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PROGRAM ADMINISTRATION

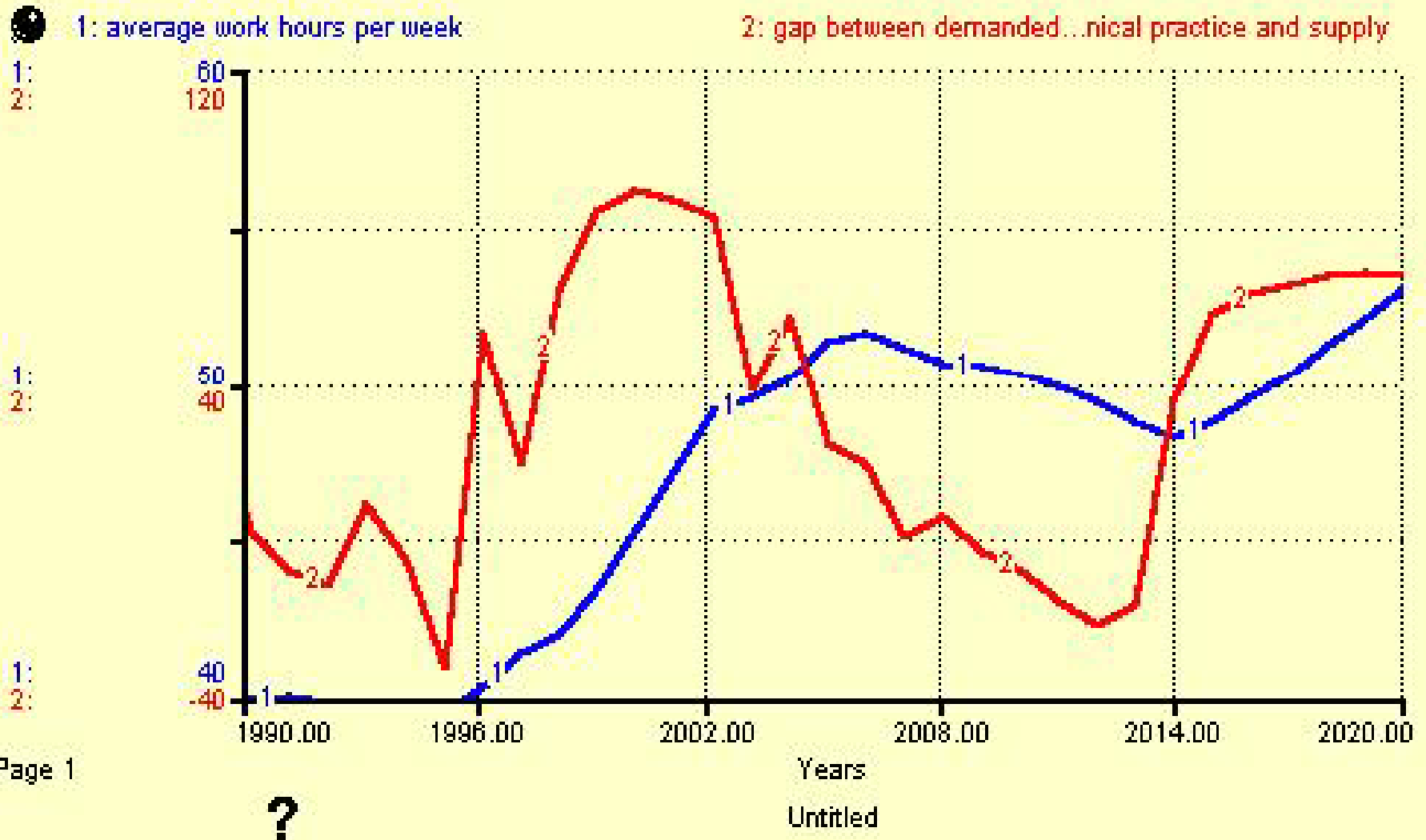
Topics to Cover:

- Supply and Demand for Radiation Oncology Physicists 2009 – 2020
- Structure of the Program within the Hospital or Medical Center
- The role of the Program Director
- Committees and Meetings
- Records Available for Review

What are the Components of the Problem?

