Building, Maintaining and Improving a Physics Residency Program

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Our Therapy Physics Program

• First accredited in 1997
• Re-Accredited in 2003, 2008, and 2014
• For the 45 individuals that have entered our program, 14 had been post-doctoral fellows, 16 had graduated non-CAMPEP programs (2 Certificate graduates), 11 graduated from CAMPEP accredited programs, and 4 had established careers.
• Thirty-six physicists have graduated (28 PhD, 8 MS), 3 failed to complete the program, and one departed due to medical issues.

Initial Momentum

• Secure commitment of
  • Program director;
  • Physics faculty
  • Physicians
  • Key technical personnel
  • Administration,
• Ultimate goal to build a strong clinical physicist.
• Find right balance of training, empowerment, and effort they contribute back to the clinic.
• This may also be part of the equation in obtaining finances.
**Funding Options**

Don’t Pay Them  
Pay Two for the Price of One  
Trade in Physics Position for Two Residents  
Negotiate for a Hospital *Residency* Slot  
Use Grants to Fund Research + 2 years of Residency  
Use T-32 Training Grant  
Increase Clinical Contract to Include Resident(s)

Establish CMS Funding via Paramedical Education  
Establish CMS Funding via GME Route

**CMS Funding**

- An assured way to obtain funding is to obtain proper ACGME classification to allow for CMS reimbursement.
- Fortunately, the ASTRO Board recognizes this need and issued an important statement to SCAROP, supporting CMS reimbursement and asked Department Chairs to “lobby for sustained funding for physics residency programs within their institution.”

**Recruitment of Resident Candidates**

Where the residents are coming from:  
- Educational background  
- Previous Life?  
- (Read Between the Lines) References  
- During interviews, how to gauge what makes an ideal resident.

Applicant Background (2008-2013): 777 applicants

<table>
<thead>
<tr>
<th>Applicant Background (2008-2013): 777 applicants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fellows</td>
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<tr>
<td>---------</td>
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<tr>
<td>213</td>
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</table>
Maintenance of Program

- To not allow stagnation
- Constantly update
- Evolution of didactic and clinical rotational components.
- How to allocate resident developmental work, whether it be clinical or benchmark, without disrupting training.

Maintenance of Program

- CAMPEP 5-Year re-Accreditation cycle is ideal to ensure internal scrutiny
- Twice yearly meetings with involved Review Committee vital
- Annual self-evaluation including reports to AAPM/CAMPEP
- Resident Evaluations: How to keep anonymous?

Rotation Changes:

Some changes we’ve made over the years include; more customized and advanced rotations (i.e. IMRT, IGRT, Protons, ViewRay), and increase in testing frequency.

<table>
<thead>
<tr>
<th>Month</th>
<th>1999 1st Year Rotation</th>
<th>2007 1st Year Rotation</th>
<th>2011 1st Year Rotation</th>
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</thead>
<tbody>
<tr>
<td>July</td>
<td>Treatment Planning &amp; Dosimetry</td>
<td>Imaging for Planning &amp; Conventional Treatment Planning</td>
<td>Orientation - Imaging</td>
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<tr>
<td>Aug.</td>
<td>-</td>
<td>-</td>
<td>External Beam Rotation</td>
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<tr>
<td>Sept.</td>
<td>-</td>
<td>IMRT Planning</td>
<td>IMRT Rotation</td>
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<tr>
<td>Oct.</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Nov.</td>
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<tr>
<td>Dec.</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Jan.</td>
<td>Brachytherapy</td>
<td>Brachytherapy Rotation</td>
<td>Brachytherapy Rotation</td>
</tr>
<tr>
<td>Feb.</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Mar.</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Apr.</td>
<td>3D TP and Virtual Simulation</td>
<td>Specials/RT/TSRT</td>
<td>Patient QA</td>
</tr>
<tr>
<td>May</td>
<td>-</td>
<td>Specials &amp; QA</td>
<td>Patient QA</td>
</tr>
<tr>
<td>June</td>
<td>-</td>
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Rotation Changes:

Second Year Rotations

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>July</td>
<td>External Beam and Brachytherapy</td>
<td>External Beam Concentration</td>
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</tr>
<tr>
<td>Aug.</td>
<td>IMRT Concentration</td>
<td>IMRT Concentration</td>
<td>IMRT Concentration</td>
</tr>
<tr>
<td>Sep.</td>
<td>External Beam + IMRT</td>
<td>External Beam + IMRT</td>
<td>External Beam + IMRT</td>
</tr>
<tr>
<td>Oct.</td>
<td>IMRT Concentration</td>
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<td>IMRT Concentration</td>
</tr>
<tr>
<td>Nov.</td>
<td>External Beam and Brachytherapy</td>
<td>Brachytherapy</td>
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</tr>
<tr>
<td>Dec.</td>
<td>External Beam and Brachytherapy</td>
<td>Brachytherapy</td>
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</tr>
<tr>
<td>Jan.</td>
<td>External Beam and Brachytherapy</td>
<td>Brachytherapy</td>
<td>Brachytherapy</td>
</tr>
<tr>
<td>Feb.</td>
<td>External Beam, Brachytherapy, and Imaging (Simulation, Localization, Concentration)</td>
<td>Year/Year</td>
<td>Year/Year</td>
</tr>
<tr>
<td>Mar.</td>
<td>External Beam + IMRT</td>
<td>External Beam + IMRT</td>
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<tr>
<td>Apr.</td>
<td>IMRT Concentration</td>
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Resident Evaluation Form

- Faculty you found the most helpful:
- Faculty who did **not** make themselves available, or did not participate during assigned concentrations/Rotations and Comprehensions:
- Suggested Improvements for the Program:
- Teaching Opportunities/Research:
- Other:

Faculty Involvement

- Evaluate faculty on the ownership they take regarding resident training
  - Part of Yearly Evaluations
  - Resident Evaluation of Mentors
  - All Faculty should Be Aware of Self Study
  - All Faculty should Interview Candidates
Track Residents Post-Graduation

- Type of Position Held (Academic vs. Hospital)
- Board Certification
  - You can help them (Skype mock orals)
  - Success
- Achievements
- Help Answer Questions
- Hire them!

Lessons Learned

- Look for Red Flags during interviews.
- Small things matter.
- Short lectures during interviews help
- No such thing as being over organized
- Routine testing is vital
- Ensure all faculty are engaged and annually evaluated for effort.

Lessons Learned

- A Residency Program is only as good as it’s worst Resident.
- We must keep the door open for non-Medical Physics Graduates.
- A strong Resident makes a Strong Clinical Faculty Physicist.