

AAPM Residency Support and Report 90 – Residency Essentials

Michael G. Herman, Ph.D.
AAPM President-Elect
Mayo Clinic, Rochester



Outline

- Why are We Here?
- AAPM Residency Efforts Status
- Report 90 – Residency Essentials



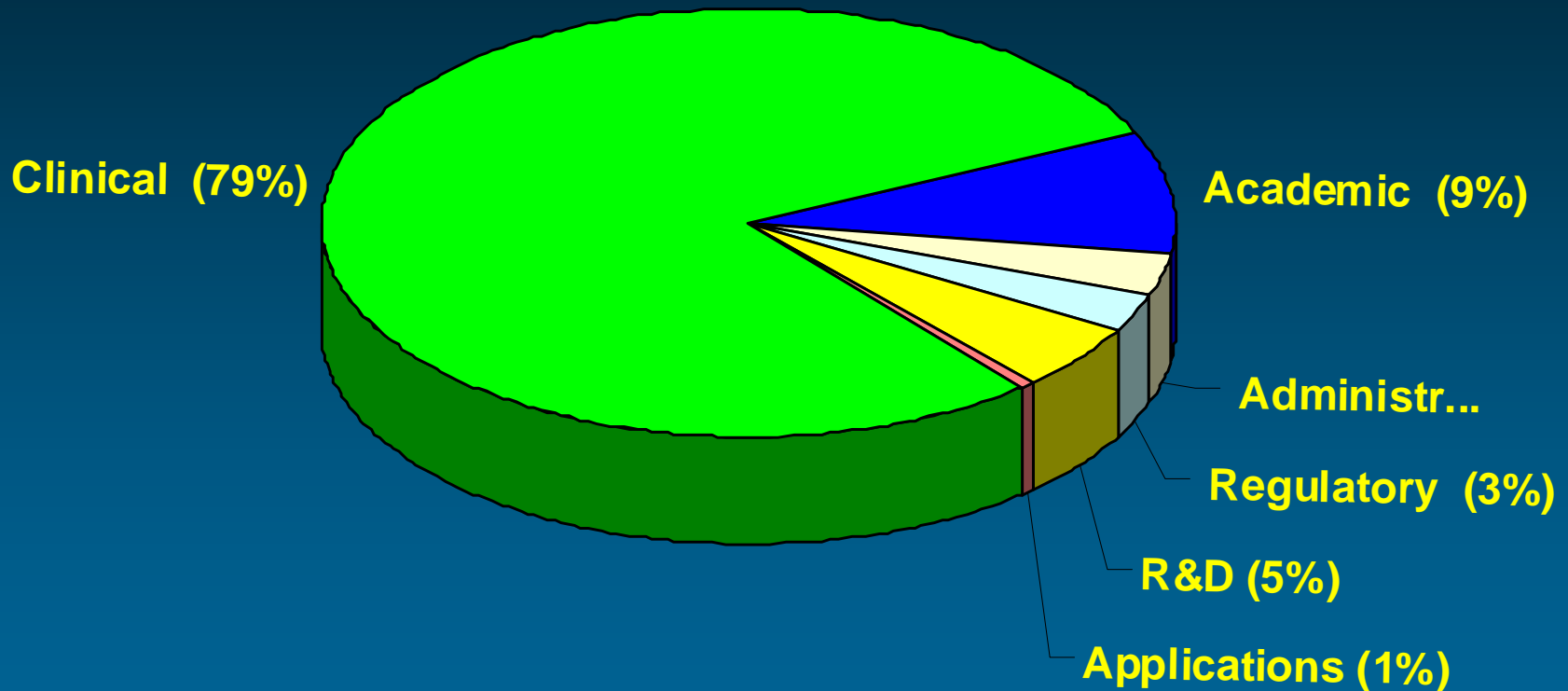
It is ALL about Patient Care

- Ultimately, the result of our work, regardless of whether we are researchers, educators or clinicians is the best possible patient care
- Providing tools and resources to improve the human condition
- We are fortunate that this is actually fun too and our services are in demand



AAPM 2007 Profession Survey Data

3106 Responded of 4662 surveyed of ~7000



Clinical

- **Definition of a Qualified Medical Physicist - AAPM**
- A Qualified Medical Physicist is an individual who is competent to practice independently one or more of the subfields of medical physics. **Certified**

From - Scope of Practice (ACMP-AAPM)

The essential responsibility of the Qualified Medical Physicist's clinical practice is to assure the *safe and effective delivery of radiation to achieve a diagnostic or therapeutic result as prescribed in patient care.*



