ICMP 2011

Science and Technology for Health for All

April 17-20 · Porto Alegre - RS - Brazil

INTERNATIONAL CONFERENCE ON MEDICAL PHYSICS

RT5-E - Certification of Medical Physicists

Moderator: Raymond Wu

Certification System of Medical Physicists in Brazil

ABFM
Associação Brasileira de Física Médica

Cecilia Maria Kalil Haddad
Presidente ABFM

Physicist's Schooling

GRADUATION LEVEL: 4 or 5 years

- Graduation in Physics (57 Universities – Bachelor Degree)
- Graduation in courses oriented to medical physics (11 Universities)

POST-GRADUATION LEVEL

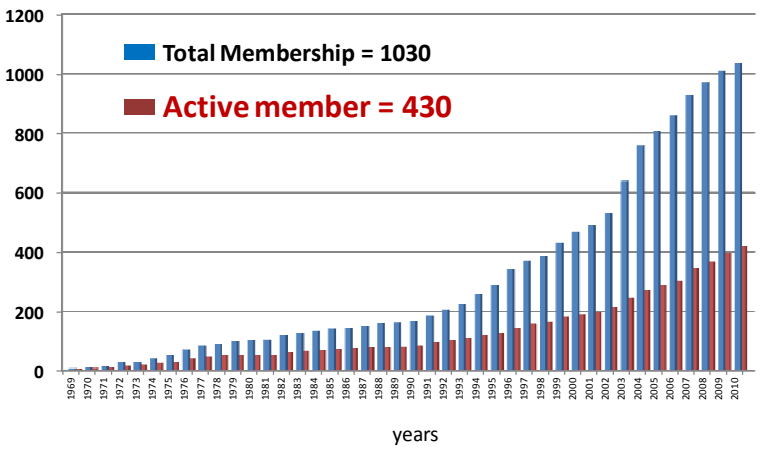
- Master Science, PhD (14 Universities)
- Specialization, Residence (12 Hospitals): 2 years
  - 9 in Radiotherapy (18 openning)
  - 3 in Nuclear Medicine (3 openning)
  - 3 in Radiology (4 openning)
  - 2 in Radiological Protection (2 openning)

ABFM

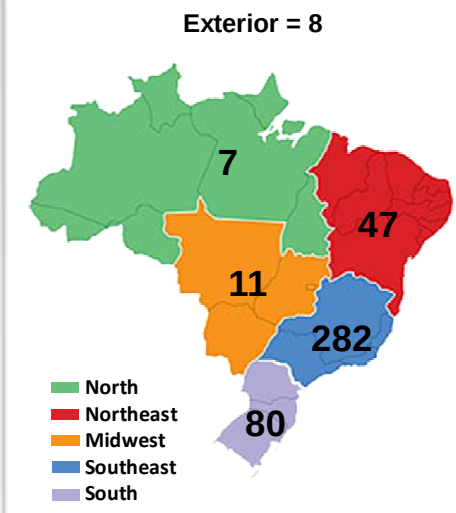
Brazilian Association of Medical Physics

Founded in 1969, it is a civil society of scientific and cultural feature that joins professional that work in the Physics applied to Medicine and correlated sciences.

Series of members ABFM



Active members



ABFM
Brazilian Association of Medical Physics

Corporate Participation

- International Organization for Medical Physics (IOMP)
- Associación Latino Americana de Física Médica (ALFIM)
- Brazilian Society for the Advancement of Science (SBPC)
- Brazilian Physics Society (SBF)
- Brazilian Society of Radiotherapy (SBRT)
- Brazilian College of Radiology (CBR)
- Brazilian Society of Radiosurgery (SBRC)

ABFM

Objectives

- Enhance the progress of Medical Physics and correlated sciences
- Promote publication of scientific papers
- Promote, inside the country, congresses, conferences and workshops in Medical Physics and represents Brazilian Medical Physics outside the country
- Certify professionals who work in Physics applied to Medicine.

Qualifies Medical Physicists in the following areas:

Radiotherapy

Radiology

Nuclear Medicine

Qualification Requirements

- Be graduated or have M.Sc. or PhD degree in physics,
- Have done a training in the specific area during at least 3800 hours,
- Be working in the area for at least two years,
- Be approved in the certification exam at ABFM.

ABFM Exam

- General examination : 20%
- Specific examination: 40%
- Oral examination : 40%
- Cutoff = 7,0

Accreditation of Institutions

The ABFM has been working on the accreditation of the institutions that offer the education program to physicists in 3 areas with the aim of ensuring these residences have met a defined standard.

