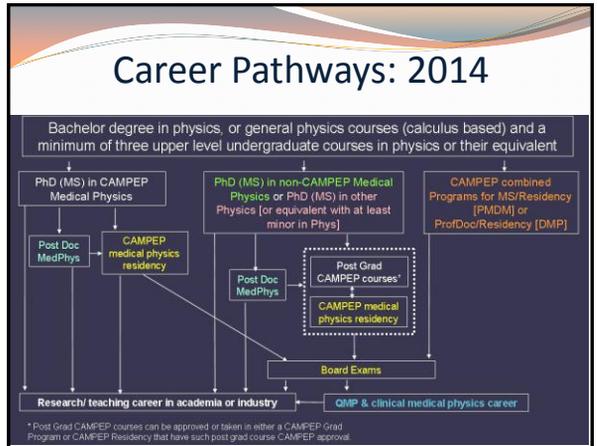
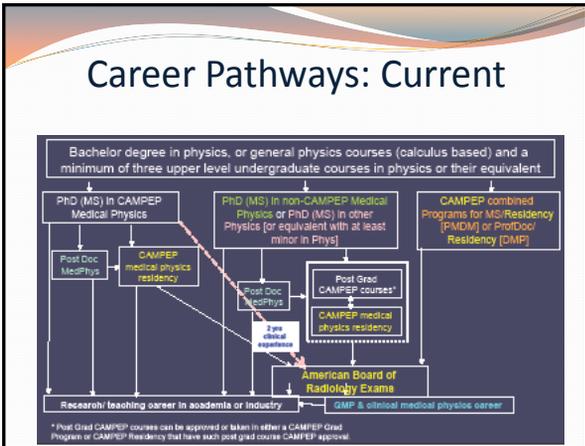


ABR 2014 Trained for Competence: Physics Residency Programs – Importance For Our Profession and Funding Methods

Eric E. Klein, Ph.D.
Residency Program Director, Washington University
Former Chair of Residency Program Review Committee

History

- The advent of formalizing training of Medical Physicists came to fruition in the mid-1990s.
- Necessary to ensure properly trained physicists entering the profession, with training beyond graduate and/or post-doctoral training.
- The AAPM published an initial training elements guide, which was recently updated. (Report 90, and ongoing *Work Group on Periodic Review of Medical Physics Residency Training*)



Importance of Residencies

- In light of the recent New York Times articles and subsequent Congressional Hearings, it is clear that well-trained physicists are vital to Radiotherapy.
- Physicians were recently encouraged to hire only well-trained physicists, as evidenced by graduation from an accredited residency program. (ASTRONews Spring 2011)

NYT Series Included Medical Physicist Fraud

THE RADIATION BOOM

They Check the Medical Equipment, but Who Is Checking Up on Them

By WALT BOGDANICH and KRISTINA REBELO

Published: January 26, 2010

In the eyes of those who hired him, Norman Fenton was a model medical physicist — diligently protecting patients from the hazards of too much medical radiation or too little.

Patients Deserve the Best Trained Physicists = Residents

With Residency as THE Path, Licensure Qualifications Cleaned Up

Confusing NY Requirement:

In principle, medical physics residents in the state of NY must have a Limited Permit to start the clinical training under the supervision of a Full Licensed Medical Physicist

Experience Requirement:

To meet the experience requirement for licensure, you must present evidence of completion of at least two years of full-time work experience or its equivalent in the medical physics specialty for which you seek licensure, including at least one year of full-time work experience or its equivalent within the five years preceding the date of application. The work experience must be within the practice of a medical physics specialty in accordance with definitions of the specialty and the practice of medical physics in Education Law. A year of full-time work experience or its equivalent means a minimum of 1,200 clock hours in the medical physics specialty.

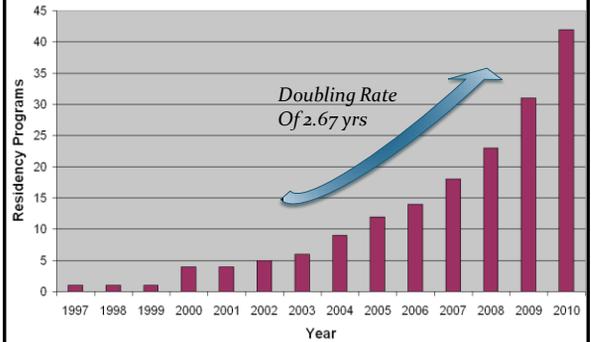
ABR Oral Pass Rates

- 340 Individuals Took Part III in 2010 for Radiotherapy Physics
- 60% Pass Rate (typical) – 204 passed
- ABR does not (yet) track Residents vs. others
- My Survey of Accredited Programs had 55 Resident Graduate takers, with 54 passing (98%).
- Therefore 150 of the remaining 285 (non Residents) passed for a 53% pass rate

ABR Oral Pass Rates

- With Pass Rates in the Upper 90%, we can raise the bar for the exam.
- A good thing for our profession !

