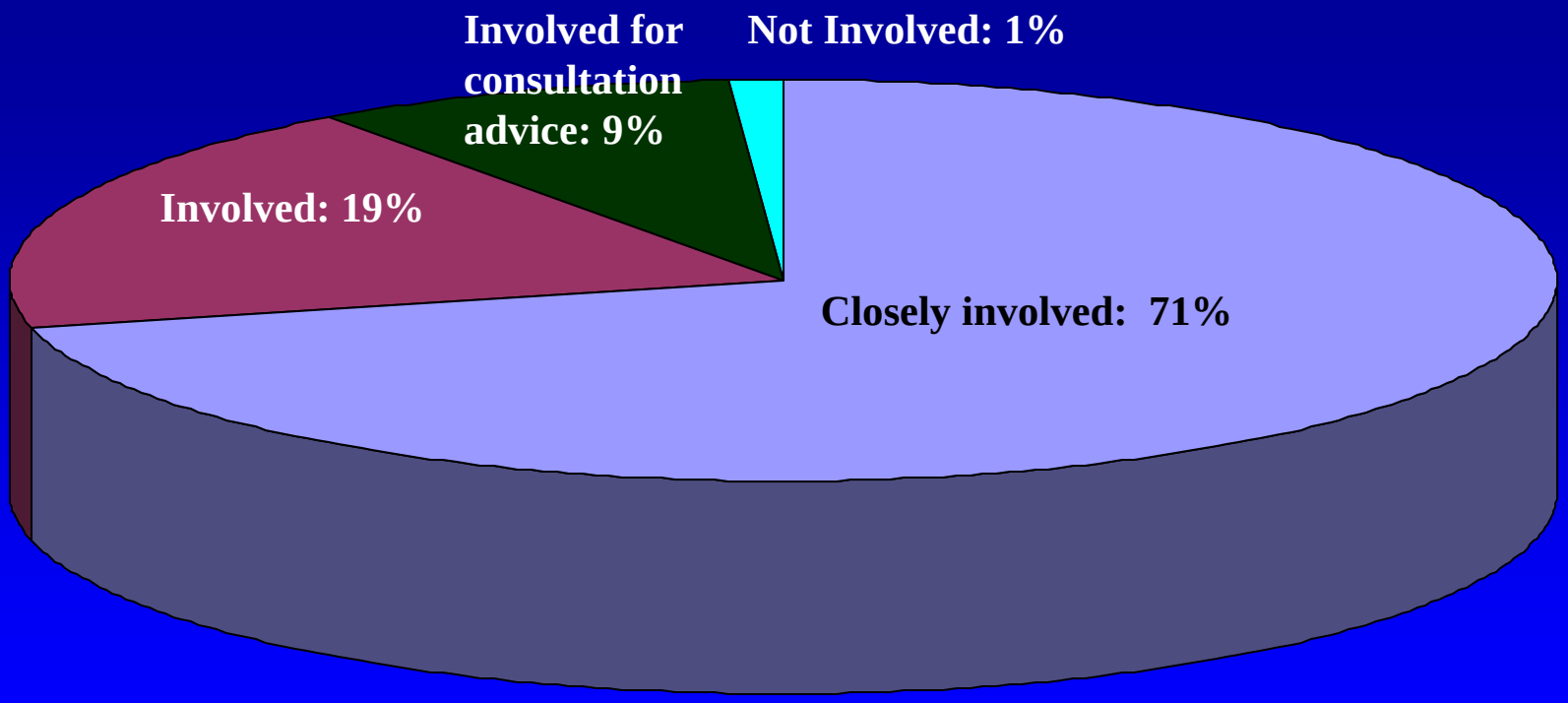


Is it possible for a non-physicist to become a MPE in the country where you work?



