Medical physics is changing

- Automated Planning
  - Knowledge-based planning
  - Developing predictive dose-volume relationships for a radiotherapy treatment – K. Moore et. al.

- Automated commissioning and QA
  - Commissioning and quality assurance for VMAT delivery systems: An efficient time-resolved system using real-time EPID imaging. Zwan et. al.
  - Rapid acceptance testing of modern linac using on-board MV and kV imaging systems. Yaddanapudi et. al.

The evolving role of Medical Physics

- Independent professional relationship with the patient
  - This addresses a known, specific problem in Rad Onc
  - Clear path forward for how we can advance our profession

- Uniquely positioned to use our expertise to improve patient outcomes
  - Patients increasingly want access to information that we have
What problem is this addressing?

- Access to information
  - Cancer patients receive ~60% of their information from printed or digital media – Finney Rutten et al, 2004

- Information is too complex
  - Most materials presented at college-level reading, target should be 6th grade – Rossenberg et al, 2016

- Misinformed, anxious patients
  - Decreased survival in Rad Onc - Habboushi et al, 2017

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Physics Direct Patient Care Initiative

- Establish an independent professional relationship with patients
- Take ownership of all technical aspects related to treatment
- Meet with the patient at regularly scheduled appointments
- Allow physicians to focus on other aspects of patient care
- Lay groundwork for future innovations and patient responsibilities

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PATIENT INTERACTIONS

Physician  --  Physicist

Consult  |  OTV  |  OTV  |  Follow-Up

Tx = Treatment  OTV = On-Treatment Visit
PATIENT INTERACTIONS

Physicist → Simulation → First Tx → CTX → CTX → Follow-Up

Physician → Consult → CTX → CTX → Follow-Up

Tx = Treatment  CTX = On-Treatment Visit

PATIENT INTERACTIONS

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Physicist → Simulation → First Tx → CTX → CTX → Follow-Up

Physician → Consult → CTX → CTX → Follow-Up

Tx = Treatment  CTX = On-Treatment Visit
Effective communication with patients

- This isn’t easy!!
  - Patients come in all different temperaments and personalities
  - Patients have different expectations
  - It is difficult to know which communication strategy will work for which patient

- There are potential pitfalls
  - What if you get it wrong and the patient gets angry/more anxious?
  - This could be harmful, and is potentially complicated for a Rad Onc to untangle

- We receive no effective communication training
  - How much time did you devote during your graduate degree to this?

These difficulties are not insurmountable

- Communication is a skill that can be learned
- Medical doctors get hundreds of hours of training and thousands of hours of supervised practice
- There’s an algorithm for how to communicate with patients
- We just need a training program...
UCSD Training Plan

1. Clinician-Patient Communication Course
   - Course run by the Medical School at UC San Diego
   - Originally created by the Institute for Healthcare Communication
   - National standard for teaching effective patient communication
   - One-day, hands-on workshop
   - “Communication is a procedure that can be taught, learned, and assessed”

Engagement  Empathy  Education  Enlist
UCSD Training Plan

2. In-House Training
   • Standard opening and closing statements
   • List of common questions
   • Descriptions of how, when, and why interactions did not go as planned

3. Patient Care Observations
   • Observe minimum of 5 patient care interactions with experienced faculty members
   • Role is purely observational
   • Debrief with faculty after patient consults
UCSD Training Plan

4. Standardized Patient Training
   • Developed in collaboration with the Medical Training Center at UC San Diego

   1. Non-technical and Nervous
      • No technical background
      • Very concerned about the negative effects of radiation
      • Not sure they want to go through with treatment

   2. Tech-savvy and Curious
      • Strong technical background
      • Interested in understanding how radiation causes damage
      • Really interested in knowing how imaging and treatment work

UCSD Training Plan

5. Faculty-Observed Patient Care
   • Trainee performs minimum of 5 patient care interactions with faculty
   • Faculty assesses trainee’s performance (checklist and written comments)
   • Debrief with faculty immediately post-consult
Competency Assessment

- How do we know when/if trainees are competent?
  - This is a really important, and difficult, question…
  - When trainer feels comfortable? When trainee feels comfortable?

- Specific metrics
  - Did trainee engage/empathize/educate/enlist patient during interaction?
  - Was the patient satisfied with level of technical detail provided?
  - Did the consult increase or decrease patient anxiety?

Thank You

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