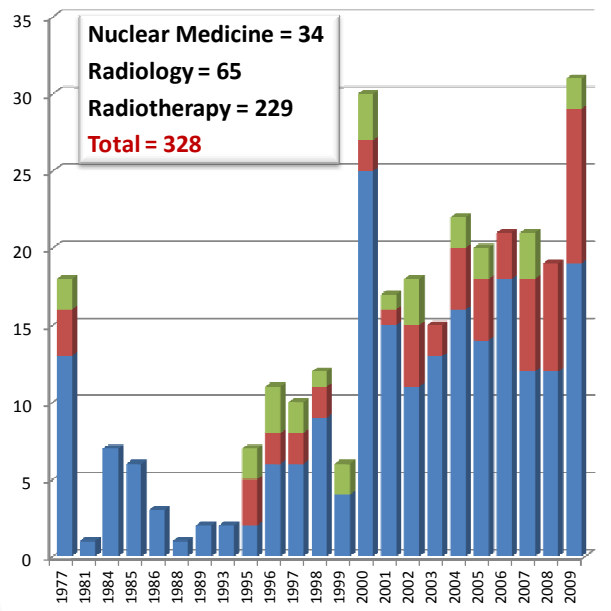
Accreditation of Institutions

The minimum requirements are

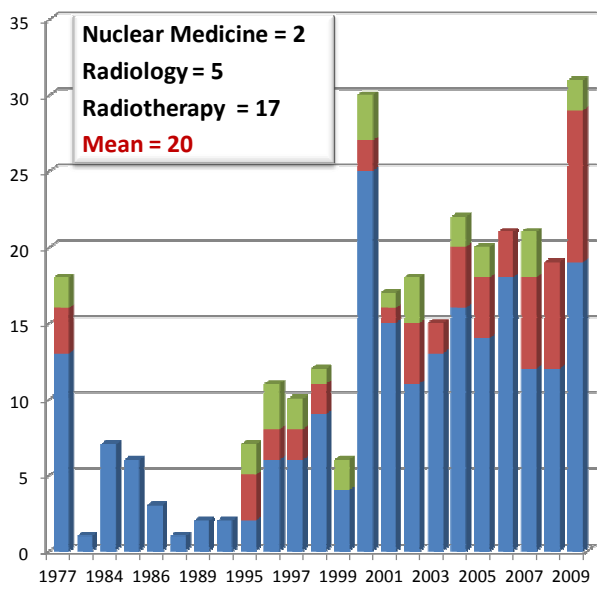
Area	Nuclear Medicine	Radiotherapy	Radiology
Human Resources	ABFM and SRP expert CNEN 20h/w Physical-medical Medical specialist CBR Other: radiopharmaceuticals, nurses, biomedical technologists	two ABFM specialist certificate, each 2000h/y or equivalent more than two physics totaling at least 4000h/y. For services with more than one vacancy per year, the service must have the equivalent of one and half times the number of vacancies.	Physicist Radiology Specialist in the ABFM
Imaging/Treatment Devices at the institution or institution Covenanted	Scintigraphic two chambers (1 SPECT) ; PET or PET / CT ; Pickup thyroid; Gamma-probe; Set of phantoms for QC; An inpatient unit for therapy with radionuclides image processing.	Linear accelerator with photons and electrons beams; High dose rate braquitherapy equipment; Simulator or a computerized tomography	RX conventional equipment, Fluoroscopy, Hemodynamics, Mammography, CT, MRI, X-ray Dental, Digital RX and / or Computed Radiography, Utrassom, Film Processor
Equipment QC at the institution or institution Covenanted	Dose calibrator; Two ionization chambers for monitoring area (1 pancake); Well-type detector; Independent workstation for image processing	All equipment required by standards a phantom for dosimetries in water until at least 20cm depth to have at least 300 new patients per year for each student	- Ionization chambers: 6cc, 180cc, 1800cc, 3T, 6M QC Kit for processing of films, Conventional Radiology, Mammography, CT, Fluoroscopy, MRI and Ultrasound
Didactic Program (Lectures)	Fulfill the program established by the accreditation.	Fulfill the program established by the accreditation.	Imaging Techniques (All) ; Radiological Protection and Biological Effects of Ionizing Radiation; Dosimetry (workers and patients) and Standards

Radiotherapy / Radiology / Nuclear Medicine

Number of Specialists



New Specialists per year (average)