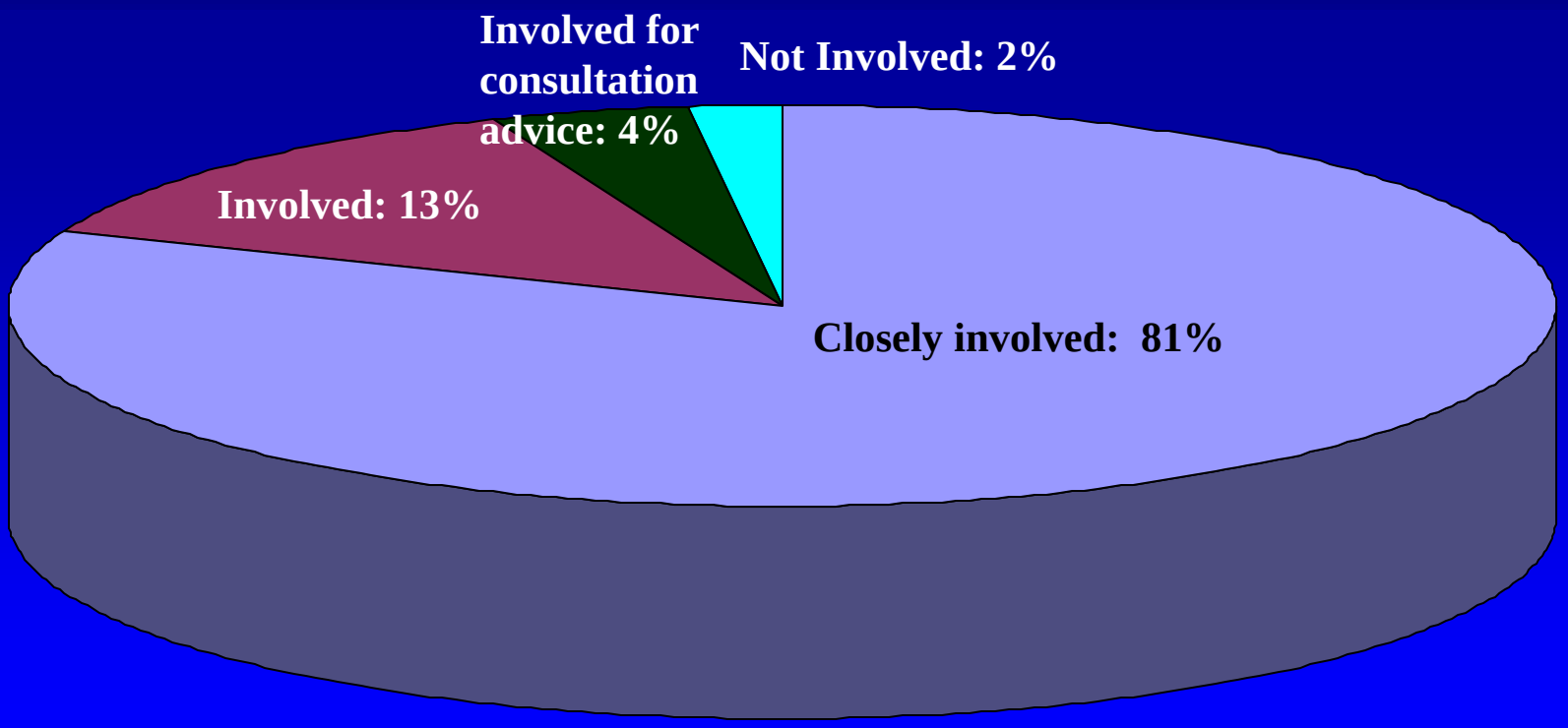
MPEs level of involvement

Act or give specialist advice on matters relating to radiation physics applied to medical exposure



