IAEA
International Atomic Energy Agency
Atoms for Peace and Development

Medical Physics certification in Africa

Debbie van der Merwe and Giorgia Loreti
AAPM Annual Meeting 2019

Current status is widely varied

- SAF: highly developed system including annual re-licensing and CPD compliance and auditing. Highly regulated. Medical physicists are part of the Medical and Dental Board (Medical Science Committee including Medical Biological Scientists and Genetic Counsellors).
- GHA: well developed system
- NAM, KEN and BOT recognizes SAF (and other?) system.
- GHA and ZIM: Registration with Allied Health Board
- Overseas qualifications accepted
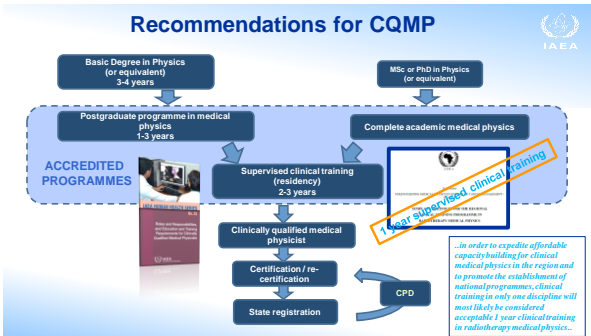- Several countries have academic programmes

Regional Initiatives

- Professional societies (FAMPO survey)
  – CMR, EGY, GHA, KEN, NER, NIR, MOR, SAF, TUN and UGA
  – This is based on a survey conducted by FAMPO but we are unsure of the validity of the information.
  – No known intra-regional cooperation
- National initiatives to introduce structured clinical training
  – ALG, ETH, KEN, MAR, MOR, NIR, SUD, TUN, UGA, ZAM, ZIM

IAEA support to Medical Physics

Recommendations for CQMP

Documentation: portfolio

Examples of documents that the portfolio can incorporate:

• Curriculum vitae
• Progress reports
• "Summary of Competency Achievement" demonstrating the **level of competency** achieved in each sub-module
• Samples of work prepared by the Resident. The samples of work could be:
  ❑ Departmental reports, e.g. commissioning and clinical implementation of new equipment or treatment technique.
  ❑ Assignments on key competencies.
  ❑ A presentation delivered covering key aspects of the module

The **clinical supervisor will examine the portfolio at regular intervals** and provide feedback to the Resident.

The **National Coordinator** will review the portfolio at the end of the Resident's programme and rate the portfolio as satisfactory or unsatisfactory.

The portfolio itself is evidence of having undergone a clinical training programme. It can also serve as a baseline reference for **self-study and lifelong learning**

Documentation: portfolio (RAF)

RAF/6/044
STRENGTHENING MEDICAL PHYSICS IN SUPPORT OF CANCER MANAGEMENT –
PHASE II

TEMPLATE PORTFOLIO FOR THE REGIONAL
CLINICAL TRAINING PROGRAMME IN
RADIOTHERAPY MEDICAL PHYSICS

REPORT OF A TASK FORCE MEETING

2015

Recommendations for Medical Physics Education in AFRA Member States

This document is endorsed by the Federation of African Medical Physics Organizations

Documentation: portfolio (RAF)

TABLE 3.3. PORTFOLIO FOR THE MODULE: EBRT Reference dosimetry including instrumentation and calibration. (TCS No. 37 Sub-modules 3.1, 3.2, 3.3, 3.7) FROM THE REGIONAL CLINICAL TRAINING PROGRAMME FOR RADIOTHERAPY MEDICAL PHYSICS RESIDENTS. THE SUGGESTED DURATION FOR THIS MODULE IS 9 WEEKS.

SUB-MODULE	ACTIVITY	PROCEDURES TO ACHIEVE COMPETENCY	COMMENTS, SIGNATURE AND DATE OF SUPERVISOR
kilovoltage therapy	Instrument quality control (QC), calibration and cross-calibration of field dosimetry systems	Selection criteria for type of ionization chamber Demonstrate a familiarity with QA recommendations for radiation dosimetry equipment such as: o Electrometer o thermometer o barometer o phantom Check the traceability to a PSDL for a calibration factor used for absolute dose determination. Demonstrate a familiarity with the method to express uncertainties in dose measurement	
	Beam quality	Perform measurement and establish the HVL for a low and medium energy X ray beam according to an International Code of Practice	
	Output calibration	Influence effects on the measured quantity (air density, recombination, polarity, warm-up, stem effects, leakage, humidity) Timer effect. Application of an International Code of Practice, e.g. TRS-277 [7] and TRS-398 [8].	
⁶⁰Co teletherapy	Instrument QC, calibration and cross-calibration of field dosimetry systems	Selection criteria for type of ionization chamber Demonstrate a familiarity with QA recommendations for radiation dosimetry equipment such as: o Electrometer o thermometer	

The clinical supervisor(s) "signs off" on satisfactory completion of a competency assessment and that the portfolio is kept up-to-date.

