Evolution and Current Status of Medical Physics Residency Training

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Outline

• Brief history of the change in pathways into medical physics
• Current requirements for ABR certification
• CAMPEP requirements
• Funding options
• University of Michigan experience
Entry into Medical Physics – Pre 2012

- Physics or Related Science, MS
  OR
- Physics or Related Science, PhD
  CAMPEP MS, PhD
  OTJ Training
  OTJ Training no mentor
  CAMPEP Residency
  Non-CAMPEP Residency
  Post Doc
  ABR Examination

2012/2014 Decision

• In 2007, the ABR announced that beginning in:
  – 2012 - only graduates from a CAMPEP accredited graduate (MS, PhD) or residency program would be permitted to sit for ABR exam.
  – 2014 - only graduates from a CAMPEP accredited residency program would be permitted to sit for ABR exam.
Decision did not effect candidates who were in process (e.g., alternative pathway candidates that applied for 2011 exam).

However, 2012/14 decision brought the realization that entry into Medical Physics would require formal, standardized clinical training.
Entry into Medical Physics –2012

Physics or Related Science, MS

OR

Physics or Related Science, PhD

CAMPEP
MS, PhD

OTJ Training

OTJ Training
no mentor

CAMPEP
Residency

Non-CAMPEP
Residency

Post Doc

ABR Examination
Additionally...

- Beginning July 2012, alternative pathway candidates were required to remediate didactic deficiencies.
- Six core courses were identified in AAPM Report 197S; CAMPEP required that only two courses (3 credit hour equivalent) could be remediated during a 2 year residency.

AAPM Newsletter, “CAMPEP News,” May/June 2012
Graduate Level Core Topics

1. Radiological Physics and Dosimetry
2. Radiation Protection and Radiation Safety
3. Fundamentals of Imaging in Medicine
4. Radiobiology
5. Anatomy and Physiology
6. Radiation Therapy Physics

ABR Changes in 2014

• Candidates must be enrolled in or have completed a CAMPEP accredited medical physics residency.

• A candidate in a CAMPEP accredited graduate program who applied and was accepted for Part 1 prior to 2014 (e.g., applied for 2013 exam in Sept 2012) was exempt from the residency requirement (although completion of a residency would be considered desirable).
Didactic Completion

• Most directly achieved by:

1. Graduating from a CAMPEP-accredited graduate program

2. Completion of a CAMPEP-accredited certificate program (limited to PhDs)

Certificate Program

- CAMPEP-accredited graduate or residency program that offers didactic coursework intended to enable individuals with a doctoral degree in physics or a related discipline to meet the didactic requirements needed to enter a CAMPEP-accredited residency program.
Didactic Completion

Alternatively, if candidate has completed equivalent courses outside of a CAMPEP-accredited program:

1. Courses can be reviewed and approved by the residency Program Director

2. Courses can be reviewed by the residency Program Director and submitted to CAMPEP for evaluation ($250/course evaluated)

3. Coursework submitted directly to CAMPEP by candidate for evaluation ($250/course evaluated)

However...

- Resident candidates must complete a minimum of 4 of the 6 core courses prior to beginning a standard, 2 year residency.
  - Two remedial courses may be completed during a two-year residency.
- Exception, 2+ residency programs.

Increasingly more difficult for MS students (even from CAMPEP programs) to get into residencies.
ABR Certification Requirements

• Part I
  – Enrolled in or completed a CAMPEP-accredited program (graduate, DMP, certificate, or medical physics residency).
  – Allowed 10 years from the date they passed Part 1 to become board eligible (eligible for Part II).

http://www.theabr.org/ic-rp-req#one
ABR Certification Requirements

• Part II

  – Passed Part I and:
    • Applied after July 1, 2013 – Completed a CAMPEP-accredited residency
    • Number of caveats if applied prior to October 31, 2012

  – Allowed six full calendar years from the end of residency training or Part 2 approval to, whichever comes first.

http://www.theabr.org/ic-rp-req#one
ABR Certification Requirements

• Part III
  – Passed Part I and Part II

http://www.theabr.org/ic-rp-req#one
Pursuing CAMPEP Accreditation
Accreditation Progress

1. Submission of CAMPEP self-study (plus application fee) – Current version
2. Preliminary review of study
3. Site visit
4. Program evaluation
5. REPRC vote
6. Board vote

Some steps may be iterative
Campep Self-Study

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Self-Study

• Key elements include:
  – Demonstrate compliance with CAMPEP standards
  – Provide proof of institutional support
  – One, clearly defined program director
  – Qualified and committed staff
  – Demonstrate environment is conducive to clinical training
  – Well defined curriculum
# CAMPEP Standards

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Site Review

• After review of self study, a survey team will conduct a site visit to validate their assessment.

• Survey team – includes 3 – 4 members (lead reviewer, experienced reviewers, possibly a reviewer in training, and/or physician).

• At completion of review, team completes an evaluation and submits their recommendation to REPRC.
Recommendation Options

• Full Accreditation

• Provisional Accreditation
  – Granted to programs that have not graduated a resident.

• Accreditation Deferred
  – Program non-compliant to CAMPEP standards. Final decision postponed until additional info provided to demonstrate compliance.