Quality Patient Care

- Patients and colleagues deserve to have properly trained *clinical* medical physicists participating in practice.
- Is provided by properly, thoroughly and consistently trained professionals
 - Physics fundamentals
 - Didactic Medical Physics (Report 79)
 - Clinical Medical Physics (Report 90)
 - Board Certification



Consistency

- All ABMS boards have Consistent Quality
 - premise of all certification boards: “.... certification...requires between 3 and 6 years of training in an accredited training program”
 - **Except Medical Physics, Medical Genetics**
- Accredited Clinical Training Matters
 - CAMPEP accredited residency program grads **pass the ABR at a 93% rate, (96 takers – 5/09)**
 - **Overall ABR average is 53% (MedPhys 2005 PCP)**



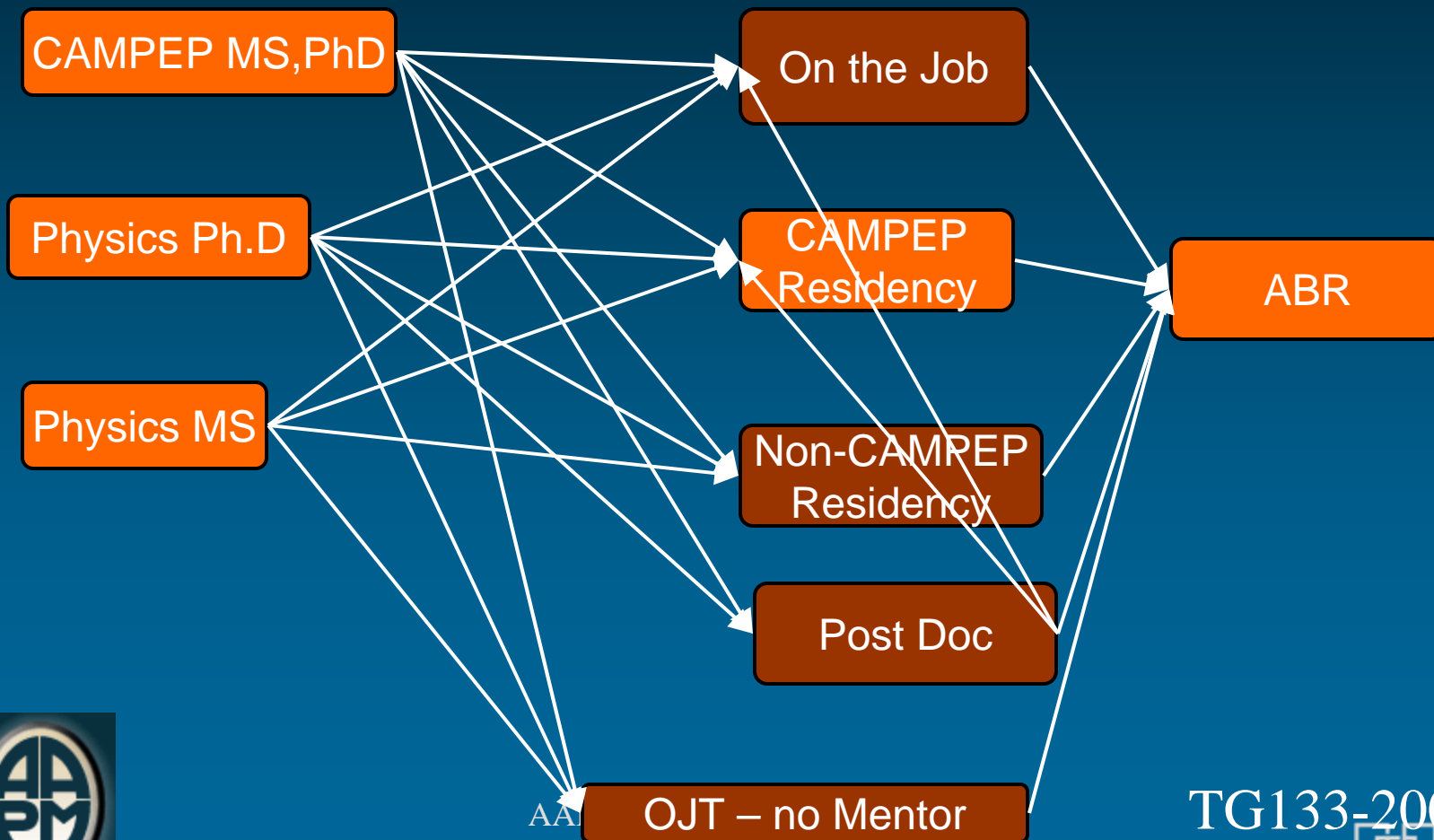
2012/2014 Initiative

- Toward Consistency in Training
- Responds to ABR requirements for education and training. (+AAPM PP-19A - 2007)
- Responding to ABMS, aligns with CARE.
- In 2012 - CAMPEP-accredited degree program or residency required
- In 2014 - CAMPEP-accredited residency required
- Effort- AAPM, CAMPEP, ABR, ACR, and ACMP.



