IAEA Contribution to the International Harmonization of Guidelines for Clinical Medical Physicists

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Outline

- Overview of IAEA INT/6/054 "strengthening medical radiation physics"
- Harmonization of guidelines for clinical medical radiation physicists- New IAEA Pub: Human Health Series No. 25
  - ✓ Roles & Responsibilities
  - ✓ Education & Clinical Training Requirements
- Looking ahead

IAEA contribution to medical physics is done in collaboration with many stakeholders: IOMP, AAPM, WHO, ESTRO, EFOMP, AFOMP, FAMPO, ALFIM, MEFOMP, ...

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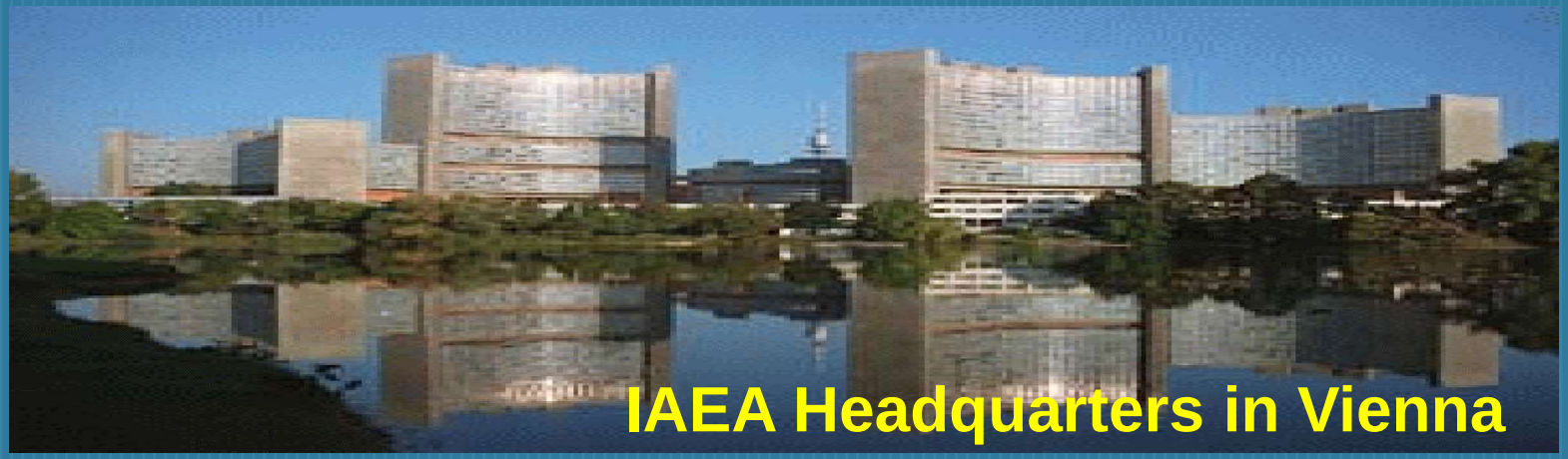
Overview of IAEA INT/6/054 “strengthening medical radiation physics”



Background on IAEA INT/6/054

The INT/6/054 project objectives

1. Define internationally endorsed roles and responsibilities of Medical Physicists and requirements for education and clinical training requirements,
2. Raise awareness and recognition of Medical Physics as a profession, and
3. Identify gaps in education and training and develop/harmonize materials as needed.