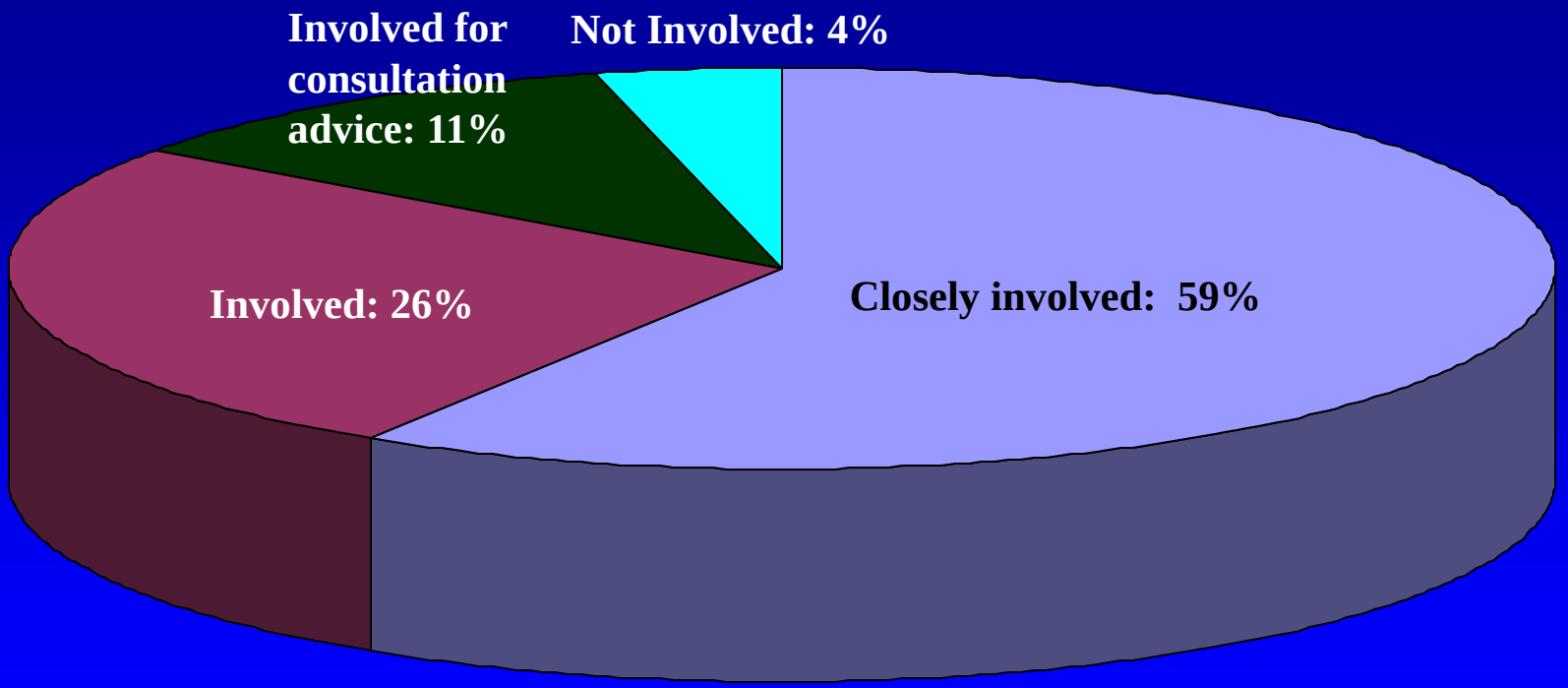
MPEs level of involvement

Take responsibility for dosimetry, including physical measurements related to the evaluation of the dose delivered to the patient