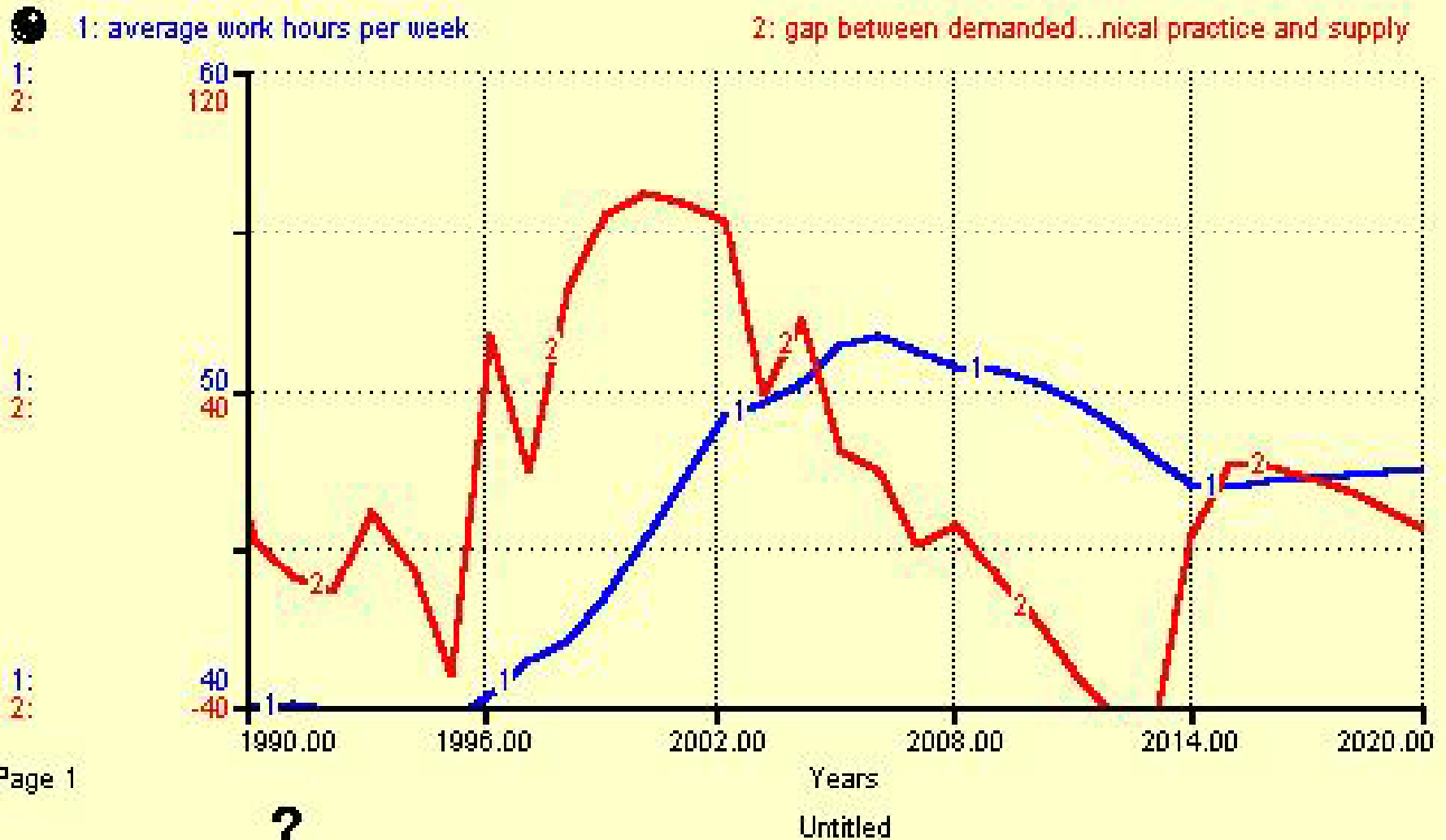
- Radiation Oncology Physicists (ROPs) face three major issues between 2009 and 2020:
 - The rate of retirement of ROPs will more than double as the baby boomers retire
 - Cancer incidence grows at ~2% per year, leading to an increase of ~30% by 2020
 - In 2014, ROPs must graduate from a residency program accredited by the Commission for the Accreditation of Medical Physics Education Programs (CAMPEP)