World Health Organization

EFOMP

PAHO

Alfim

IOMP

AFOMP

IRPA

ESTRO

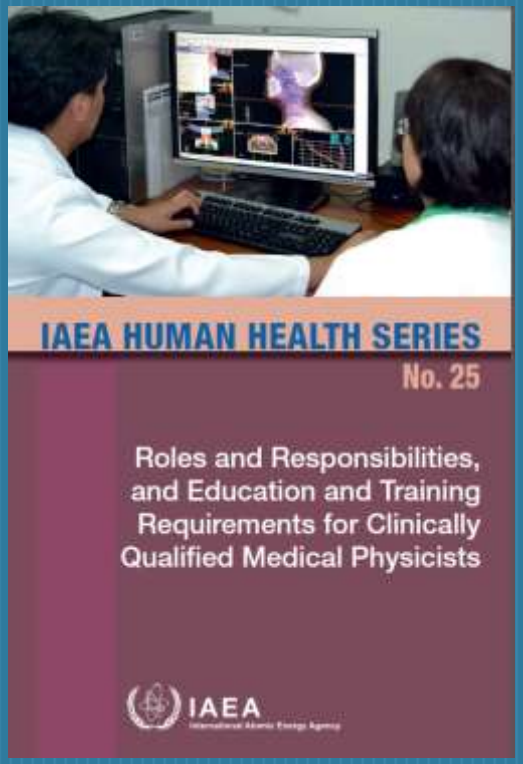
EC

Background on IAEA INT/6/054

- WG1: Roles and responsibilities of medical physicist (chaired by Chris Constantinou)
- WG2: Education, accreditation, certification (chaired by KY Cheung)
- WG3: Staffing levels (chaired by Stelios Christofides)
- WG4: Raising awareness (All WGs)

Harmonization of guidelines for clinical medical radiation physicists New IAEA Human Health Series No. 25

- Free PDF - IAEA Publication website
- The publication will be translated into Spanish and French



Endorsed by IOMP & AAPM

Roles and Responsibilities of Clinically Qualified Medical Physicists

Roles and Responsibilities

- In many countries: lack of understanding of the roles and responsibilities of Medical Physicists, especially in a clinical environment by:
  - ✓ Health authorities & hospital administrators,
  - ✓ Some practitioners, and
  - ✓ Regulators.

↓

Lack of professional recognition

International response

- Professional organizations and societies, such as IOMP, EFOMP, AAPM have been working on ways to improve the understanding of roles and responsibilities and also recognition
- Achievements

✓ Policy statements by professional societies on roles and responsibilities

✓ ILO : ISCO-08 Classification "2111 Physicists and astronomers"

✓ IAEA support to medical physics thru INT/6/054

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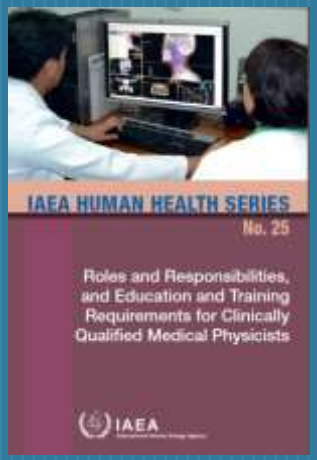

- The Medical Physicist is a member of a multi-disciplinary team involved in the diagnosis and treatment of patients
- Roles and responsibilities common to all specialties
- Roles and responsibilities specific to each specialties: Radiation Therapy, Nuclear Medicine, Diagnostic & Interventional Radiology

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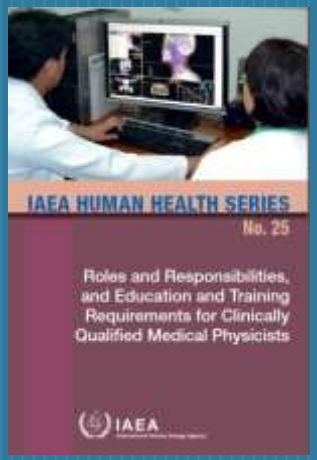

- The definition of the roles and responsibilities is used to determine the minimum requirements for the academic education and clinical training necessary for clinical qualified medical physicists

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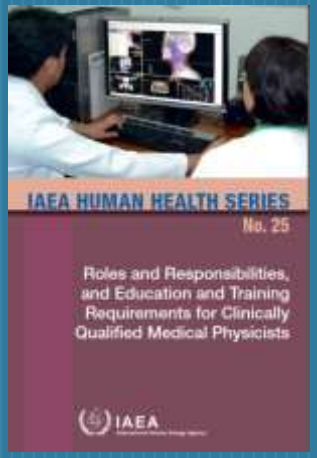

Roles and responsibilities common to all specialties

1. Calibration and verification of measurement instruments
2. Technical supervision of equipment operation and maintenance
3. Records and documentation
4. Clinical computing and networking
5. Research and development
6. Education and training