The "Old" Pathway(s)

Consistent?, Equivalent?, Sufficient?, QMP? Best Patient Care?



AA
Herman #9



THE Pathway

Equivalent!, Sufficient!, QMP!

CAMPEP MS,PhD

Physics Ph.D

Physics MS

Clinical Medical
Physics
Residency

ABR
Certification



2012/2014 Considerations

- Facilitate accreditation and growth of programs
 - Conventional residency
- Support development of alternative pathways
 - Affiliate (TG133) Residency Programs
 - Develop the potential of a professional doctorate
 - Encourage graduate - residency programs synergy
 - Convert OJT/junior slots to (accredited) residency
 - Investigate combined therapy/diagnostic residencies
- Comprehend Supply-Demand
 - Commission Workforce Survey



2012/2014 Summit Meetings

- Meeting >Annually for a few years
- AAPM, ABR, CAMPEP, ACMP, ACR, SDAMPP
- Invited current students and recent grads
- 2 day presentations/working groups
- Master task list >60 items with designated time frame and responsible entity.



2012/2014 Activities

- Planned investment of up to \$100 K/yr
- Feb 2009, recent 2012 Initiative Meeting ~ \$20 K
- Workshops: non – CAMPEP **Residency** Program Directors ~ \$20k
 - Help in Self Study Completion - \$10 K
 - Workshop of Feb 6-7, 2009
 - 25 program directors (3 imaging), excellent program
 - **This Workshop scheduled for August 28-29, 2009**
- Workshop: non-CAMPEP **Academic** Program Directors –
 - SDAMPP is coordinating some work – budgeted \$20 K



2012/2014 Activities Cont'd

- Improving CAMPEP Process - \$10K
 - AAPM HQ now taking on application processing and logistics, more to come to streamline
- Affiliated Residency Demo - \$10 K
 - This is happening, no money was requested
 - Mayo - KCCC/USO limited affiliation example
 - Others have recognized that they can accredit alone
 - **TG133 is complete and posted on the AAPM Web**
- Launching DMPs - \$10 K
 - This is happening at Vanderbilt, TTHSC, UT SanAntonio, funded thus far by institutions
 - program consistency? - WGDMP



We're Making Real Progress

- Therapy; we are making substantial headway
- Imaging; more work to be done
 - some traction being gained
- Anyone who is doing clinical training could/should ultimately have an accredited program - Through available mechanisms
- Probably some investment next few years



Total Possible Residencies and Resident Positions

Gerbi, ~7/2009

	Therapy	Imaging
CAMPEP accredited	29 → 40	3 → 4
Programs in review	11 ↗	1 ↗
Programs represented at Feb. 2009 MPR writing workshop (Dallas, TX)	22 → 38	3
Other programs	16 ↗	-
TOTAL	>75	7
Potential residents per year (at >1.2 residents/prog-yr)	>100	8
DMP programs	2	1
Residents per DMP Program per yr	~3 x 5 = 15	-





Essentials and Guidelines for Hospital-Based Medical Physics Residency Training Programs

Report of the Subcommittee on Residency Training
and Promotion

of the

Education and Training of Medical Physics Committee
of the AAPM Education Council

August 2006



Report 90 Forward

Residency Guidelines

It has never been possible to learn medical physics by unstructured self-study or by observation alone. It is now no longer possible to become a fully competent, qualified medical physicist through on-the-job training, even under the mentorship of a single, experienced medical physicist. Over the past few years, it has become increasingly clear that the training standards and documentation associated with accreditation are needed for proper training of individuals to be capable of practicing medical physics independently. It is also clear that high-quality training can take place effectively in a hospital setting as well as in an academic environment.



