

CAMPEP Medical Physics Residency Programs

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NCC-AAPM Meeting

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UNIVERSITY OF MINNESOTA

Driven to DiscoverSM

What is CAMPEP?

- Commission on Accreditation of Medical Physics Educational Programs, Inc.
 - A nonprofit organization
 - Objectives
 - Review
 - Accredit educational programs in medical physics
 - Graduate education in Medical Physics
 - Residency education in Medical Physics
 - Continuing education of medical physicists
 - **These objectives are all inter-related**

CAMPEP Structure

CAMPEP

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graph TD; CAMPEP[CAMPEP] --- GEPRC[GEPRC  
Graduate Education  
Program Review Committee]; CAMPEP --- REPRC[REPRC  
Residency Education  
Program Review Committee]; CAMPEP --- CEPRC[CEPRC  
Continuing Education  
Program Review Committee];
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GEPRC

**Graduate Education
Program Review Committee**

REPRC

**Residency Education
Program Review Committee**

CEPRC

**Continuing Education
Program Review Committee**

Sponsoring Organizations

American Association of Physicists in Medicine

American College of Medical Physics

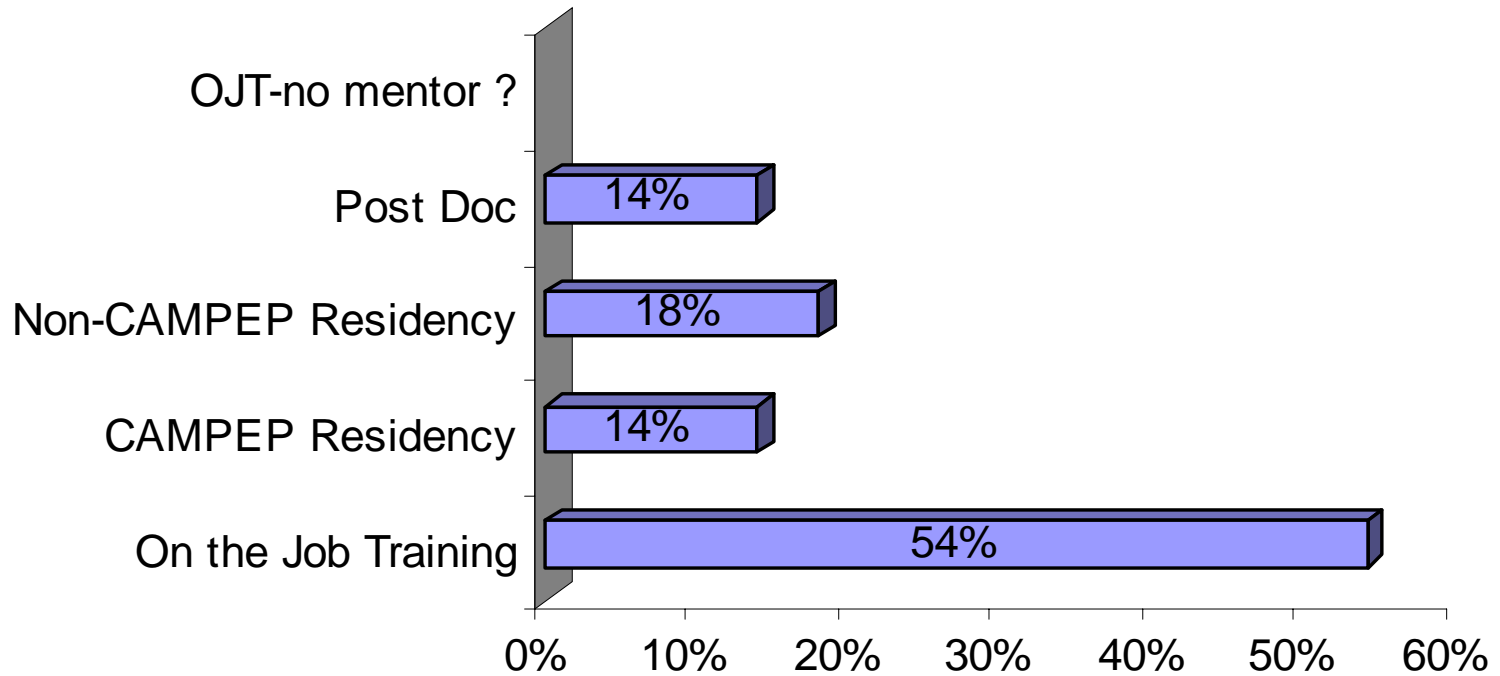
American College of Radiology

Canadian College of Physicists in Medicine

Graduate School Production of Medical Physicists per Year

- CAMPEP Accredited graduate programs: 21
- Therapy + Imaging, in both CAMPEP accredited and non-accredited programs
 - ~ 200 Masters level graduates per year
 - ~ 100 PhD level graduates per year
- Where do these individuals acquire clinical training?

