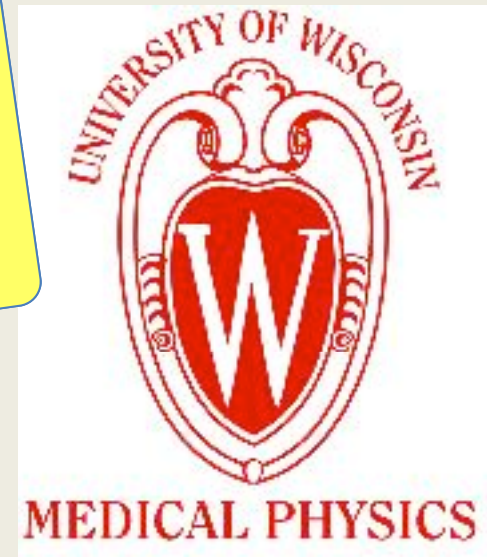




Redone according to Collins...until the fire alarm!



# What I find Useful in (Didactic and Clinical) Teaching ?

## How my SDEP Has Been Helpful ?

Jennifer Smilowitz, Ph.D., DABR  
AAPM Summer School, 2010



# Objectives

- Identify **a** challenge of update of Medical Physics graduate in a culture of 2012/2014 mandate, DMPs and ?. (SDEP, 2008)
- Develop (expand) a narrow scope Medical Physics Student “Team” to address one education issue which incorporates several teaching approaches.

# *SDEP: Project: Review and update* UW MP curriculum

- Defined AAPM Workshop to become a better teacher, League City Texas 2008
- *Significance:* Provide our students with a thorough and very high quality graduate didactic experience.
- *Approach:* Collect syllabi and compare with TG 79
- *Evaluation of achievement:* using student course evaluation and informal faculty survey. 2010 is transition year.

*\*\* At the time I developed this SDEP, 2012/2014 was not front and center....*

# Redesign/Update of Curriculum

- Goals: All of TG 79 (“should” document) in 2 years!?!
  - Broad MP didactic background (General, diagnostic or Health Physics track)
  - Highlight expertise of our faculty
  - Some hands-on lab work \*\*
- Challenges:
  - Limited teaching time(2 yrs). As MP develops, there is more to teach, what do we take out?
  - Busy, overworked (and furloughed) MP Faculty and staff.

# What about clinical training during the first two years of didactic graduate MP education?

- Should we do this? (Isn't that what the residency is for?)
- How do we provide "this" for 20 + students interested in therapy (includes Dx students)

*\*\*By AAPM 2009, 2012/2014 has become an increasing important consideration...*

# Clinical Experience (training?)

- We abandoned an earlier model, “the clerkship” ...one semester rotation thru clinic, 2 days/wk... lots of clinical staff time, inconsistent and broad. Had worked better with fewer students in the past.
- Did not want to just repackage this as a “residency-lite”
- Standard labs were not enough.



# Teams !



- “Team Tomo” (started 2006?) by Dr. Emilie Soisson (McGill University)
- Problem 1: Lots of patient specific IMRT QA
- Problem 2: Lots of students clamoring at the door of our crowded clinic wanting clinical experience.
- Answer: Train the students to do QA!

# Over time time new problems arose

- New problem: Students graduate, get bored and want more experience ...
- Solution: Senior students train junior students



- New question: are we (as faculty) maximizing their learning experience? (or just having them do our QA?)
- Re-examine and expand Teams concept.



# UW Medical Physics Graduate Team Application

Name:  
Email:  
Phone #:  
Advisor:

Date of entry into the UW Medical Physics Program:  
Estimated Graduation Date:  
MS or PhD?:

*The following questions are just to help us get to know you and determine if you would be a good fit for our team. There are no right answers, just be honest. If you have a current resume, feel free to attach it, although it is not required. A selection committee consisting of a few members of the current team and faculty/staff physicist will evaluate the applications.*

**For which Student Team are you interested in applying? (If you select more than one, please rank your preference (1: first choice.) You may only be on one Team at a time.)**

- 1.
- Team Tomo
  - Team Johnson Creek
  - Team Linac

1. Why are you interested?

2. Why do you think you

7. Have you discussed your Student Teams application (and time commitment) with your advisor?

2.