IAEA support of the MMP

Syllabus of the MMP and clinical medical physics programme based on the IAEA documents (IAEA-TCS-56, TCS-37, TCS-47 and TCS-50) and RAF documents. IAEA support: selection, fellowships, evaluation.

African Regional Co-Operative Agreement for Research, Development and Training Related to Nuclear Science and Technology (AFRA)

ACADEMIC AND CLINICAL TRAINING PROGRAMMES
AND PORTFOLIOS FOR THE REGIONAL TRAINING IN
MEDICAL PHYSICS

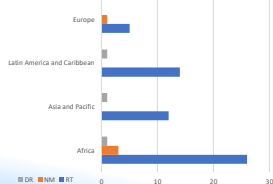Minimum Requirements for Medical Physics Education in AFRA Member States
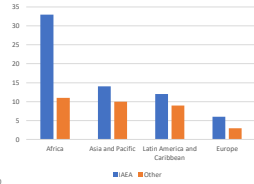
ICTP MMP graduation 2017 2018 https://www.ictp.it/about-ictp/media-centre/news

IAEA support of the MMP

Thesis topics of MMP graduates per Region

MMP fellows: sponsor per Region

The survey of MMP graduates

The survey aimed at evaluating the results of the programme in terms of capacity building.
In particular the following points were investigated:

- rate of graduates returning to their home country (best-case scenario) or returning to the same Region
- rate of graduates working as clinical medical physicists or working in a non-clinical environment, but in an area related to medical physics
- *local recognition of the MMP degree*
- status of medical physics in the graduates' countries (indicators: *existence of professional association, certification process* and CPD credits) and graduates involvement in such professional activities
- graduates' degree of appreciation of the programme
- use of educational material or knowledge acquired during the MMP in their current profession
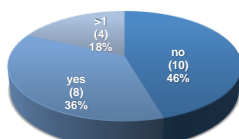
Certification (global survey 2017)

Availability of national certification process

Existence of a national professional association

Certification available?

no 91%

National professional association?

>1 (4) 18%

no (10) 46%

yes (8) 36%

Recognition and harmonization of the profession

Proposed structure of a certification body

- Executive (strategic, communication, finances and administrative)
- Governance (legislative and ethics)
- Operational (assessment criteria, accreditation, CPD)
- Assessment committee
- Appeals
- Preferably embodied within an existing Health professions council

Draft IAEA publication: *Guidelines for the certification of Clinically Qualified Medical Physicists (2020)*

AMPLE: IAEA e-learning

Cyber Learning Platform for Nuclear Education and Training (CLP4NET)

Advanced Medical Physics Learning Environment (AMPLE) is an e-learning programme run by IAEA under a RCA project named "Strengthening the effectiveness and extent of medical physics education and training"

Groups in AMPLE

The purpose of the "groups" is to maintain confidentiality (e.g. residents work and grades).

Groups also facilitate collaboration among "roles".

For example groups of:

- Resident
- Clinical Supervisor
- National Speciality Coordinator
- National Program Coordinator

Groups in proposed Certification Platform

The purpose of the "groups" is to maintain confidentiality (e.g. registrants and assessors).

Groups also facilitate collaboration among "roles".

For example groups of:

- Administrators
- Assessors, executive
- Registrants (role of voluntary, fully and partially certified professionals)
- National Program Coordinator
- Access to CPD activities (online)

FAMPO initiative with coordination by IAEA

Conclusion

- Diverse situation
- The acceptance of a clinical training programme as a competency-based initiative is a difficulty for many authorities. The FAMPO initiative may encourage recognition.
- Adapting the guidelines has led to some success in Africa
- The ICTP MMP programme has yielded encouraging results albeit not a perfect solution
- Imaging medical physics is lagging