

CERTIFICATION OF MEDICAL PHYSICIST – INDIAN PERSPECTIVE

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Medical / radiation physics is the science primarily deals with application of radiation in health care- Radiotherapy, radio diagnosis, Nuclear Medicine and research

With the application of radiation in health care , need of qualified medical physicist to take care of the radiation safety dosimetry and treatment planning was felt and BARC with support from WHO started one year post graduate Diploma in Radiological Physics since 1962. Till 1982 this was the only training programme with capacity of 20 trainees available to get Qualified Medical Physicists. To cater the to the need of rising demand of Medical Physicist [mandatory requirement from competent authority – AERB to have RSO for each Institution where radiation generating equipments and radioisotopes are used in clinical practice] – Anna University in Collaboration with Adyar Cancer institute started 2 years M. Sc. Medical Physics programme.

In India at present two pathways two become Qualified Medical Physicist [QMP]

1. One year post M.Sc. [Physics] Diploma in Radiological Physics [Dip. R.P] from BARC- Deemed University
2. Two years post graduate degree course in **Medical Physics** after graduation in science

The Radiological/ Medical Physics education and training programme are basically **academic courses** which includes about **three months observation** at a moderate equipped Radiotherapy center.

<i>Course Title</i>	<i>Institution/ University</i>	<i>Course duration (years)</i>	<i>Hospital training (months)</i>	<i>Intake</i>
Post M. Sc. Diploma in Radiological Physics (Dip. R. P.)	RPAD/ BARC [Homi Bhabha National Institute (a deemed to be university)], Mumbai	1	2-3	30
M. Sc. Medical Physics	Anna University (AU), Chennai	2	2-3	25
M. Sc. Medical Physics	Bharathiar University, Coimbatore	2	2-3	15
M. Sc. Radiation Physics	Calicut University, Calicut	2	2-3	8
M. Sc. Radiation Physics	Manipal University, Manipal	2	>3	6
P. G. Diploma in Medical Physics	Jadavpur University, Kolkata	1	2-3	10
M. Sc. Medical Physics	Punjab University	2	>3	12
M. Sc. Medical Physics	PSG College of Engineering, Coimbatore (affiliated to AU)	2	2-3	15

Cancer burden in India & facilities

1 million new cases / year

Radiotherapy equipments

Linear accelerators		125
Cobalt units		300
Brach therapy units	HDR	70
	LDR	50
	Manual	110
Clinical Medical Physicists		450

Nuclear Medicine Centers 180

More new centers coming up – mostly Linear accelerators

More QMP required, Demand is more than supply

Significant advancements has taken place in the technology of radiation delivery and imaging equipments- precision radiotherapy with IMRT, IGRT, 3D CRT, CT- PET, MRI imaging
Many fold increase in the role of QMP- mere academic degree with 3 months observation is not sufficient.

Further AERB mandates each radiation department [RT & NM] must have RSO- licensing- renewal after every 3 years

Regarding Clinical Medical Physicist- No licensing, certification or registration

Paramedical & Medical professions – Radiographers, Nursing, Pharmacists, Doctors have registration bodies, council/ Boards

No such council/ body for Clinical Medical Physicists

No mechanism or requirement to ensure continuing medical education and training after the academic qualification as QMP

What is needed

1. Harmonization of training programme in terms of syllabus, adequate faculty, adequate facilities/ equipments, uniform examination and evaluation system
2. Need to create a council/ board for Clinical Medical Physicists by **Government act**
3. Registration **QMP should be mandatory**
4. Certification of QMP by **certification body by govt. [AERB] or govt. recognized agency – AMP/ ICMP**
5. Internship / Residency programme

Certification level

Level- I [Base Level]- Medical Physicists in Radio diagnosis, in small radiotherapy center with only Co 60 unit

Level- II [Middle level]- Nuclear Medicine, Radiotherapy Centers with Co 60 / Linear accelerator , 2 D TPS

Level-III [Advanced Level]- Nuclear Medicine with Therapy, Linear accelerator with IMRT, IGRT, 3 D TPS,

Residency programme at present only 3 centers and not mandatory

Not necessary for basic QMP - small centers

Mandatory for advanced [Level 3] QMP working in modern equipments

On job training or intern ship/ residency

B.Sc. [Physics] + 2 years M. Sc. [Medical Physics]

+ 2 years residency under QMP

This will improve quality of services available and enhance competency and professional standing

Steps Taken

1. AERB has prepared guide lines and model syllabus for QMP
2. Under IAEA regional cooperation agreement RCA project for Asia Pacific region “ Strengthening of Medical Physics through Education and training” RP & AD, BARC/ AERB have prepared a training programme including internship/ residency as per national need
3. Indian College of Medical Physics [ICMP] is formed and is in process of formulation of criteria for certification of QMP, however it will be voluntary
4. AERB is in process of bringing revised safety code for Radiation therapy sources, equipment and installations where in the requirement of certified QMP and criteria are specified.
5. RP&AD, BARC is converting one year Dip. R.P. course into two years post M. Sc. [Physics] - M. Tech. Medical Physics from 2010 with emphasis on more hospital training
6. AMPI, AERB has recommended MCI and Ministry of health to implement the codes and follow the guidelines regarding appointment of QMP in Radiotherapy, Radio diagnosis and NM departments of Medical College

Regional accreditation- AFOMP

Problems-

1. Variation in Educational standards, training programme and facilities in member countries
 2. Variation in standard of patient care, equipment & resources amongst member countries
- Certification – Country specific

EFOMP countries also tremendous variation in educational standard, training programme, equipment and facilities.

IOMP - ?