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## Important skills for a clinical medical physicist

Michael Lawless, PhD  
 Assistant Professor, Human Oncology  
 University of Wisconsin Madison

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## My background

- Ph. D. in Medical Physics from University of Wisconsin Madison
  - May 2016
  - Did not do a residency
- Worked as a solo physicist at a satellite clinic for ~ 1 year
  - Part of the UW system
  - 1 Elekta, 1 CT, 1 dosimetrist, 1 MD
- Currently at UW Main campus
  - 2 Truebeams, 2 Tomotherapy, brachytherapy program
  - 1 CT scanner, 8 dosimetrists, 17 MDs

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### Relevant skills

- Technical
- Project Management
- Social
- Analytical

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### Technical Skills

- The science behind what is done in the clinic every day
- The necessary knowledge and ability to use and implement the technology
  - This knowledge base is expanding rapidly
- Where are these skills learned?
  - Graduate classes
  - Training on the equipment/software being used
  - Publications
  - Residencies

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### Project Management Skills

- How to handle and balance the various tasks and projects that all overlap
- Prioritize needs and projects and address them thoroughly and efficiently
- Where are these skills learned?
  - Graduate school – thesis work on top of classes, etc.
  - Residency

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## Social Skills

- Communication, collaboration, teamwork, leadership
- No physicist works on an island
- Constant interaction with dosimetrists, therapists, and physicians
- Important to be able to effectively and efficiently communicate and collaborate with all of these other professions
  
- Where are these skills learned?
  - Residency
  - Other

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## Analytical Skills

- Problem solving – applying your technical knowledge to the clinical environment
- The ability to think quickly is an essential part of being a clinical physicist
- Can be put under pressure to deal with uncommon scenarios
  - Will need to draw on your other skill sets to help solve them
  - Identify the problem
  - Develop a plan
  - Take action accordingly
  
- Where are these skills learned?
  - Graduate school
  - Residency

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## My personal experience

- Strengths
  - Technical and project management skills
- Weaknesses
  - Analytical/Problem solving and Communication
- Residency or not?
  - Residency program definitely would have helped develop skills I was deficient in
  - Would not have taken any job – UW was a great opportunity

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## Conclusions

- A variety of skills are necessary to be a clinical medical physicist
  - Technical
  - Project Management
  - Social
  - Analytical
- These skills are learned in different places and are stressed to different degrees

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