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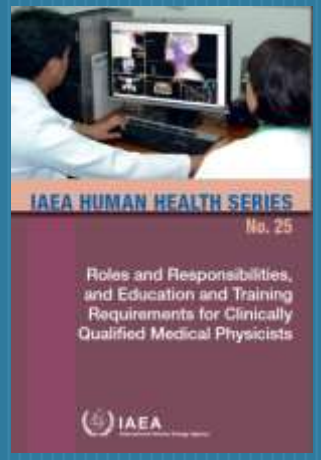

Roles and responsibilities specific to the specialties of Radiation Therapy, Nuclear Medicine and Diagnostic and Interventional Radiology

1. Installation design, technical specification, acceptance and commissioning of equipment, including the establishment of criteria for acceptable performance

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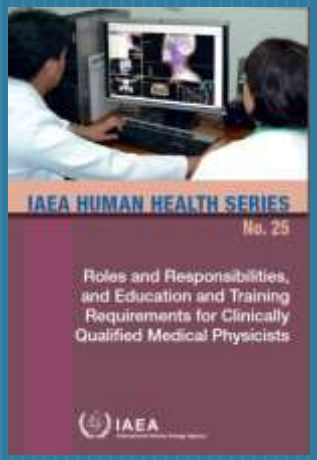

2. Radiation safety and protection of patients, staff and general public
3. Radiation dosimetry of radiation sources and patients
4. Optimization of the physical aspects of diagnostic and therapeutic procedures

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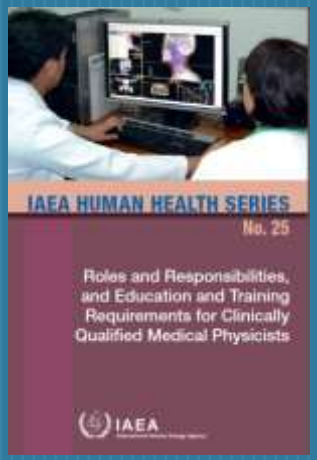

5. Quality management of the physical and technical aspects of radiation medicine, such as
   - ✓ development of protocols and procedures for the safe and effective use of radiation,
   - ✓ supervision of quality assurance and quality control procedures,
   - ✓ risk assessment and management

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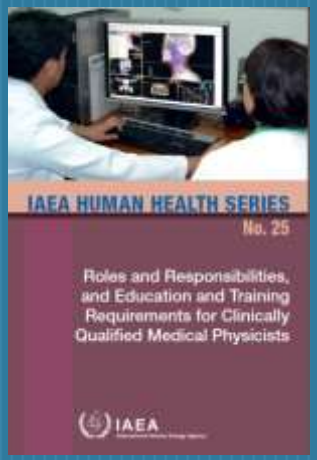
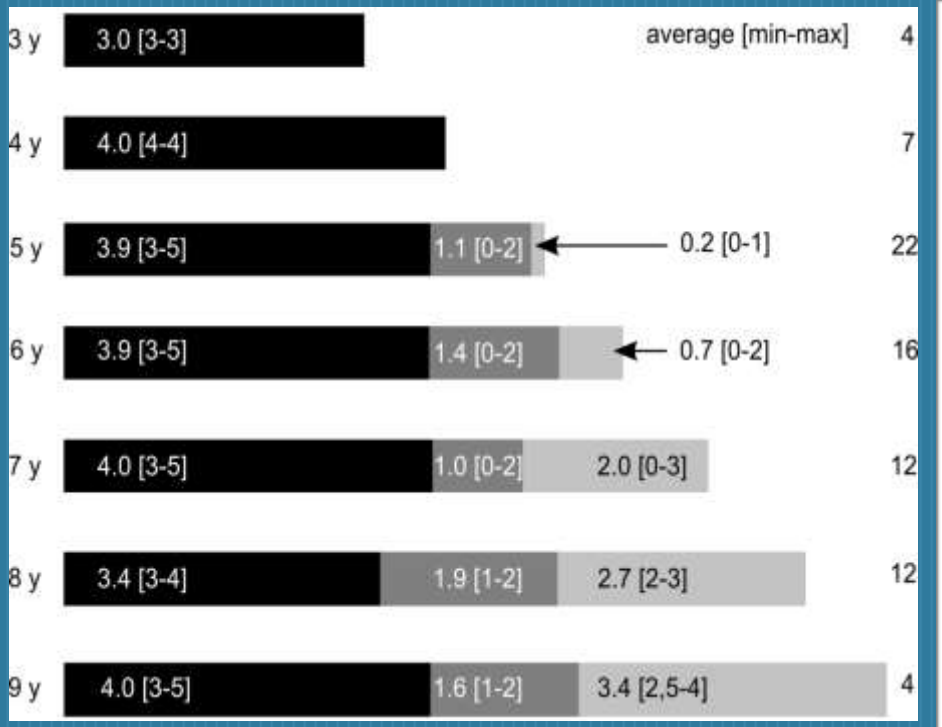