• Accreditation Withheld

www.campep.org
CAMPEP Accredited Programs

- 50 Graduate Programs
  - 1 program offering DMP
- 20 Certificate Programs
- 82 Residencies Programs
  - 80 Therapy
  - 11 Imaging
    - 1 offers Nuclear Medicine option
  - ~3 hub and spoke programs

www.campep.org
Hub and Spoke Programs

• Offers opportunities for clinical training at multiple sites.

• Primary site (hub) – Oversees admin of residency program and location of PD.

• Affiliate or independent site under separate governance and budget that residents train.
## Hub and Spoke Webinar Series

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<th>Webinar Title</th>
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| **Webinar #1 - General Structure, Basics & Responsibilities from a Main Site Perspective** | Joseph Dugas, PhD  
Mary Bird Perkins Cancer Center  
Robert Pizzutiello Jr., MS  
Landauer Medical Physics | Tuesday, Sept 8, 2015  
12 – 1 pm, eastern                       |
| **Webinar #2 - Motivation, Economics, and Structure from the Satellite Perspective** | Firas Mourtada, PhD,  
Christiana Care Hospital  
Michele Verst, MS Cancer Care Group | Monday, Sept 21, 2015  
11 – 12 pm, eastern                        |
| **Webinar #3 - Economics and Negotiations**                                   | Firas Mourtada, PhD,  
Christiana Care Hospital  
Robert J. Pizzutiello Jr., MS,  
Landauer Medical Physics | Thursday, Oct 8, 2015  
12 – 1 pm, eastern                          |
| **Webinar #4 - CAMPEP Perspective**                                           | Chester Reft, PhD,  
University of Chicago  
John Antolak, PhD,  
Mayo Clinic | Thursday, Oct 15, 2015  
1 – 2 pm, eastern                             |

Funding Options

• Self-funding
  – Institutional commitment
  – Departmental commitment
  – Physics division commitment
  – Chair’s discretionary funding
Funding Options

• Self-funding

• Research/Training Grant
  – Governmental sources
  – Industry
  – Professional societies
Professional Society Options

- RSNA/AAPM Imaging Physics residency grant
  - Provided funds for 8 programs
  - Funds to cover 2 residents at $35k/year over 4 years
  - Institutions must provide matching funds
Professional Society Options

• AAPM/SNMMI Nuclear Medicine Residency Grant
  – Approved by AAPM board this year
  – Provide funds for 2 programs
  – Will fund one resident at $35k/year for two years
  – Institutions must provide matching funds
Funding Options

• Self-funding
• Research/Training Grant
• Medicare (CMS) funding
CMS Funding

• Eligibility for CMS Allied Health Training funds require:
  – Program to be accredited (CAMPEP)
  – Institutions willingness to integrate program with allied health funding
  – Residents must be hospital employees
  – Submissions of quarterly time studies and annual medicare cost report
CMS Funding

- Total reimbursement is related to percentage of Medicare patients treated at the institution
- But who gets the funding?
Funding Challenges

- Explaining need for support – why are there physicists in the hospital?
- Declining reimbursement
- Competition with MD slots
- Negotiation w Admin
  - Expenses related to travel and books
  - Increase in wages
University of Michigan Program

- Residency program was established in 2002
- CAMPEP-accredited in 2009
- Graduated 19 residents
- Currently, we have four residents, spaced by approximately 6 months
University of Michigan Residency

Tong Zhu, Ph.D.
Start date: 7/2013

Elizabeth Covington, Ph.D.
Start date: 1/2014

Jeremy Bredfeldt, Ph.D.
Start date: 7/2014

Ben Rosen, Ph.D.
Start date: 7/2015
University of Michigan Program

- Initially a 2 year clinical training program
- In 2010, a dedicated research component added to residency
- Length of research rotation:
  - 2010 – 2012: 1 year
  - Post-2012: 6 months
Timing of Research Rotation

• Initial model
  – 8 months clinical rotation + 4 months research each year
  – Resident completely out of clinic during research
  • Pro’s and con’s
Timing of Research Rotation

• Current model
  – 1 year clinical rotation + 6 months research + 1 year clinical rotation
  – Resident assigned clinical duties, but significantly reduced compared to clinical years.

• Pro’s and con’s
Task Group No. 278 - Task Group on Combined Residency and Research Training in Medical Physics (TG-Hybrid Training)

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No Website on file. | Committee Wiki | Directory: Committee | Membership

Email  You may send email to this group now using gmail or outlook.
- or -
You may save the address 2015.TG278@aapm.org
to your local address book. This alias updates hourly from the AAPM Directory.

Charge  To develop a guidance document on the creation and management of combined Residency/Post-Doctoral Research Fellows programs.


Approved Date(s) Start: 8/12/2015
End: 12/31/2018

Committee Keywords: TG278

Chairs

Joseph Deasy
Task Group Co-Chair

John Hazle
Task Group Co-Chair
Conclusion

• Brief history of the change in pathways into medical physics
• Current requirements for ABR certification
• CAMPEP requirements
• Funding options
• University of Michigan experience
THANK YOU!