

**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

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**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*)

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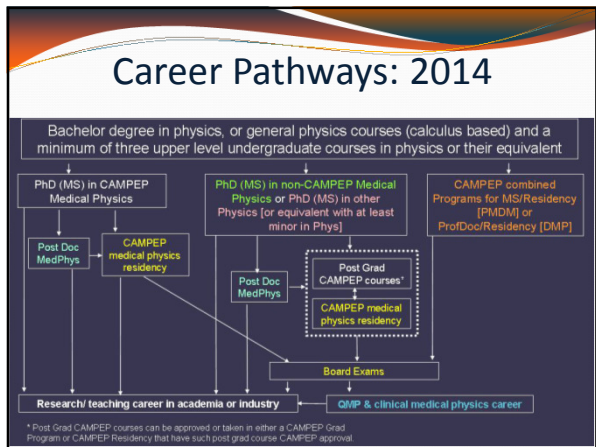
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### ***Importance of Residencies***

- 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)

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### **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***

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### **ABR Oral Pass Rates**

- Typical pass rate is 60% Pass Rate
- ABR just starting to track Residents vs. others
- Pass Rates for Residents (~20% of takers) ranges from 85 to 100%
- Therefore non-Resident Graduates pass at ~50%

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### ABR Oral Pass Rates

- With resident pass rates very high, we can raise the bar for the exam.
- A good thing for our profession !

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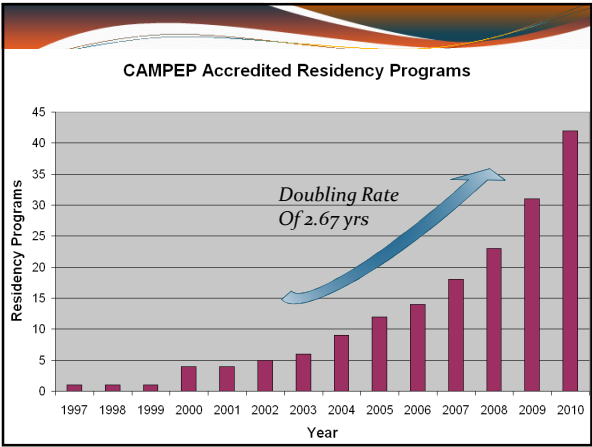
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### Recent CAMPEP Numbers

	Therapy	Imaging
Accredited Programs	55	6
Programs in CAMPEP vote	2	1
Programs in active review	12	3
Programs <i>awaiting review</i>	3	0
Total	82	10
Projected by 2014	96	14
Projected yearly graduates	135	20

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### 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)

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### Projected Demand/Supply

- Currently ~100 Graduating Residents per Year
- Projected to 150 by 2014
- Currently ~250 Graduating Medical Physics Students
- Most Programs have **not**/will **not** Reduce
- Of the 250, 175 are MS Students

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### Simple Data (AAPM Salary Survey)

- 332 respondents began full-time employment during 2007.

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Simple Data (AAPM Salary Survey)

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- 117 respondents began full-time employment during 2008.
- 96 respondents began full-time employment during 2010.
- 176 respondents began full-time employment during 2011, many resident graduates.

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### 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 .....

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### What does it mean?

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- **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:**

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*We are seeking applications from Graduating Physics Residents.*

Responsibilities include .....

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### 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.  
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Though the weakened job market maybe overriding that momentum.

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### 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

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## 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.”

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## 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).

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### WE CANNOT CONSIDER POSTPONING THE 2014 CHANGE

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

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- Taken over Treatment Planning Coordination
- Received Commercial Grant

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

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- 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.

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