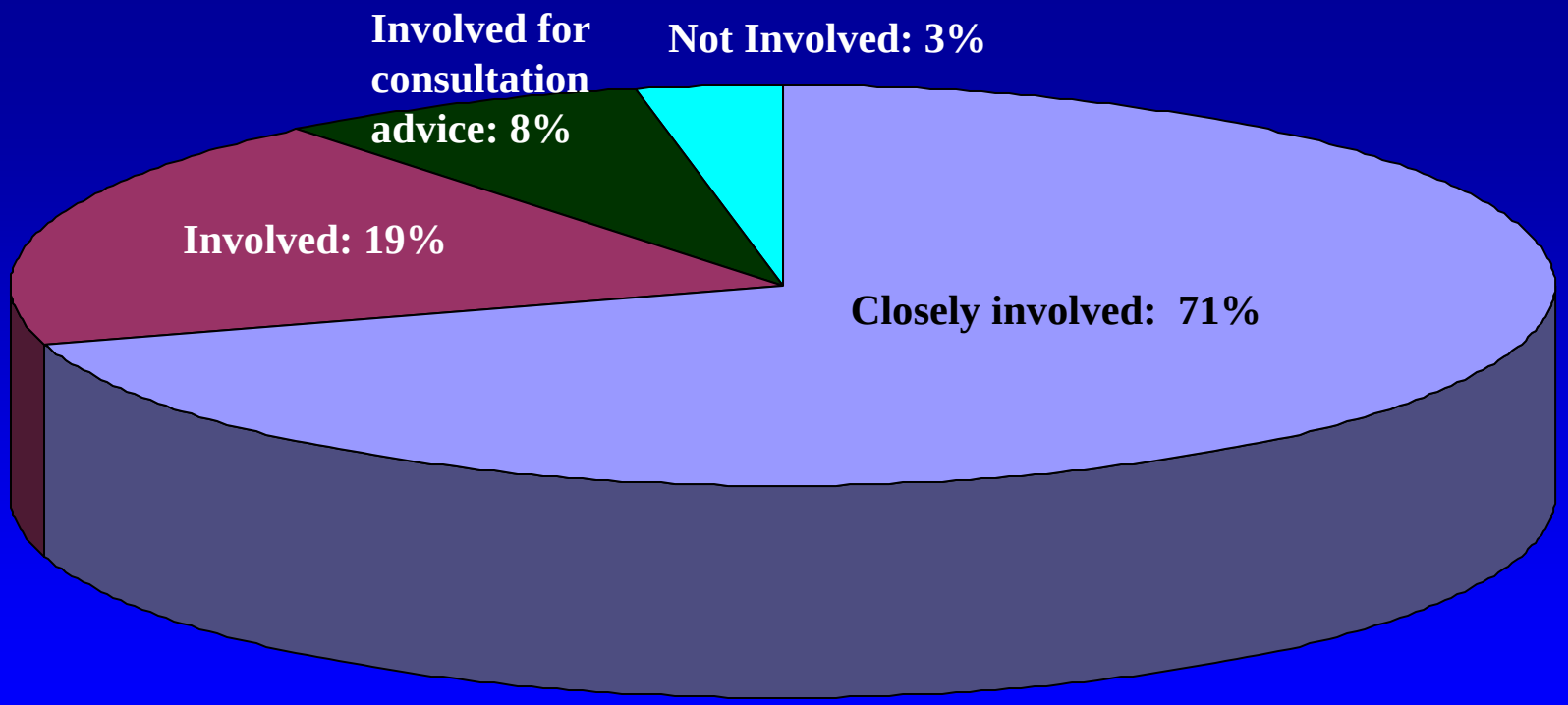
MPEs level of involvement

Optimization of radiation protection of patients & other individuals submitted to medical exposure , incl. establishments & use of DRLs