Current Pathways for Clinical Experience

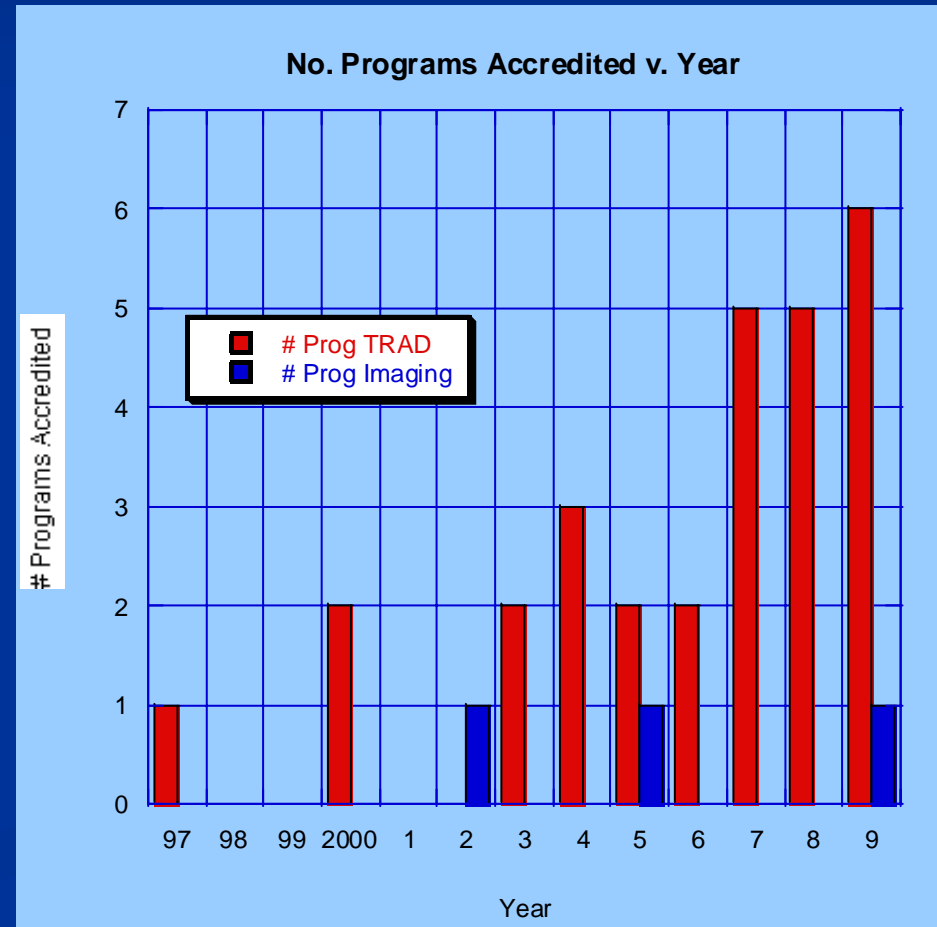


Current Residency Program Status

- Therapy: 28 Accredited
- Imaging: 3 Accredited

- In review process:
 - Therapy: 8
 - Imaging: 1
 - DMP: 1

- Re-accreditations: 3



Total Possible Residencies and Resident Positions

	Therapy	Imaging
CAMPEP accredited	28 \ 36	3 \ 4
Programs in review	8 / 36	1 / 4
Programs represented at Feb. 2009 MPR writing workshop (Dallas, TX)	22 \ 38	3
Other programs	16 / 38	-
TOTAL	74	7
Potential residents per year (at 1.2 residents/prog-yr)	89	8
DMP programs	2	1
Residents per DMP Program per yr	Vanderbilt, 5 Texas Tech, 5	-

Review of Situation

- Residency positions per year: ~ 40 residents
- Personnel needs of the field/year
 - 150 to 250 estimated/yr, Therapy
 - 30 to 50 estimated/yr, Imaging
- At 40 residents/year from accredited Therapy programs & 3-5 per year Imaging, we currently meet 20-25% of the need for trained individuals in the field

Why all the “hubbub” over Accredited Medical Physics Residency Programs?