What about 2009 - 2020? If we have 125 CAMPEP slots

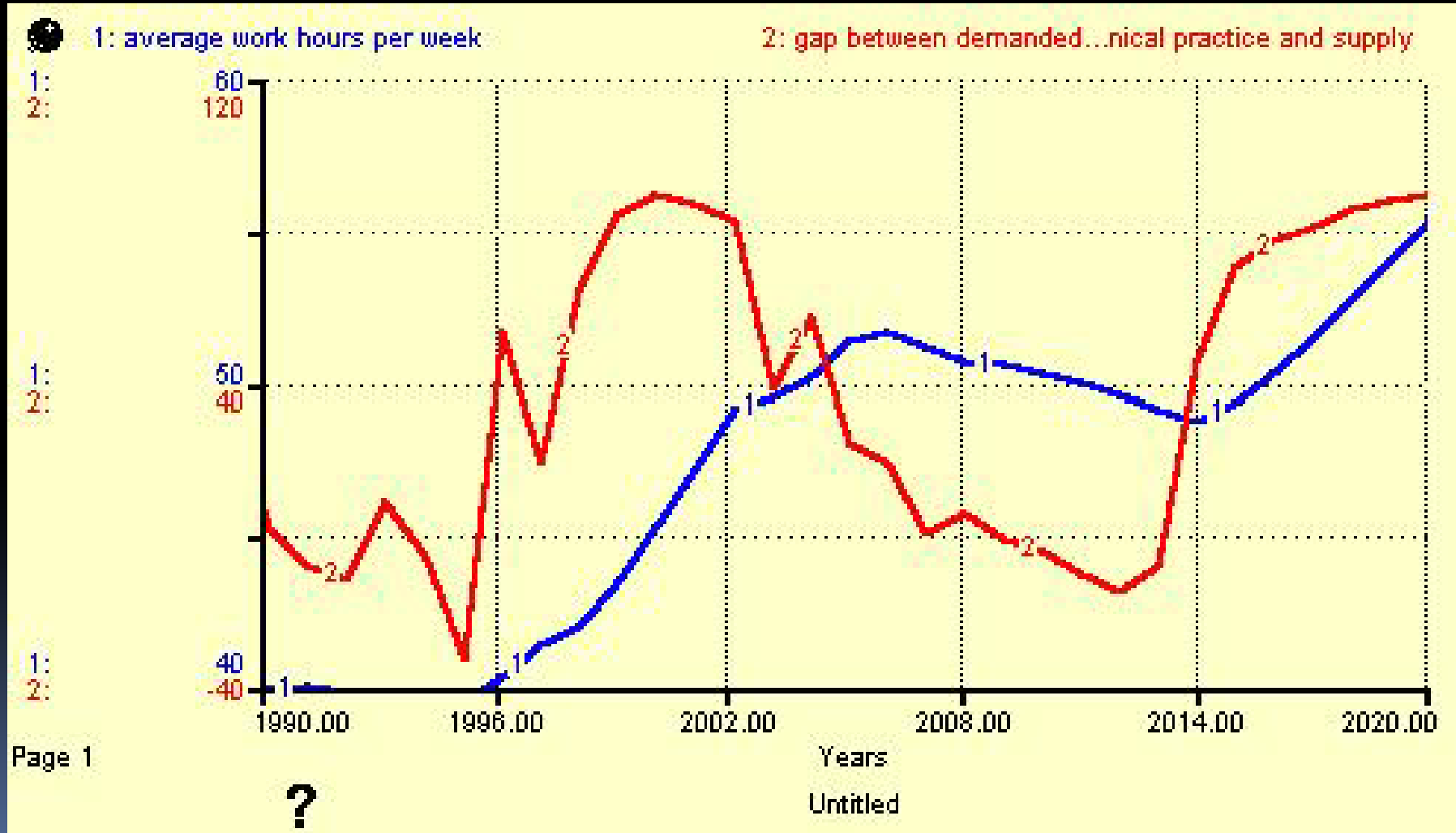


What about 2009 - 2020?

If we have 200 CAMPEP slots



What about 2014 - 2020? If we have 100 CAMPEP slots



How many physicists must we train?

- Current number of CAMPEP Residents must increase from 25 to a minimum of 125 per year by 2020; 100 will not work!
- A more comfortable number would be 200
- We will not provide this manpower through academic residencies alone – we must develop distributed residency programs to meet the need!
- If we are unable to make enough ROPs, and the work week spirals out of control:
 - Will more medical physicists retire or leave the profession?
 - Will this impact patient care negatively?

Structure within the Hospital or Medical Center

- The institution sponsoring the program of clinical training in radiation oncology physics should provide administrative support in terms of budget and space in addition to clinical and educational resources
- Adequate conference room and audiovisual facilities should be provided
- Commitment to long-term funding of the program is essential

Structure within the Hospital or Medical Center

- Who owns and/or provides the equipment?
- Who employs the physicists and residents?
- To whom does the program report administratively?
- What other associated training programs exist at this facility?
- What internal oversight mechanisms are present?

