Building independence and critical thinking skills in residents through international rotations

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RETHINKING MEDICAL PHYSICS
What do we mean when we talk about independence and critical thinking?

• Clinical independence refers to the ability to use professional judgment in the care and treatment of patients without undue influence from other individuals (Pont et al.)

• Critical thinking is the application of knowledge and experience to identify problems and to direct clinical actions that result in positive outcomes (Benner et al.)
We are moving ever closer to prescribing the exact competencies, knowledge, and skills that residents should have when they graduate.

**As we do this, we should remember that:**

- Not all learning experiences can be scripted/contrived
- Building independence requires that we give residents opportunities to fail successfully
- Critical thinking skills are improved when dealing with real problems in the clinic
Independence and critical thinking

Why is it so important to develop independence and critical thinking skills in residents?

- The field is continuously changing (technology/clinical role)
- Medical Physicists need to be life-long learners

3DCRT → Developing independent professional relationships with patients
Independence and critical thinking skills can be developed in several ways:

- Provide opportunities for experiential learning
- Use problem-based learning strategies
- Incentivize initiative
- Foster and encourage a critical thinking culture
- ...
International rotations

• International rotations are ideal opportunities for **experiential learning**

• Have been shown to benefit host sites, residents, and residency programs

• Benefits include:
  
  • **Improving resident’s problem-solving skills** (Kollars et al.)
  
  • **Fostering independence in clinical practice** (Henry et al.)
  
  • **Engendering an interest in caring for underserved populations** (Castillo et al.)
International rotations

7 international rotations between 2015 and 2020
What our residents thought

This experience was valuable to you personally
This experience was valuable to you professionally
You felt that the location was dangerous or unsafe
You had positive interactions with local physicists and other staff
You would recommend other residents visit this institution in the future

Mean Rating

Rating Category
The impact of international rotations

Some quotes from responses to written questions

• “... there were so many impactful moments throughout the entire month that cause you to look at the world differently.”

• “Working on overcoming ... barriers was challenging at times, but a very engaging and rewarding experience.”

• “It will definitely cause me to approach any potential international work with more care than I previously would have considered.”
The impact of international rotations

Some quotes from responses to written questions

• “I believe I have a more informed awareness of radiation oncology on the largest scale. It will certainly continue to influence my perspective and insight regarding projects and work in the field.”

• “The fact that I was able to show up and implement a tool that they are now using regularly to design [treatment planning] models that are in turn used in clinical trials is just unbelievably rewarding to me.”
The impact of international rotations

Common themes from responses

• Increased awareness
• Ability to overcome barriers
• Engaging in rewarding experiences
• Taking ownership of actions and initiatives

These are all directly relatable to building independence and critical thinking skills.
Independence and critical thinking

International rotations are one way to ensure that we continue to build independence and critical thinking skills in our residents.

There are many other ways as well:

• Have residents organize and lead projects with professional colleagues in other departments
• Encourage residents to participate actively in professional organizations and relevant non-profit organizations
• ...
Collaborators

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