8. Do you understand that you will not receive financial compensation or credit for your time in the clinic? (You will only get the satisfaction of knowing you are becoming a better clinical physicist!)

9. Have you taken any of the following:
- i. Advanced External Beam:
  - ii. The Radiotherapy Rad Lab:
  - iii. Treatment Planning:
  - iv. The online HIPAA Training:

# UW Medical Physics Graduate Team Application

Name:  
Email:  
Phone #:  
Advisor:

Date of entry into the UW Medical Physics Program:  
Estimated Graduation Date:  
MS or PhD?:

1 night/week  
(3-4 hrs)

*The following questions are just to help us get to know you and determine if you would be a good fit for our team. There are no right answers, just be honest. If you have a current resume, feel free to attach it, although it is not required. A selection committee consisting of a few members of the current team and faculty/staff physicist will evaluate the applications.*

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9. Have you taken any of the following:  
i. Advanced External Beam:  
ii. The Radiotherapy Rad Lab:  
iii. Treatment Planning:  
iv. The online HIPAA Training:

# Team JC Competencies List

**Team JC Practicum**

|                               |             |
|-------------------------------|-------------|
| Student name:                 | Erich Urban |
| First day at clinic:          | 6/2         |
| Approx. hours/week:           | 4           |
| Intended commitment (months): | 3           |
| HIPPAA form signed:           | 6/2         |

See one,  
do one,  
teach one

| Clinical QA competencies (Matrixx IMRT QA)  | observe/participate | do | teach |
|---|---------------------|----|-------|
| <div style="border: 1px solid blue; padding: 10px; display: inline-block; width: 80%;"> <p style="font-size: 24px; font-weight: bold;">Pinnacle: Copy plan to phantom, calculate point dose points and create planar dose.</p> </div> |                     |    |       |
| Setup Matrixx and deliver calibration beam (RV in standby)  | 6/15, 6/22          |    |       |
| Deliver QA plan (with ARIA RV)  | 6/15, 6/22          |    |       |
| Aquire Matrixx data and save workspaces   | 6/15, 6/22          |    |       |
| Analyze fluence maps, calculate gamma   | 6/15, 6/22          |    |       |
| Compare dose points (at 0,0)  | 6/15, 6/22          |    |       |
| Compare dose points for complex plans (at points other than 0,0)  | 6/22                |    |       |
| Print reports (pdf and enter into ARIA)   | 6/15, 6/22          |    |       |

