Medical Physics Residencies
The ABR Perspective

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Residencies and Certification

- Certification exists to insure the public trust
- Certification needs to insure that MP’s are fully competent
- Residencies provide a means to insure that MP’s have proper clinical training
Why Do We Have Certification

- “Serving the Public Trust”

All professions are conspiracies against the lay person

-GB Shaw
Creating Public Trust

Certification

Lack of Trust

Trust
Physician Issues
Prior to 1910

• Development of scientific medicine
  ☝️ More knowledge required
• Many proprietary medical schools
• Medical schools lacked clinical training
Flexner Report - 1910

- Standardized curriculum
- Standardized length
- Clinical training
- Schools should be part of the general university system
Need to establish public trust

- In the post Flexner era there was a need to establish public trust
- Board certification movement
  - Ophthalmology 1916
  - ABMS 1933
  - ABR 1934
Certification of Physicists

• As early as 1925 RSNA recognized that x-ray dose needed to be standardized
• This required properly trained physicists
Certification of Physicists
1934

- RSNA Executive committee
- The “Standardization Committee”
  - List of qualified physicists
Requirements

• Be a recognized physicist working in the field
• Show a working knowledge of physics in the field
• Be familiar with classical x-ray theory
• Appear before a board for examination
• Use only approved instruments
• Not work for a manufacturer
Transfer to the ABR

- Recommended in 1940
- First exam was in 1947
Components of Competency Evaluation

- Certification
  - Robust well established system
    - Initial certification
    - Maintenance of certification
- Peer Review
  - Practice dependent
- Licensure
  - Generally weak in US
Is Medical Physics a Profession?
Professions

- Law
- Theology
- Medicine

“Jesus and the Doctors of the Faith” Ribera
Professions

- Now there are dozens
Professions - Characteristics

- Body of knowledge
- Practitioner has autonomy
- Some standardized training program
- Self regulation
- A code of ethics
- Regulation by authorities
- Professional associations
Professions – Characteristics

Medical Physics

- Body of knowledge
- Practitioner has autonomy
- Some standardized training program
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- A code of ethics
- Regulation by authorities
- Professional associations
Elements of Medical Physics Training

- Physics
- Medical Physics
- Clinical Experience
Some candidates have little if any medical physics training
Some candidates have weak clinical experience
Approaches to Improvement

• Require a CAMPEP approved education program or residency to insure an appropriate MP educational experience
• Require a CAMPEP approved residency to insure appropriate clinical training
The ABR Approach

Current System and

2012/2014 Changes
2012/2014 Initiatives

• Beginning in 2012, in order to take the ABR Part 1 Examination in Radiologic Physics, candidates must be enrolled in or have graduated from a CAMPEP accredited education program (MS, PhD, residency)

• Beginning in 2014, in order to take the ABR Part 1 Examination in Radiologic Physics, candidates must be enrolled in or have completed a CAMPEP accredited residency.
Topics for Discussion

- Overview of Current Eligibility Review Procedures
  - Part 1 Written: General and Clinical
  - Part 2 Written: RP Specialty Area (therapeutic, diagnostic, medical nuclear)
  - Oral Examination: RP Specialty Area
- 2012 Initiative: What will change?
- 2014 Initiative: What will change?
Eligibility Requirements – Part 1

Fundamental physics background (1):

- Reflective of the CAMPEP requirement:

  “Students entering a medical physics training program shall have acquired a strong foundation in basic physics. .... Equivalent to a minor in physics (upper level courses in E&M, QM, atomic structure, .... mechanics.)”

  “If applicants with deficiencies .... conditionally admitted, .... provision for remedial training in physics shall be provided and ... described in the self-study.”
Eligibility Requirements – Part 1

Biological Sciences Requirement:

- If the candidate’s degree is not from a CAMPEP accredited program, transcript documentation of formal course work in the biological sciences:
  - As a minimum, 2 courses: a.) biology or radiation biology, b.) anatomy/physiology.
  - As an alternative, in-department courses may be accepted if they meet specific requirements.
Eligibility Requirements – Part 1

Graduate Degree Requirement:

- A master’s or doctoral degree in medical physics, physics, or other relevant discipline from an institution accredited by a regional accrediting body.
- Candidates enrolled in a CAMPEP-accredited medical physics graduate program make take Part 1 prior to receiving their graduate degree (documentation of enrollment required).
Eligibility Requirements – Part 1

Involvement in the practice of medical physics:

• Documentation that candidate is currently working in a clinical medical physics environment under the supervision of a certified medical physicist.
Eligibility Requirements – Part 2

All of those requirements for Part 1 plus:

• At least 36 months of full-time equivalent clinical experience in the practice of medical physics in the area in which certification is sought under the supervision of a certified medical physicist.

• Experience must be completed by June 30th of the year in which Part 2 is taken.

• Completion of a 2 yr CAMPEP approved residency
Eligibility Requirements – Part 3

Oral Examination:

• Successfully pass the Part 1 and Part 2 examinations.

• Three consecutive opportunities to appear for and pass Part 3 (first opportunity in June of the next year following the August written exam).
2012 Initiative

• Beginning in 2012, in order to take the ABR Part 1 Examination in Radiologic Physics, candidates must be enrolled in or have graduated from a CAMPEP accredited education program (MS, PhD, residency)

• This policy was initially announced by the ABR in 2002 with a 10-year time line prior to implementation.
2012 Initiative

Associated Aspects (1):

• For a graduate from a non-accredited program, the last year to apply for Part 1 is in 2010 (by Sept 30\textsuperscript{th}) with the exam being taken in 2011.

• Once an application for Part 1 has been accepted, the candidate is in the process. The rules will not change over the course of the examinations from those in effect at the time of initial acceptance.
2012 Initiative
Associated Aspects (2):

• The ABR Radiologic Physics Credentials Evaluation Committee (RPCEC) review process will simply involve verification of graduation from a CAMPEP accredited program.

• ABR will depend upon the integrity of the CAMPEP process of granting accreditation and assurance that the rules will be followed.
2014 Initiative

- Beginning in 2014, in order to take the ABR Part 1 Examination in Radiologic Physics, candidates must be enrolled in or have completed a CAMPEP accredited medical physics residency.
- This initiative would provide equivalency with the physician model of graduate training followed by a residency.
- AAPM leadership (EXCOM and Board levels) have strongly promoted the medical physics residency requirement.
2014 Initiative
Associated Aspects:

• A candidate in a CAMPEP accredited graduate program who applies and is accepted for Part 1 prior to 2014 is exempt from the residency requirement (although completion of a residency would be considered desirable).

• The ABR has reduced eligibility for Part 2 to 24 months for graduates from accredited medical physics residencies.
2014 Initiative

Considerations Outstanding:

• Should a physics Ph.D. coming in from outside the discipline be allowed to take a 3-year residency that included 1 didactic year for makeup of medical physics courses/topics?
Physics
- Undergraduate
- Remedial Physics

Medical Physics
- CAMPEP
  - MS or PhD
- MP
  - MS or PhD
- Other
  - MS or PhD
- DMP

Clinical
- CAMPEP Residency
- Other Residency
- OJT Clinical