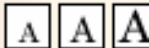
- We want the highest quality medical services for patients
- Accredited programs have been proven to work (in all fields)
- The 2012/2014 initiative (AAPM, ABR, CAMPEP) sets a hard deadline for formalized training in Medical Physics

Why all the “hubbub” over Accredited Medical Physics Residency Programs?

- We want the highest quality medical care for patients

It is one of the core missions of the AAPM

The AAPM

FONT SIZE 

Mission Statement/Objectives

Approved by the AAPM Board of Directors - July 31, 1997

The mission of the Association is to advance the practice of physics in medicine and biology by encouraging innovative research and development, disseminating scientific and technical information, fostering the education and professional development of medical physicists, and promoting the highest quality medical services for patients.

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ABR Exam Pass Rates

Physicists Radiologic Physics Oral First time Takers

Year	% Passed
2003	48
2004	51
2005	59
2006	53
2007	47
2008	57

Medical Residents, Radiation Oncology Oral First time Takers

Year	% Passed
2003	82
2004	NA
2005	86
2006	90
2007	86
2008	80

Med. Phys. Point/Counterpoint

- As of 2005, nine CAMPEP-accredited residency programs produced 54 graduates
- 38 have taken the full certification exam
- 36 candidates passed the full board exam on the first attempt
- Thus the first time pass rate for graduates of CAMPEP-accredited residency programs is 95%.
- The ABR physics pass rate is 52% for first-time takers (2003 – 2008).

Why all the “hubbub” over Accredited Medical Physics Residency Programs?

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- **The 2012/2014 initiative (AAPM, ABR, CAMPEP) sets a hard deadline for formalized training in Medical Physics**

ABR Future Exam Requirements for Radiological Physics, 2012/2014 Initiative

- To take the ABR Part 1 exam in Radiologic Physics:
 - In **2012**, candidates must be enrolled in or have graduated from a CAMPEP accredited graduate or residency program.
 - In **2014**, candidates must be enrolled in or have completed a CAMPEP accredited residency program.
- Applications for the exam must be submitted by September 30th of the year before the examination.
 - You have to meet board eligibility requirements by September, 2011 and 2013

How are Medical Physics GRADUATE Students Affected by the 2012/2014 Initiative

- To apply for the ABR Board Exam:
 - Non-CAMPEP PhD students must graduate by Sept. 2010, need **one** year experience
 - Non-CAMPEP MS students must graduate by Sept. 2010, need **2** years experience
 - CAMPEP MS/PhD graduate students must apply by Sept. 2012 so they can take the board in 2013. After that, they too have to complete a residency program.