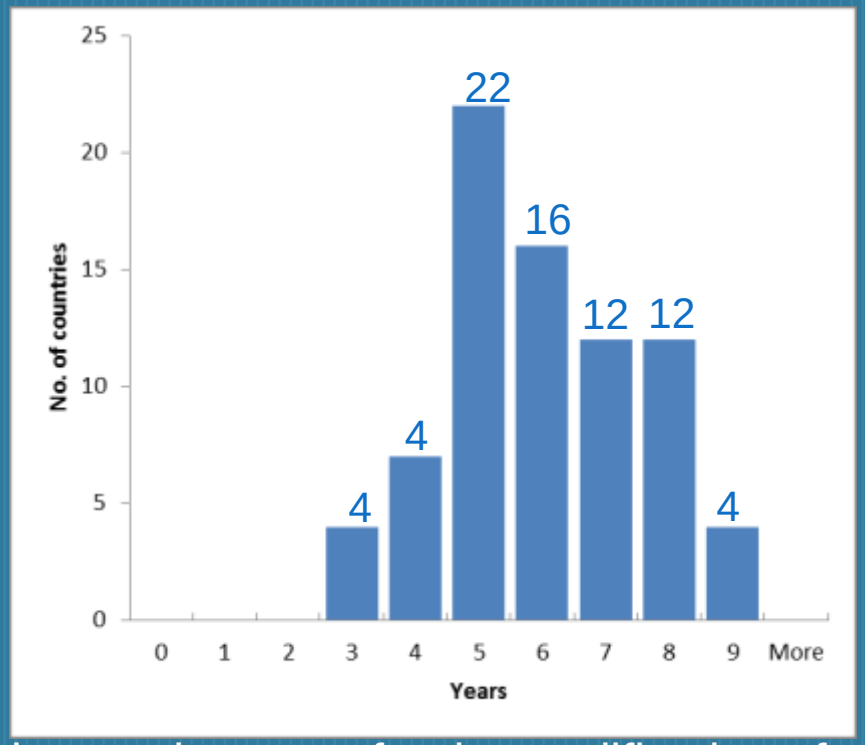
6. Collaboration with other clinical professionals in patient care, such as

- ✓ consultation with medical doctors and other clinical team members during diagnostic or therapeutic procedures,
- ✓ commissioning and supervision of the implementation of new or complex clinical procedures, assisting the training of clinical staff

Education and Clinical Training Requirements

Current status on Education & Clinical Training Requirements





Results of two comprehensive surveys on the requirements for the qualification of medical physicists made by EFOMP* [2006] and IAEA [2010-2011] which together include responses from 77 countries

**EUDALDO, T., OLSEN, K., The present status of Medical Physics Education and Training in Europe: an EFOMP survey, Physica Medica (EJMP) 24 (2008) 3-20*

Current status on Education & Clinical Training Requirements

Conclusions of the surveys

1. The minimum "academic education and clinical training" time frame for employment as a medical physicist at a hospital varies between 3 -9 years, the average is about six years
2. The time fraction spent in basic, post-graduate and clinical training varies enormously, from a 3-year degree without any clinical training to 9 years, including a 4-year clinical training

Current status on Education & Clinical Training Requirements

Conclusions of the surveys

3. The largest discrepancy is the clinical training programmes across different countries. The duration varies from 0 to 4 years

There is a need for establishing harmonized criteria on the minimum recommendations for academic and clinical training of clinical medical physicists which could be used to achieve **minimum standards** of competence

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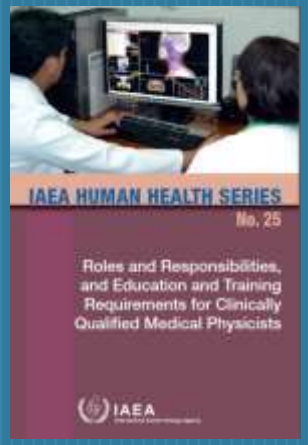

1. Basic university degree in physics, engineering or equivalent (i.e. a 3-4 year degree including advanced mathematics and physics), followed by

2. Post-graduate degree in Medical Physics; MSc or equivalent degree, and

3. Clinical training for at least 2 years in one of the specialties of Medical Physics in the form of a structured residency programme, supervised by a senior CQMP.