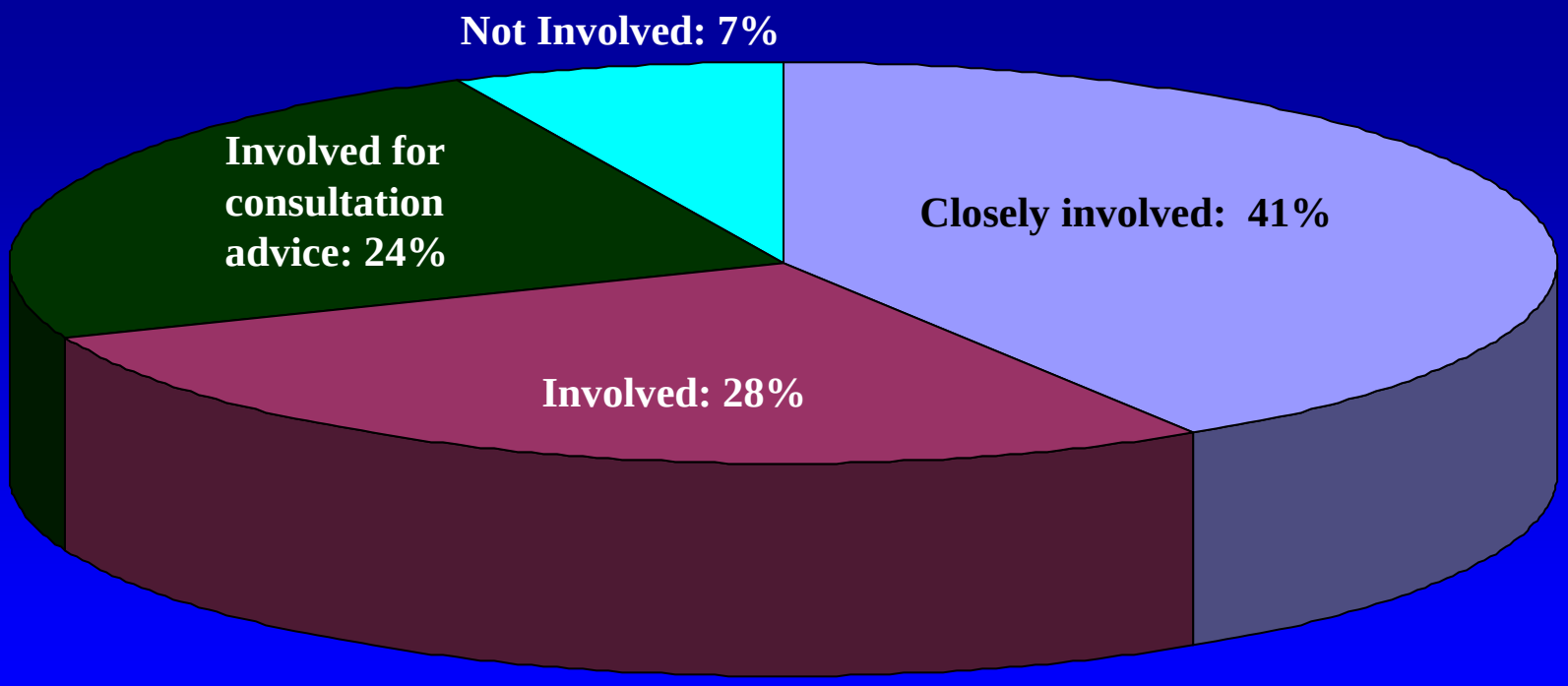
MPEs level of involvement

Contribute to the definition and performance of QA tests of the medical radiological equipment



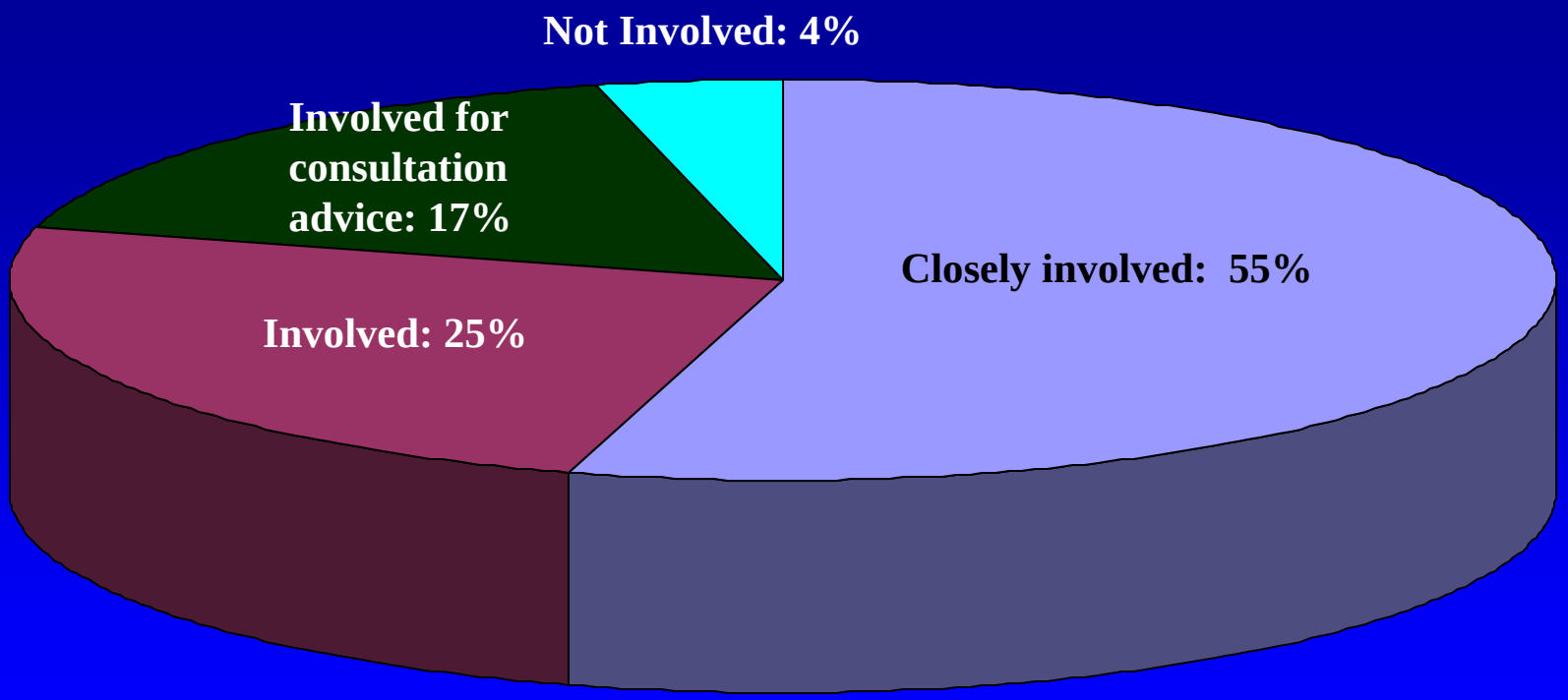
MPEs level of involvement

Preparation of technical specifications for medical radiological equipment and installation design