RT RD NM

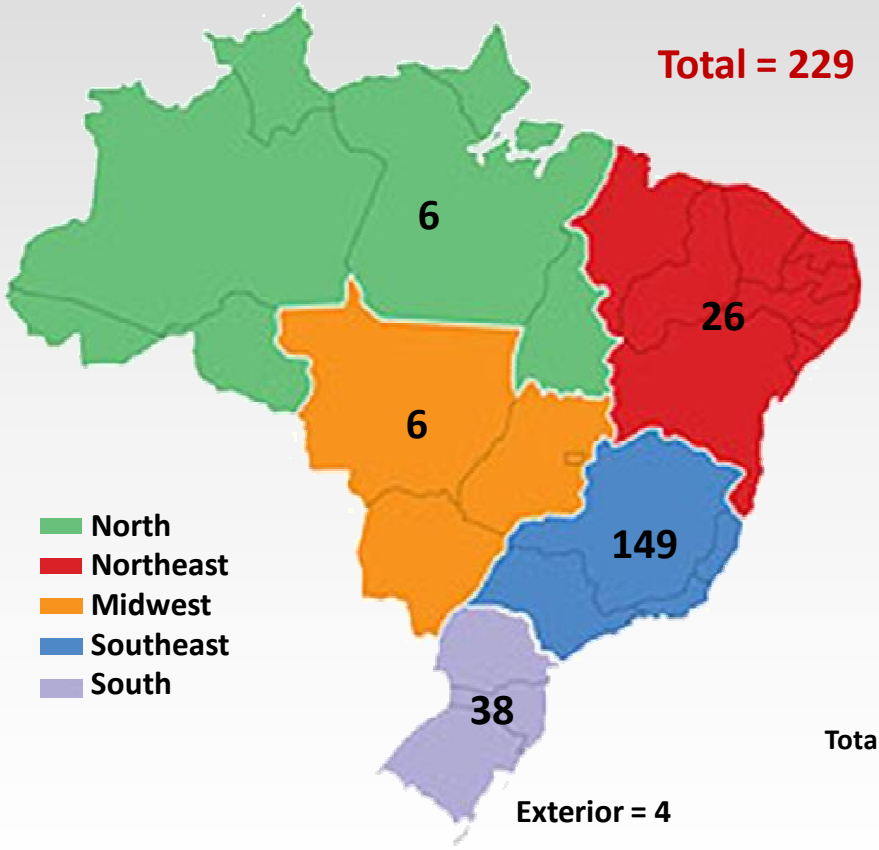
Specialist Certification

Certified / year

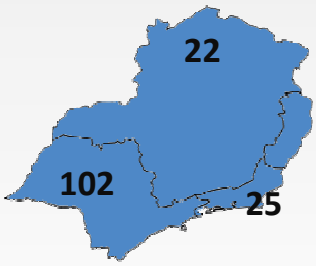
	RT	RD	NM
1977 – 1999 (22 years)	2,8	0,5	0,5
2000 – 2011 (11 years)	17,2	4,8	1,8