CAMPEP Accredited Residency Programs



Recent CAMPEP Numbers

	Therapy	Imaging
Accredited Programs	46	6
Programs in CAMPEP vote	1	1
Programs in active review	8	1
Programs <i>awaiting review</i>	8	0
Total	63	8
Projected by 2014	90	15
Projected yearly graduates	140	23

Assumptions - Positive Demand

- One half of all new cancer patients are treated with radiation therapy (ACS)
- The median number of new cancer patients managed by a FTE Radiation Oncology Physicists was measured as;
 - **424 in 1995,**
 - **325 in 2002, and**
 - **304 in 2007**
- A working ROP is assumed to spend $\frac{3}{4}$ time on clinical service. Therefore the ratio of working ROPs to Clinical FTEs is 1.33333 (Abt)

Projected Demand/Supply

- Currently ~100 Graduating Residents per Year
- Projected to 140 by 2014
- Currently ~250 Graduating Medical Physics Students
- Most Programs have **not**/will **not** Reduce
- Of the 250, 175 are MS Students

Simple Data (AAPM Salary Survey)

- **332 respondents began full-time employment during 2007.**

Simple Data (AAPM Salary Survey)

- **332 respondents began full-time employment during 2007.**
- **117 respondents began full-time employment during 2008.**

Simple Data (AAPM Salary Survey)

- **332 respondents began full-time employment during 2007.**
- **117 respondents began full-time employment during 2008.**
- **96 respondents began full-time employment during 2010.**

Advertisement c2000

POSITION: Faculty Radiation Oncology Physicists

LOCATION: Division of Physics
Department of Radiation Oncology
Washington University School of Medicine
Barnes-Jewish Hospital
Mallinckrodt Institute of Radiology
St. Louis, Missouri

We are seeking applications for clinically-oriented radiation oncology physicists. The position requires an M.S. or Ph.D. with a minimum of three years of clinical experience. The candidate should have Board certification in radiation oncology physics or be in the certification process.

Responsibilities include

What does it mean?

- *We are seeking applications for clinically-oriented radiation oncology physicists. The position requires an **M.S. or Ph.D.** with a minimum of three years of **clinical experience**. The candidate should have **Board certification in radiation oncology physics** or be in the **certification process**.*
- **M.S. or Ph.D.**
- **Clinical experience:**
- **Certification process:**

What does it mean?

- *We are seeking applications for clinically-oriented radiation oncology physicists. The position requires an **M.S. or Ph.D.** with a minimum of three years of **clinical experience**. The candidate should have **Board certification in radiation oncology physics** or be in the **certification process**.*
- **M.S. or Ph.D. in what ?** Geology, Astrophysics
- **Clinical experience:**
- **Certification process:**

What does it mean?

- *We are seeking applications for clinically-oriented radiation oncology physicists. The position requires an **M.S. or Ph.D.** with a minimum of three years of **clinical experience**. The candidate should have **Board certification in radiation oncology physics** or be in the **certification process**.*
- **M.S. or Ph.D. in what ?** Geology, Astrophysics
- **Clinical experience:** Could mean just about anything
 - Post-doc who toured the clinic
 - Junior Physicist with no brachy or shielding experience
- **Certification process:**

What does it mean?

- *We are seeking applications for clinically-oriented radiation oncology physicists. The position requires an M.S. or Ph.D. with a minimum of three years of clinical experience. The candidate should have Board certification in radiation oncology physics or be in the certification process.*
- *M.S. or Ph.D. in what ? Geology, Astrophysics*
- *Clinical experience: Could mean just about anything*
 - *Post-doc who toured the clinic*
 - *Junior Physicist with no brachy or shielding experience*
- *Certification process: Applied for Part I*

Advertisement c2014

POSITION: Faculty Radiation Oncology Physicists

LOCATION: Division of Physics
Department of Radiation Oncology
Washington University School of Medicine
Siteman Cancer Center
Barnes-Jewish Hospital
St. Louis, Missouri

We are seeking applications from Graduating Physics Residents.

Responsibilities include

How do Residencies Affect Salaries?

In 2004, I received a "Head Hunter" cold call looking for *Junior Physicists* to fill some roles in the SE.
When I told him we had 2 graduating Physics Residents,

How do Residencies Affect Salaries?

In 2004, I received a "Head Hunter" cold call looking for *Junior Physicists* to fill some roles in the SE.
When I told him we had 2 graduating Physics Residents,
The reply: "Forget it, they will never pay Resident salaries".

How do Residencies Affect Salaries?

In 2004, I received a “Head Hunter” cold call looking for *Junior Physicists* to fill some roles in the SE.
 When I told him we had 2 graduating Physics Residents,
 The reply: “Forget it, they will never pay Resident salaries”.
 This and similar anecdotes spell indicates, the bar is being raised for entry level physicists – Residents.
 This has to translate into higher salaries.