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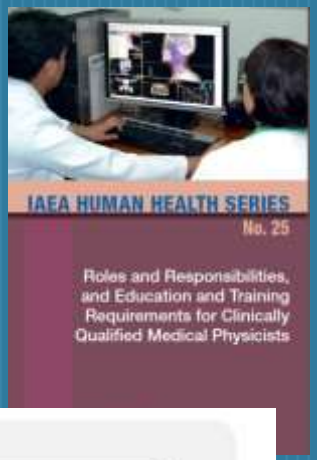
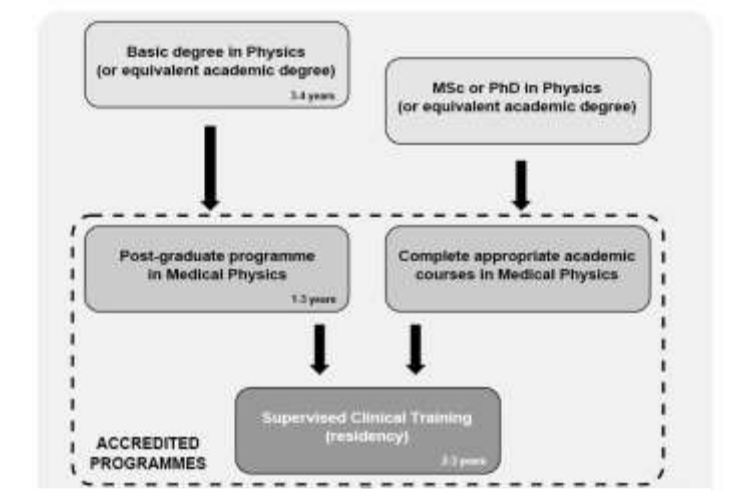
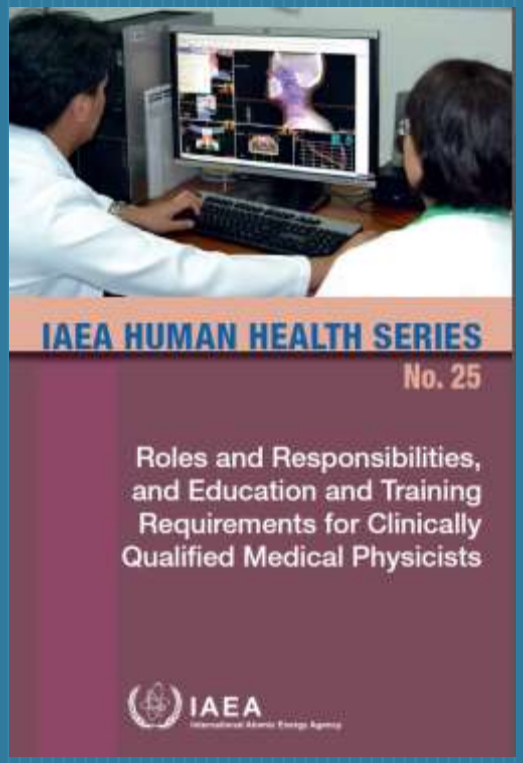


- Cont. Prof Develop
- Certification process for MPs
- Accreditation of education & clinical training programmes



"HOLDERS OF A UNIVERSITY DEGREE ALONE, WITHOUT CLINICAL TRAINING CANNOT BE CONSIDERED CLINICALLY QUALIFIED"



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Looking ahead

- Translation of HH Series No. 25 into Spanish and French, …
- Distribution to counterparts: prof societies, MoH, RP authorities…
- Awareness seminars
- Support Implementation

Acknowledgements

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