http://www.abfm.org.br/doctos/abfm/coleta.pdf

Specialists in Radiotherapy

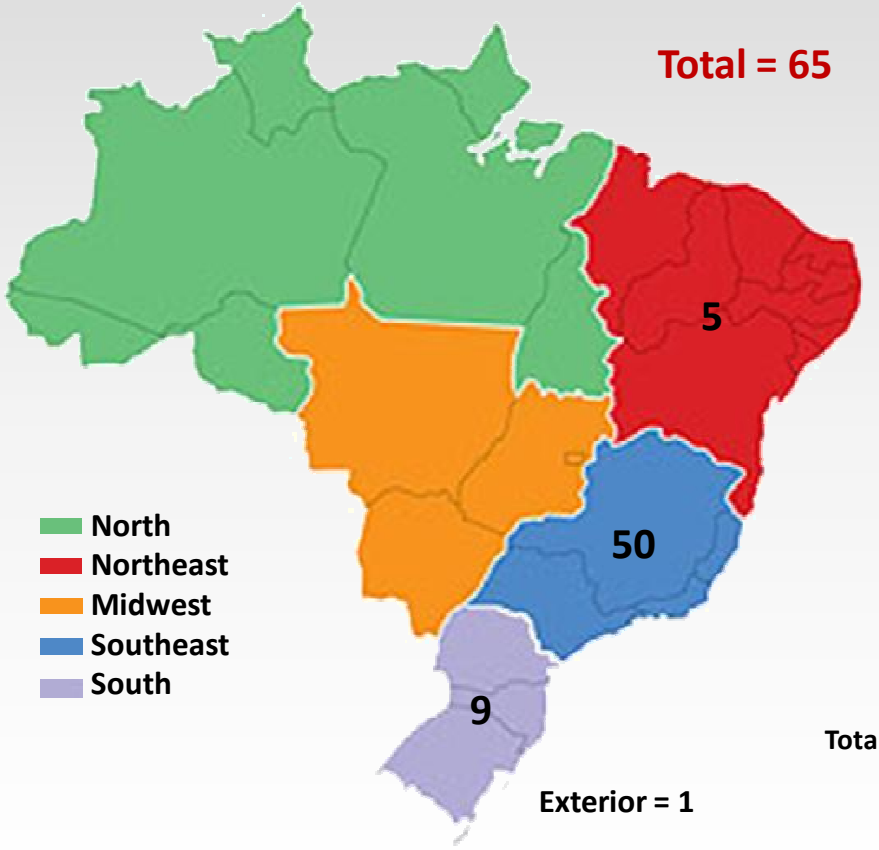


Southeast Region

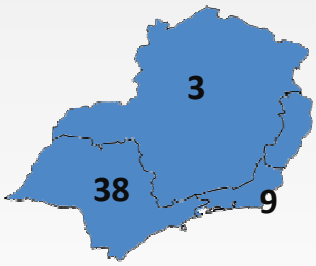


Total Southeast Region= 149 (65%)

Specialists in Radiology

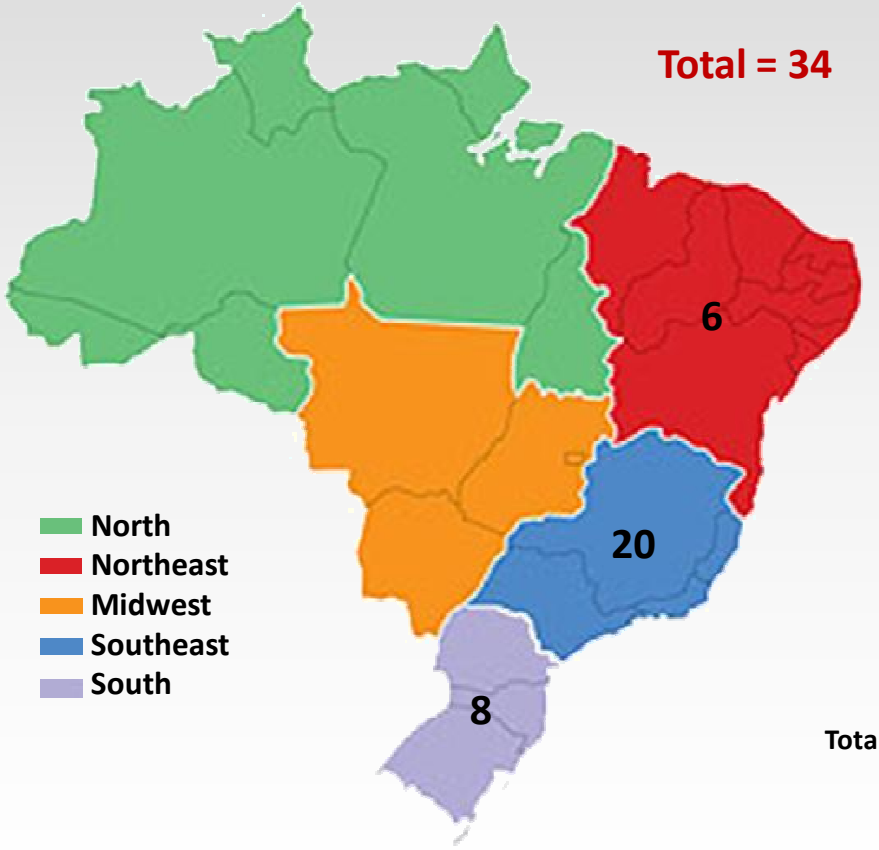


Southeast Region

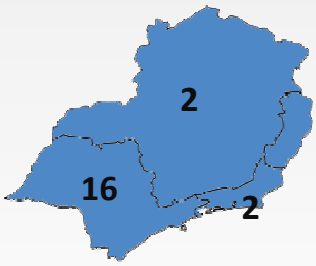


Total Southeast Region= 50 (77%)

Specialists Nuclear Medicine



Southeast Region



Total Southeast Region= 20 (59%)