How do Residencies Affect Salaries?

In 2004, I received a “Head Hunter” cold call looking for *Junior Physicists* to fill some roles in the SE.
 When I told him we had 2 graduating Physics Residents,
 The reply: “Forget it, they will never pay Resident salaries”.
 This and similar anecdotes spell indicates, the bar is being raised for entry level physicists – Residents.
 This has to translate into higher salaries.
 No more **bargains** with recent graduates without training.

How do Residencies Affect Salaries?

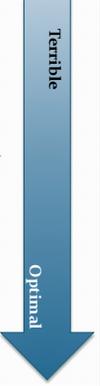
In 2004, I received a “Head Hunter” cold call looking for *Junior Physicists* to fill some roles in the SE.
 When I told him we had 2 graduating Physics Residents,
 The reply: “Forget it, they will never pay Resident salaries”.
 This and similar anecdotes spell indicates, the bar is being raised for entry level physicists – Residents.
 This has to translate into higher salaries.
 No more **bargains** with recent graduates without training.
Though the weakened job market maybe overriding that momentum.

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

Terrible
 Optimal



CMS Funding

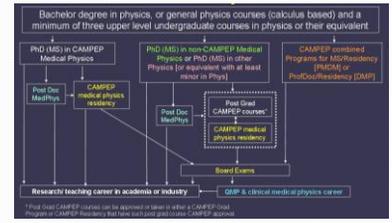
- An assured way to obtain funding is to obtain proper ACGME classification to allow for CMS reimbursement.
- Fortunately, the ASTRO Board recognizes this need and issued an important statement to SCAROP, supporting CMS reimbursement and asked Department Chairs to “lobby for sustained funding for physics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

Funding Options: CMS Funding via GME Route:

In negotiating recognition by CMS, they were pleased to see the 2014 path.

Good News: Very positive in terms of recognition and funding.

Bad News: They don't want to Fund before then (2013).



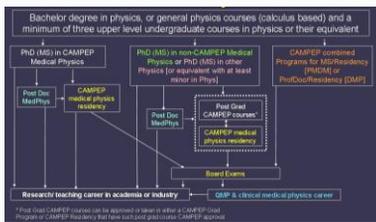
Funding Options: CMS Funding via GME Route:

In negotiating recognition by CMS, they were pleased to see the 2014 path.

Good News: Very positive in terms of recognition and funding.

Bad News: They don't want to Fund before then (2013).

WE CANNOT CONSIDER POSTPONING THE 2014 CHANGE



Is Medical Physics Course work so necessary for a Physics Resident?

- A Berkeley doctoral graduate in Physics, who was published and referenced as best student ever, applied to our program in 2007.

Is Medical Physics Course work so necessary for a Physics Resident?

- A Berkeley doctoral graduate in Physics, who was published and referenced as best student ever, applied to our program in 2007.
 - No Medical Physics Coursework
 - Received in-house coursework on Radiotherapy Physics and Radiation Biology

Is Medical Physics Course work so necessary for a Physics Resident?

- A Berkeley doctoral graduate in Physics, who was published and referenced as best student ever, applied to our program in 2007.
 - No Medical Physics Coursework
 - Received in-house coursework on Radiotherapy Physics and Radiation Biology
- Has since passed the Boards

Is Medical Physics Course work so necessary for a Physics Resident?

- A Berkeley doctoral graduate in Physics, who was published and referenced as best student ever, applied to our program in 2007.
 - No Medical Physics Coursework
 - Received in-house coursework on Radiotherapy Physics and Radiation Biology
- Has since passed the Boards
- Taken over Treatment Planning Coordination
- Received Commercial Grant

Does a Physicist have to be Board Certified to Perform Clinically Translatable Research?

Does a Physicist have to be Board Certified to Perform Clinically Translatable Research?

- A Nuclear Chemistry Graduate performed a Post-Doctoral Fellowship in Radiotherapy

Does a Physicist have to be Board Certified to Perform Clinically Translatable Research?

- A Nuclear Chemistry Graduate performed a Post-Doctoral Fellowship in Radiotherapy
- WU Physics Residency

Does a Physicist have to be Board Certified to Perform Clinically Translatable Research?

- A Nuclear Chemistry Graduate performed a Post-Doctoral Fellowship in Radiotherapy
- WU Physics Residency
- Associate Professor @ UoFlorida including Board Certification

Does a Physicist have to be Board Certified to Perform Clinically Translatable Research?

- A Nuclear Chemistry Graduate performed a Post-Doctoral Fellowship in Radiotherapy
- WU Physics Residency
- Associate Professor @ UoFlorida including Board Certification
- Inventor, Founder, Member of Board of Directors, Secretary, & Chief Scientific Officer, **ViewRay** Incorporated.