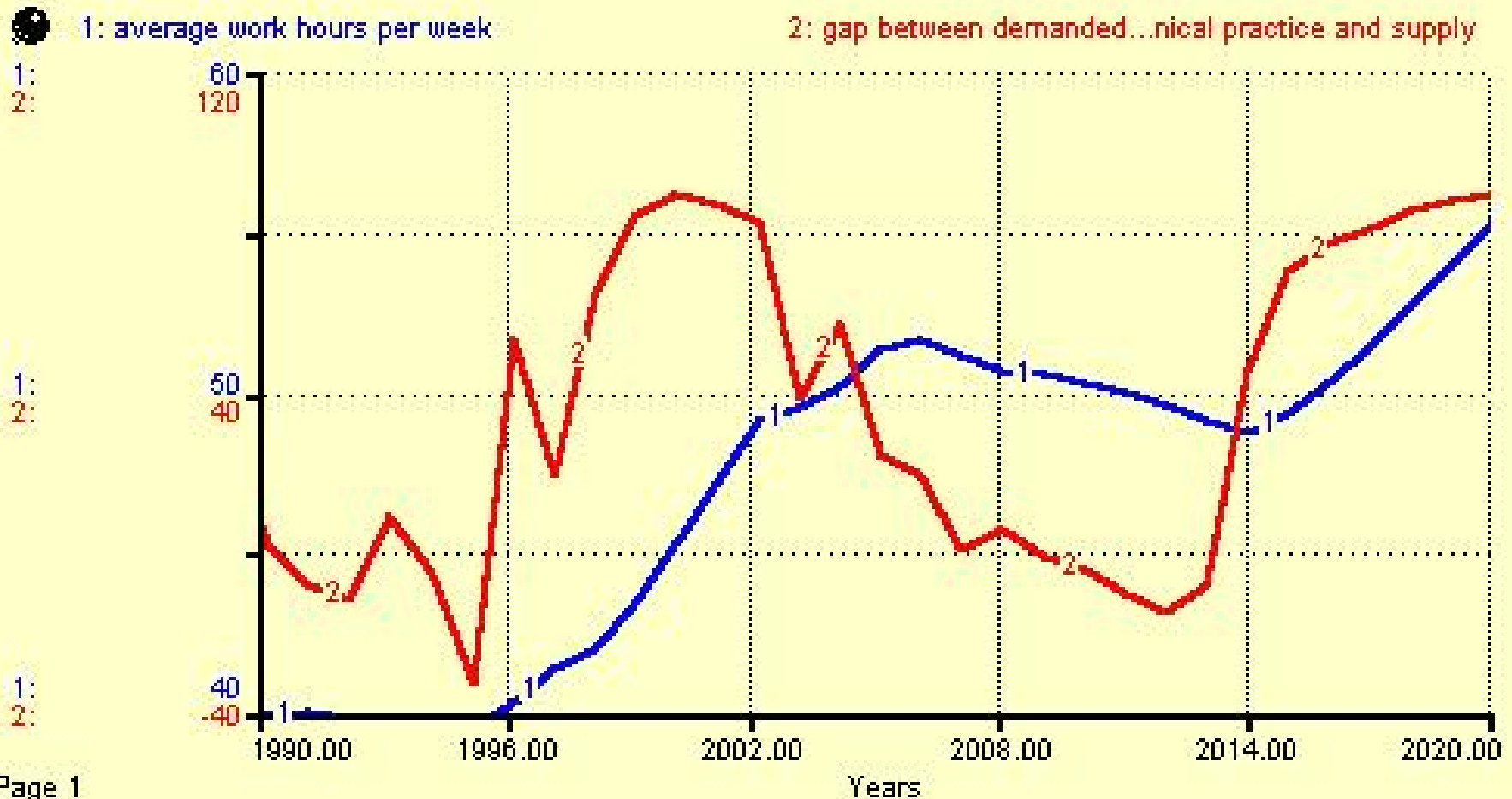
How does this impact existing certified Medical Physicists? i.e., Physics Workforce Needs per Year

- Many estimates, difficult to quantify accurately
- In Therapy, estimates range from 200-400 medical physicists per year
- In Diagnostic, estimates range from 30-50 per year
- AAPM currently commissioning a formal analysis to determine accurately the workforce needs in Medical Physics (from the Center for Health Workforce Studies at SUNY in Albany, NY)

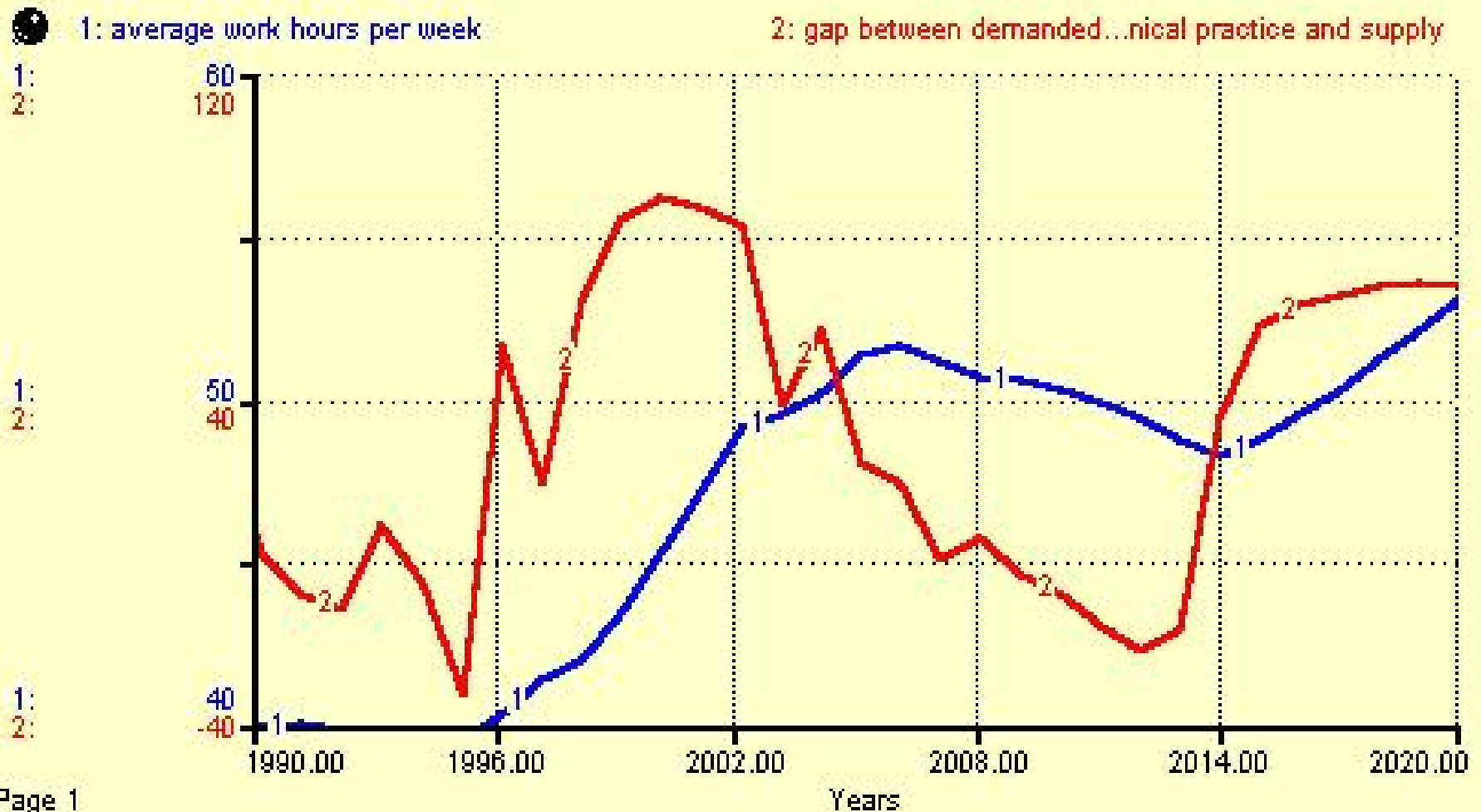
Medical Physics Workforce Requirements: Components of the Problem (TRAD)?