Publications

- **ABFM News:** Weekly
- **Núcleo da Matéria**: Bimonthly
- **Brazilian Journal of Medical Physics** (Revista Brasileira de Física Médica):
  - *Built in 2005, aims to publish original works in the areas of Radiotherapy, Nuclear Medicine, Diagnostic Radiology, Radiological Protection and Dosimetry, Radiation, included terms related to diagnosis and therapy with ionizing and non-ionizing, and Education in Physics and Instrumentation Medicine.*

www.abfm.org.br/rbfm

CNEN

National Commission Nuclear Energy

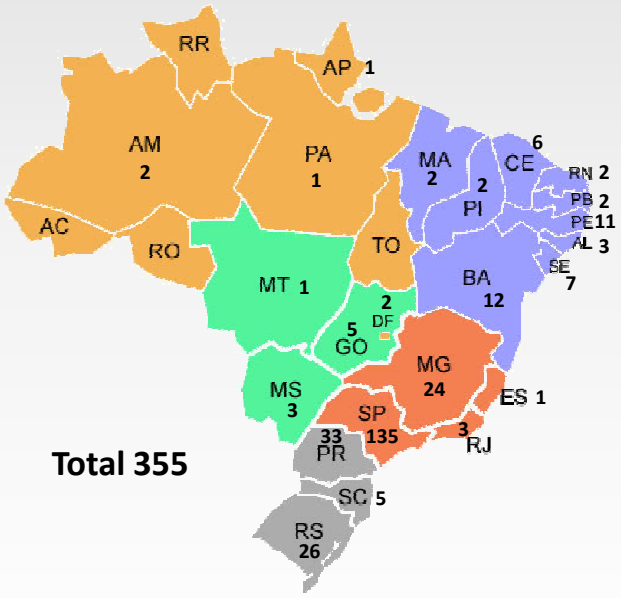
Certification Radiation Protection Supervisor - RPS

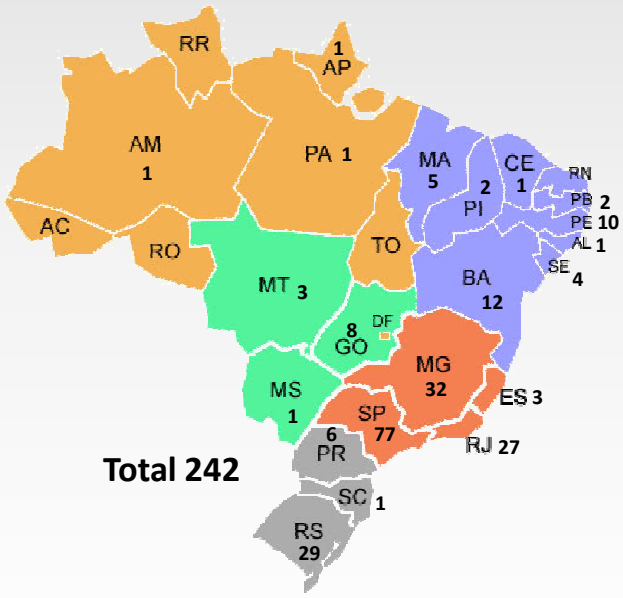
RPS is an individual with a qualification certificate by the competent authority to oversee the implementation of **radiological protection** procedures in its operations area.

- The individual must have the certification on their area of expertise.
  - Plants radioactive: medical physics in radiotherapy and nuclear medicine
  - Responsibilities of RPS: Knowledge of rules and regulations relating to radiation protection applied to the installation;

CNEN 3.03
CNEN 3.01

CNEN: Certification Radiation Protection Supervisor: RXT and MN





Renewal of Title Specialist – ABFM

Upgrade certification training

- MP who meet the necessary requirements will receive a Certificate of professional updating in their specialty or area of operation which is valid for 5 years
- System Credits: 100 credits in 5 years
  - 1000 hours of work
  - Congress (various scores)
  - Articles, book chapters
  - MS, PhD
  - Courses
  - Trainings

Proposal

- **Recognition of qualifications from other countries provided there is reciprocity agreement (IMPCB?)**

- **Change of regulation: to discuss several areas that are cause for concern by the international community:**
  - **Basis of risk analysis**
  - **Training of human resources to meet the insertion of high-tech**
  - **Quality assurance procedures to reduce the accidents that become common in hospitals with high-tech**

?

IAEA Human Health Series No. 14

Planning National Radiotherapy Services: A Practical Tool

A strategy to develop or improve radiotherapy services must be multipronged and flexible. It must include the following:

- Planning the development of radiotherapy services;
- Investment in equipment and training;
- Linkages with more developed services;
- Access to medical and technical information;
- Education about cancer and the role of radiotherapy;
- QA and radiation safety programmes

International Atomic Energy Agency
Vienna, 2010