Essentials and Guidelines for Diagnostic Imaging, Nuclear Medicine, Radiation Oncology Physics Residency Training Programs

- 1.1 Introduction
- 1.2 Objective of a ____ Physics Residency Training Program
- 1.3 Didactic Knowledge Requirements
- 1.4 Structure and Conduct of a ____ Physics Residency Program
- 1.5 Expected Areas of Competence for a Clinical Medical Physicist in ____
- 1.6 Education Requirements for Residents in ____
- 1.7 Radiation Physics Knowledge of Specific Importance for ____ Physics Residents
- 1.8 Clinical Knowledge of Specific Importance for ____ Physics Residents
- 1.9 Radiation Biology Knowledge of Specific Importance for ____ Physics Residents



Objective

___ = Diagnostic Imaging, Nuclear
Medicine, Radiation Oncology

The objective of the ___ physics residency training program is to educate and to train medical physicists to a *level of competency sufficient to practice ___ physics independently*. To accomplish this goal, adequate structure, facilities, staff, patient resources, and educational environment must be provided.



Didactic Knowledge Requirements

- Upon completion of training, equivalent to CAMPEP graduate program in subspecialty
- Obtained either in CAMPEP graduate program
- OR within residency in structured, documented and thorough manner



Program Structure and Conduct

- **Length of Training** - at least 2 years
- **Program Director** - responsibility and experience
- **Staff** adequate numbers to instruct and supervise physics residents,
- **Training Content** – overview, depth and reviews
- **Training Complement** - number of residents
- **Training Evaluation** – resident and program assessment



Program Structure and Conduct

- **Facilities** – space & facilities, labs, etc
- must be available:
- **Clinical Resources** – volume and distribution
- **Institutional Support**
- **Educational Environment**
- **Conferences**
- **Library Resources**



Expected Areas of Competence

This is the meat of the program and makes up the rotations, defining all necessary clinical experience and expectation to graduate from the program:

e.g. Imaging -

- (1) Specification, acceptance testing, and quality assurance of imaging equipment.
- (2) Measurement and calculation of radiation exposure and dose.
- (3) Improving and maintaining medical image quality.

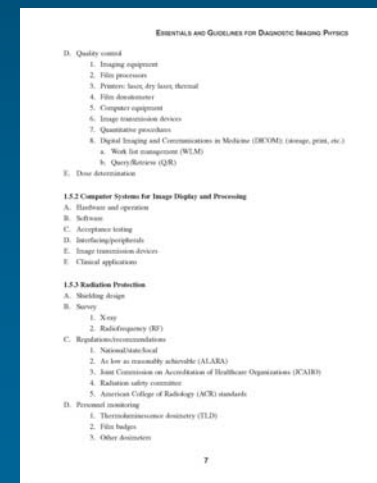
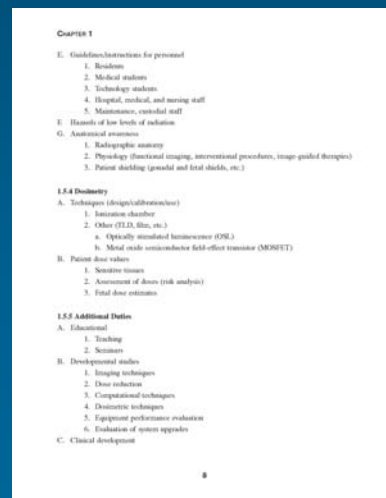
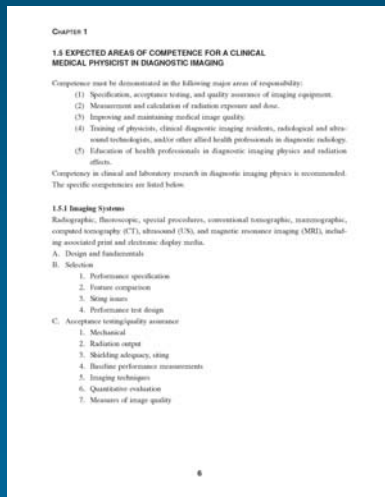


Expected Areas of Competence

- (4) Training of physicists, clinical diagnostic imaging residents, radiological technologists, ... in diagnostic radiology.
- (5) Education of health professionals in diagnostic imaging physics and radiation effects.

Competency in clinical and laboratory research in diagnostic imaging physics is recommended.

→ Very specific competency details follow for each subspecialty



Entrance Education Requirements

- Degree – M.S. or Doctoral
- Curriculum
- Background Knowledge (Medical Physics)



Specific Knowledge

- Detailed List of Knowledge in
 - Radiation Physics
 - Clinical Practice
 - Radiation Biology
- Specific and Appropriate to Subfield of Study.



Report 90 and CAMPEP

- AAPM Report 90 represents the practical and consensus guidance for a successful clinical medical physics residency
- CAMPEP accreditation reviews that this is being done
 - CAMPEP Application
 - SELF STUDY – reflects information in Rpt 90