- Radiation Oncology Physicists (ROPs) numbers influenced by three major factors between 2009 and 2020:
 - The rate of retirement of ROPs will more than double as the “baby-boomers” retire.
 - Cancer incidence grows at $\sim 2\%$ per year, leading to a $\sim 25\text{-}30\%$ patient increase by 2020.
 - In 2014, ROPs must graduate from a CAMPEP accredited residency program to take ABR exam

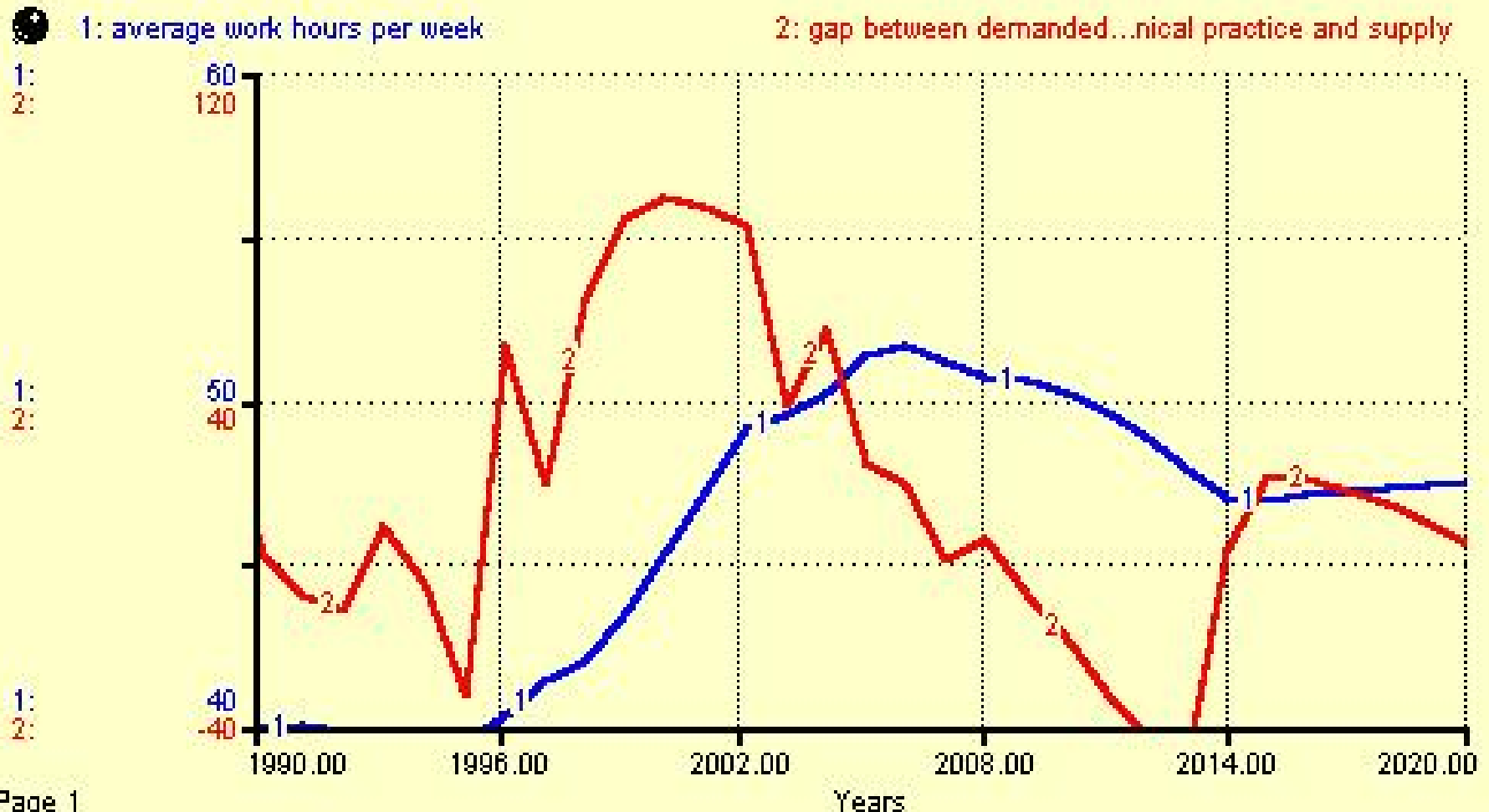
What happens in 2014 – 2020 if we have 100 CAMPEP slots?