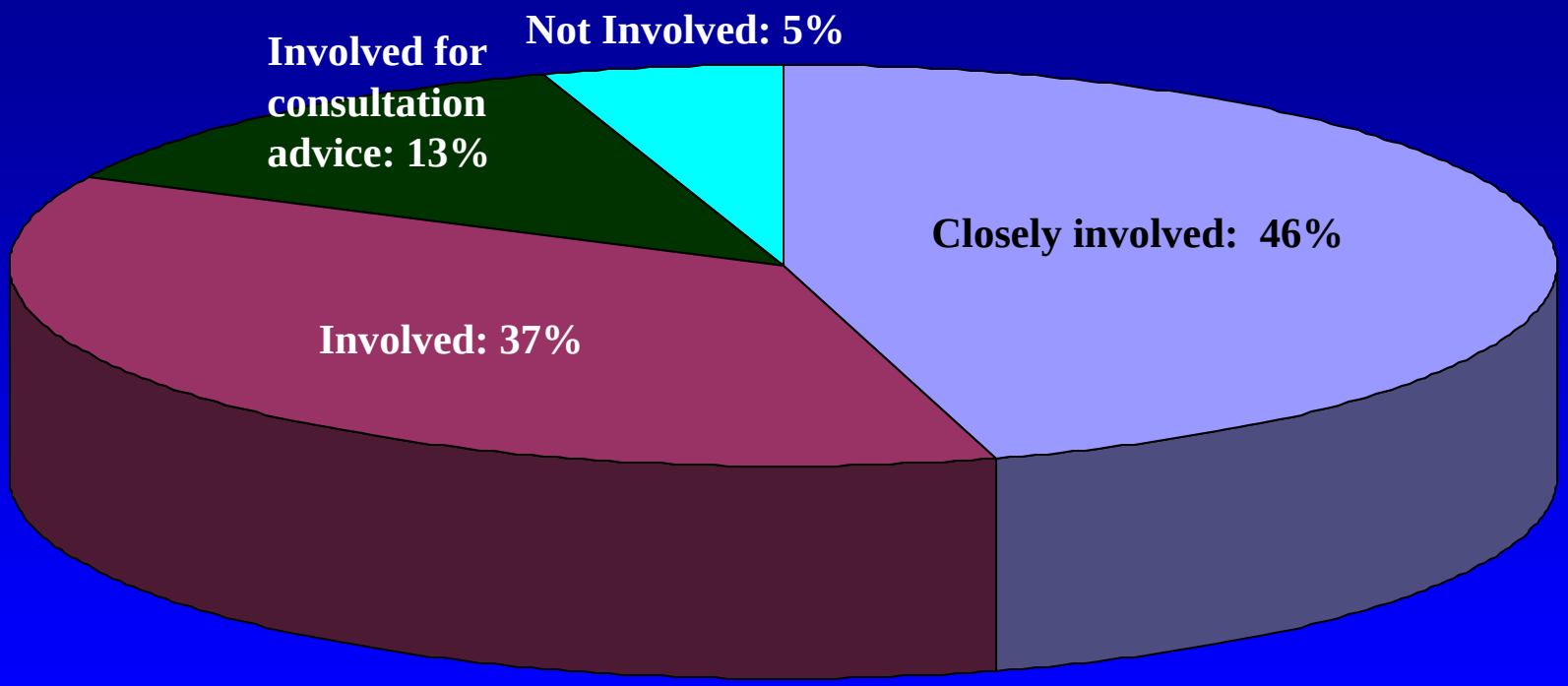
MPEs level of involvement

Selection of equipment required to perform radiation protection measurements and give advice on medical radiological equipment