# Team Tomo Task List

See one,  
do one,  
teach one

| Name                   |                  |  |                                   |                              |                              |                              |
|------------------------|------------------|--|-----------------------------------|------------------------------|------------------------------|------------------------------|
| Date of Joining        |                  |  |                                   |                              |                              |                              |
| Date of Graduation     |                  |  |                                   |                              |                              |                              |
|                        | TEST             | TOLERANCE                                | OBSERVED                          | INDEPENDENTLY PERFORMED      | CONFIDENT TO TEACH           |                              |
|                        | PLAN DQA         | CORONAL PLANE                            | <input type="checkbox"/> Yes      | <input type="checkbox"/> Yes | <input type="checkbox"/> Yes |                              |
|                        |                  | SAGITTAL PLANE                           | <input type="checkbox"/> Yes      | <input type="checkbox"/> Yes | <input type="checkbox"/> Yes |                              |
|                        |                  | POINTS OTHER THAN THE                    | <input type="checkbox"/> Yes      | <input type="checkbox"/> Yes | <input type="checkbox"/> Yes |                              |
|                        |                  | SAGITTAL PLANE                           | <input type="checkbox"/> Yes      | <input type="checkbox"/> Yes | <input type="checkbox"/> Yes |                              |
|                        |                  | POINTS OTHER THAN THE ACTUAL ION CHAMBER | <input type="checkbox"/> Yes      | <input type="checkbox"/> Yes | <input type="checkbox"/> Yes |                              |
|                        | ANALYZE FILMS    | SAGITTAL                                 | <input type="checkbox"/> Yes      | <input type="checkbox"/> Yes | <input type="checkbox"/> Yes |                              |
|                        |                  | CORONAL                                  | <input type="checkbox"/> Yes      | <input type="checkbox"/> Yes | <input type="checkbox"/> Yes |                              |
|                        |                  | MISREGISTRATION                          | <input type="checkbox"/> Yes      | <input type="checkbox"/> Yes | <input type="checkbox"/> Yes |                              |
|                        | DECISION MAKING  | POINT MEASUREMENTS                       | <input type="checkbox"/> Yes      | <input type="checkbox"/> Yes | <input type="checkbox"/> Yes |                              |
|                        |                  | GAMMA MAPS                               | <input type="checkbox"/> Yes      | <input type="checkbox"/> Yes | <input type="checkbox"/> Yes |                              |
|                        |                  |  |                                   |                              |                              |                              |
|                        | MATRIX BASED DQA | PLAN DQA                                 | CORONAL PLANE                     | <input type="checkbox"/> Yes | <input type="checkbox"/> Yes | <input type="checkbox"/> Yes |
|                        |                  | SHOOT DQA                                | WARMUP, SCANNING AND REGISTRATION | <input type="checkbox"/> Yes | <input type="checkbox"/> Yes | <input type="checkbox"/> Yes |
| ANALYZE DOSE PLANE     |                  | USING TOMO PS                            | <input type="checkbox"/> Yes      | <input type="checkbox"/> Yes | <input type="checkbox"/> Yes |                              |
|                        |                  | USING MARIKX                             | <input type="checkbox"/> Yes      | <input type="checkbox"/> Yes | <input type="checkbox"/> Yes |                              |
|                        |                  | MISREGISTRATION                          | <input type="checkbox"/> Yes      | <input type="checkbox"/> Yes | <input type="checkbox"/> Yes |                              |
| DECISION MAKING        |                  | MARIKX SCALING                           | <input type="checkbox"/> Yes      | <input type="checkbox"/> Yes | <input type="checkbox"/> Yes |                              |
|                        |                  | GAMMA MAPS                               | <input type="checkbox"/> Yes      | <input type="checkbox"/> Yes | <input type="checkbox"/> Yes |                              |
| QA AND MACHINE RELATED | OUTPUT TESTS     | MORNING QA/SNOPPY                        | <input type="checkbox"/> Yes      | <input type="checkbox"/> Yes | <input type="checkbox"/> Yes |                              |
|                        |                  | STATIC OUTPUT AND ENERGY                 | <input type="checkbox"/> Yes      | <input type="checkbox"/> Yes | <input type="checkbox"/> Yes |                              |

DQA  
Using  
Films

Shoot QA | Scanning and registration

# Are they UNDERSTANDING what they are doing?

- Hopefully by teaching they will.
- Developed question sheets – that they are on required to complete. Based on past student questions & trouble shooting (PBL).

1. Can you do DQA on a phantom other than the cheese phantom? What kind of phantoms can you use and what would you have to do to be able to use it?
2. What do the gamma parameters of 3%/3mm mean? How are the results effected but the dose grid resolution you choose? What is the Matrixx dose grid resolution?

# Summary I

- Update of MP graduate program to
  - comply with 2012/2014
  - stay current with new technologies
  - optimize experience of Faculty.
  - Raised new question regarding clinical experience in graduate school.

# Summary II

- A Team approach to narrow scope routine QA tasks is being developed to offer students some clinical experience.
  - hands on teaching by faculty or staff physicist, complemented by teaching by sr. students
  - Structured group learning (task list)
  - Additional in depth “why” questions
  - PBL (troubleshooting)
  - Collaboration between Dpt. of MP (didactic CAMEP graduate school education) and Dpt. of Human Oncology (clinic, more focused on train residents)

# Thanks

- Ranjini Tolakanahalli, MS
- Emilie Soisson, Ph.D.
- Bhudatta Paliwall, Ph.D. (DHO Physics Chair) and Jim Zagebski, Ph.D. (MP Chair)
- Current Team JC: Erich Urban, Julie Raffi and Lidija Krstevski