What happens in 2014 – 2020 if we have 125 CAMPEP slots?



What happens in 2014 – 2020 if we have 200 CAMPEP slots?



How many physicists must we train?

- Current number of CAMPEP Residents must increase from 40 to a minimum of 125 per year by 2020; 100 will not work!
- A more comfortable number would be 150-200
- Difficult to produce this manpower through conventional academic residencies alone – we must develop alternative programs
- If we are unable to train enough ROPs...
 - The work week spirals out of control,
 - More medical physicists might retire or leave the profession,
 - Quality of patient care could be negatively impacted.

Meeting the Need for Resident Positions

- Conventional CAMPEP residencies
- Structured mentorship affiliated with a CAMPEP accredited residency program
 - Limited affiliate - the affiliate attains CAMPEP accreditation and connects to another CAMPEP program to supplement their program
 - Dependent affiliate - provides some training under the direction of the primary accredited program
- Professional doctorate degree (PDMP) - through existing academic educational systems
 - Students would pay tuition
- MS or PhD Medical Physics graduate programs with CAMPEP accredited clinical training

PDMP – What Is It?

- Professional Doctorate of Medical Physics (PDMP)
- A Professional Degree not a Research Degree (PhD)
- Combines Didactic and Clinical Training
- Four – Five Year Program
- More than a MS Degree and a Clinical Physics Residency
- PDMP May Allow Completion of Clinical Training Off Campus at a CAMPEP-Accredited Residency Program
- Students Pay Tuition for Duration of the Program (perhaps stipend)
- May Limit the Number of Graduates per Year (compared to MS)
- Would meet Eligibility Requirements for ABR Physics Exam (Parts I & II)

PDPM Programs

- They are quite new
 - Only two programs in very initial stages
 - TX Tech, 5 students enrolled
 - Vanderbilt, 5 students to start next year
- They are controversial
 - Impact on the Profession of Medical Physics
 - Impact on Current Academic Programs
 - Impact on Medical Physics Dissertation Research
 - Impact on Post-doctoral Positions in Medical Physics
 - Impact on ABR Certified MS Medical Physicists
 - Impact on PD Graduates
- There is concern that in trying to solve the problem of limited residency positions, we are creating a larger problem

Summary

- There is a demonstrated need for residency programs in Medical Physics
- Graduates from CAMPEP accredited residencies perform much better as documented by the ABR examination
- The ABR will only allow individuals to sit for the exam if they have completed a CAMPEP program by 2012/2014
- Will be difficult but the processes are in place or being developed
- I'm optimistic! These challenges for residency trained medical physicists can be met