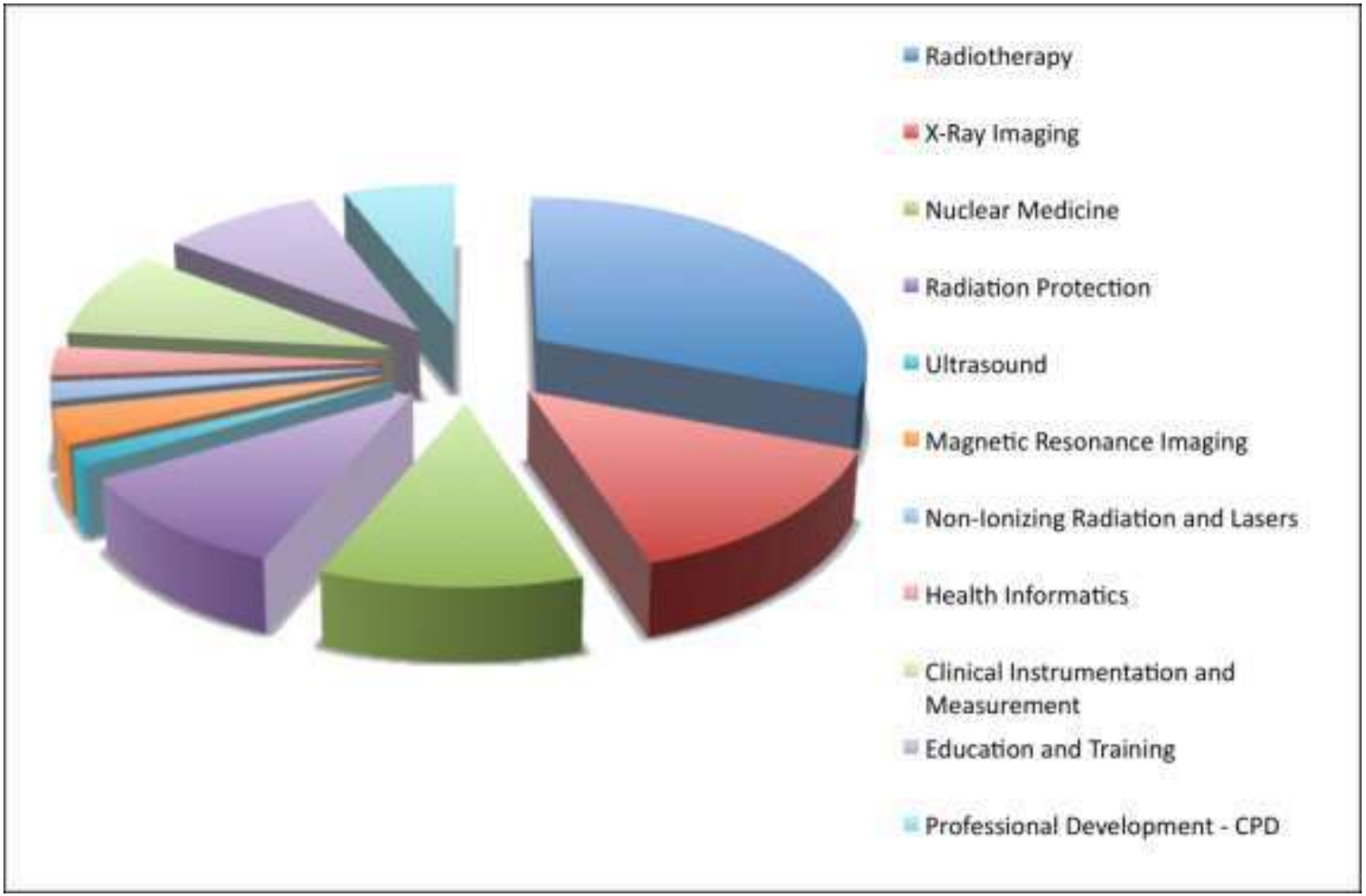


MPEs level of involvement

Training of practitioners and other staff in relevant aspects of radiation protection



Workload of MP depts



EUROPEAN COMMISSION

RADIATION PROTECTION

No. 174

EUROPEAN GUIDELINES ON MEDICAL PHYSICS EXPERT

European Qualification Framework:

An instrument for the promotion of lifelong learning

Knowledge

Skills

Competences

Qualification Framework for the Medical Physics Expert (MPE) in Europe

MPE: "An individual having the knowledge, training and experience to act or give advice on matters relating to radiation physics applied to medical exposure, whose competence to act is recognized by the Competent Authorities" (Recast BSS)

