Medical Physics Residency
Training and Pathways
U.S. Perspective
CAMPEP Symposium

Michael G. Herman, Ph.D.
AAPM Board Chair
Professor and Chair Medical Physics
Mayo Clinic

Outline

• Introduction
• Pathways
• Expectations
• Research

It is ALL about Patient Care

• Ultimately, the result of our work, regardless of whether we do research, provide education or provide clinical service is the best possible patient care

Quality Patient Care

• Quality patient care is provided by competent medical physicists.
• Competency is demonstrated by
  – Physics fundamentals
  – Didactic Medical Physics (AAPM Report 197)
  – Clinical Medical Physics (AAPM Report 90)
  – Board Certification (Licensure)
• =AAPM Qualified Medical Physicist (QMP)
Medical Physicist Residency

- A balanced and thorough education for clinical medical physics education is essential
- Accreditation and standards are critical
- Balancing act
  - Didactic Education
  - Clinical training
  - Research
  - …

Training Pathway is SIMPLE?

- Graduate Degree
- Clinical Training in Medical Physics
- Board Certification Exam

The "Old" Pathway(s)

Consistent?, Equivalent?, Sufficient?, QMP? Best Patient Care?

CAMPEP MS, PhD
Physics Ph.D
Physics MS
CAMPEP Residency
Non-CAMPEP Residency
On the Job
ABR
Post Doc
OJT – no Mentor

2012/2014 Initiative
AAPM, CAMPEP, ABR, ACR, ACMP

- Toward Consistency in Training
- Meet ABR requirements for education and training. (+AAPM PP-19A - 2007)
- Responding to ABMS, aligns with CARE Bill.

- ABR Exam Entrance Requirements
  - In 2012 - CAMPEP-accredited graduate degree program or residency required
  - In 2014 - CAMPEP-accredited residency required

AAPM TG133-2008
Residency Requirements

- Complete structured didactic components as described in Report 197 – Graduate degree
- Obtain competencies in clinical practice as described in Report 90, during a minimum of 24 months of dedicated clinical training.

Residency Models

- CAMPEP all the way through
  - MS or Ph.D. CAMPEP accredited
  - Residency CAMPEP accredited
- Alternatives (see TG 133)
  - Affiliations e.g. Converted On the Job Training
    - Dependent - One program with satellites
    - Limited – Each program accredited
  - Doctor of Medical Physics degree
  - Hybrid: Non CAMPEP degree with CAMPEP residency – now defined from revision of WG44
Professional Doctorate in Medical Physics - DMP

• Professional Degree not a Research Degree
• Combines Didactic and Clinical Training
• More than a MS Degree + Clinical Physics Residency, >4 years
• Possible Clinical Training Off Campus
• Students Pay Tuition throughout Program

Charley Coffey, Vanderbilt

Non CAMPEP Grad Degree

• Six 3 credit courses
  – Radiological Physics and Dosimetry
  – Radiation Protection and Radiation Safety
  – Fundamentals of Imaging in Medicine
  – Radiobiology
  – Anatomy and Physiology
  – Radiation Therapy Physics
• Preferably done prior to residency; could take 2 of these during 24 month training
  – Extended programs could do all of these
  – Much still under discussion

Potential Affiliations

• CAMPEP MS (or PhD) with outside residency program
• Post doc (2 year) linked with residency (2 year)
• Community hospital or group practice with academic residency program
• ...

Research

• NOT part of 24 month residency
• Post Doc independent of Residency
• Fellowship >2 years with integrated applied research
• Discussion of required research component in residency?
### Current Status - Residencies and Resident Positions: July 2011

<table>
<thead>
<tr>
<th></th>
<th>Therapy</th>
<th>Imaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAMPEP accredited</td>
<td>46</td>
<td>6</td>
</tr>
<tr>
<td>Programs in review</td>
<td>13</td>
<td>1</td>
</tr>
<tr>
<td>Accredited DMP programs</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Other potential programs</td>
<td>&gt;30</td>
<td>1</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>&gt;90</strong></td>
<td><strong>9</strong></td>
</tr>
<tr>
<td>Potential residents per year (at 1.2~2 residents/program-year)</td>
<td>~110-200</td>
<td>12-20</td>
</tr>
</tbody>
</table>