The Qualifications Framework is based on the European Qualifications Framework (EQF). In the EQF Learning Outcomes are defined in terms of Knowledge, Skills, Competences (KSC) (European Parliament and Council 2008/C 111/01)

EDUCATION

EQF Level 6
(e.g., Bachelor with 180 - 240 ECTS)
(i)

Physics
or
equivalent
(ii)

EQF Level 7
(e.g., Master with 90 - 120 ECTS)
(iii)

Medical Physics*
or
equivalent
(iv)

CLINICAL TRAINING

Clinical Certification in Medical Physics Specialty
(v)

Structured accredited clinical training residency in the specialty of Medical Physics in which the candidate seeks clinical certification. The duration should be typically two full-time year equivalents**
(vi)

ADVANCED EXPERIENCE and CPD

EQF Level 8 in Medical Physics Specialty
(vii)

Structured accredited advanced experience and CPD in the specialty of Medical Physics in which the candidate seeks certification as MPE. The duration would be an additional *minimum* of two full-time year equivalents***
(viii)

RECOGNITION

By Competent Authority as MPE in Medical Physics specialty
(ix)

RE-CERTIFICATION

5 year CPD cycle
(x)

* Should include as a minimum the educational components of the Core KSC of Medical Physics and the educational components of the KSC of the specialty of Medical Physics (i.e., Diagnostic & Interventional Radiology or Nuclear Medicine or Radiation Oncology) for which the candidate seeks clinical certification. When this element of specialization is not included it must be included in the residency.

** The EQF level of the residency is intermediate between EQF levels 7 and 8.

*** In states where the MPE is required to be certified in more than one specialty of Medical Physics the number of years would need to be extended such that the MPE will achieve level 8 in each specialty.

Eutempe - RX project

The EUTEMPE-RX consortium will develop, put into practice and evaluate new training schemes for the MPE in Diagnostic and Interventional Radiology, which includes both face-to-face and on-line teaching.

The aim is to provide the best possible training opportunities to European Medical Physics professionals to become MPEs working in Diagnostic and Interventional Radiology.

Course Modules

1. Developments of the profession and the challenges of the MPE: Legal aspects, professional matters, communication and risk assessment, today and tomorrow. Raising the public profile of the profession.
2. Radiation biology for MPEs
3. Monte Carlo simulation of the complete X-ray imaging chain
4. Fundamental physics of X-rays: energy, absorption and their phase
5. Antropomorphic phantoms
6. From routine QA to observer performance
7. Advanced measurements of the performance of X-ray imaging systems
8. CT imaging and dose optimized with objective means
9. Achieving quality in the medical physics aspect of breast cancer screening
10. High dose X-ray procedures in Interventional radiology and cardiology
11. Dosimetry, from conceptus to the adolescent
12. Personnel dosimetry

Accreditation

is the external assessment of the quality of training provision


STANDARDS

MEDical RAdiation Protection Education & Training Project

RADIATION PROTECTION N°175

MEDRAPET

Medical Radiation Protection
EDUCATION AND TRAINING

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

European Commission

Learning outcomes for referrers

Learning outcomes for physicians involved directly with the use of radiation

- **Diagnostic Radiologists**
  - **Entry requirements**
  - **CPD**
- **Interventionalists (Radiologists, Cardiologists etc)**
  - **Entry requirements**
  - **CPD**
  - .
  - .

Learning outcomes for Radiographers

- **Radiology**
  - **Entry requirements**
  - **CPD**
  - .
  - .

Learning outcomes for Medical Physicists

- **Diagnostic & Interventional Radiology**
  - **Entry requirements**
  - **CPD**
- **Nuclear Medicine**
  - **Entry requirements**
  - **CPD**
- **Radiation Oncology**
  - **Entry requirements**

MEDRAPET-Guidelines

MEDRAPET-Guidelines

new standards

Conclusions

- Surveys indicate large variations in the education, and professional development of Medical Physicists in Europe
- The results of the 'MPE Guidelines Project' are expected to harmonize Medical Physics considerably
- The 'EUTEMPE-RX' project will provide training opportunities to MPs to become MPEs
- A European organization on accreditation of MP ET programs is needed to promote quality education