Role of the Program Director

- The program director is responsible for the whole of the radiation oncology physics training program. The program director:
 - (1) Must contribute sufficient time to the program to ensure adequate direction
 - (2) Is responsible for program organization and direction as well as instruction and supervision of physics residents
 - (3) Must arrange for the provision of adequate facilities, teaching staff, clinical resources, and educational resources
 - (4) Is responsible for the recruitment and appointment of physics residents and must ensure that the appointed residents meet the eligibility requirements
 - (5) Is responsible for ensuring the resident is making satisfactory progress, and for providing appropriate disciplinary action should this not be the case

Role of the Program Director

- The qualifications of the program director are as follows:
- (1) Must be certified in radiation oncology physics by an appropriate certifying board
- (2) Must have at least 7 years of full-time experience as a qualified medical physicist practicing in radiation oncology physics
- (3) Must be a full-time staff member, qualified in and practicing radiation oncology physics at the training facility.

Committees and Meetings

- Physics Residency Committee
 - Resident recruitment
 - Admission recommendations
 - Monitor physics resident's progress
 - Training curriculum
 - Orientation program
 - Committee meetings
 - Oral and written exams
 - Program review
- Internal Review Committee
 - Made up of appropriate individuals qualified to review the program
 - Meets periodically – once every 3-5 years

Records Available for Review

- Conferences – not graded, attendance and/or participation required
- Competencies – graded when performed
- Coursework:
 - Short courses without grades
 - Short courses with grades
 - Traditional courses with tests and a final examination
 - Non-traditional courses without testing
 - On-line training
 - Vendor training

Complexity

- A competency may be associated with a course
- A competency may be associated with a conference
- A course may be associated with a conference
- Any of these may be associated with specific mentors, patients, or machines
- Each event type, the associations, the mentors, the patients and the equipment must be captured on an ongoing basis to provide proper documentation for a residency program
- This is an onerous task!

Typhon Group Software

- Is based in New Orleans
- Has been in the business for 12 years
- Has over 20,000 students active students
- **Is Web-Based!**
- Has modules for Nurse practitioner, Nurse anesthetist, Dental Hygienist, Physician's Assistant and Allied Health Professional training programs
- Allied Health Module is appropriate for a Medical Physics Residency

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Clinical Physics Rotations (in months)

TG133

Trainee NAM	Mentor(s)	2005						2006												2007						
		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	
Orientation	Faculty	NAM																								
Dosimetric systems acceptance testing/ commissioning/ QA	Faculty		NAM																							
on call physicist (POD) / Plan Check	Faculty			NAM																						
Treatment machine QA	Faculty	NAM																								
Shielding / room design	Faculty																									
Radiation safety	Faculty																									
Treatment machine ATP, survey, commissioning (see note 1)	Faculty																									
Treatment machine calibration (TG51)	Faculty																									
Simulator acceptance testing and QA (Fluoro/B	Faculty																									
Simulator acceptance testing and QA (CT-sim3)B	Faculty																									
External beam treatment planning	Faculty																									
TPS commissioning	Faculty																									
MU calculations(2 months)	Faculty																									
IMRT Planning (2 months and follows ExBeam Tx Planning	Faculty																									
IMRT QA (1 month and follows IMRT planning)	Faculty																									
Special applications (77370 diodes, EPID) before POD	Faculty																									
Stereotactic (Gamma knife / SRT, see note 2)	Faculty																									
IGRT	Faculty																									
Brachytherapy: sources/ calibrations/ safety/ regulations	Faculty																									
Satellite practice rotation	Faculty																									

(1) If a machine is not installed in this time period, then a "mock" ATP & commissioning will be done during the next annual QA in January.
 (2) During rotation period, expectations include at least two complete SRT cases, gamma knife QA and annual (2 pp), and 6 patient coverage days on gamma knife.

- Rotation window
- Didactic instruction
- Observation prior to rotation/participation
- Responsible window
- Responsible and Teaching

Pertinent AAPM Report 133

Recommendations

- All clinical training programs—residency, postdoctoral, OJT, graduate—should consider applying for CAMPEP accreditation through this mechanism.
- Existing accredited academic centers agree to affiliate relationships to foster and facilitate standard, high quality training.
- Time Frame for Implementation: TG133 believes that the affiliate mechanisms for accredited training can be implemented now. By 2010, examples of these programs will have come into existence.

Summary and Conclusions

- 2014 will require distributed training for medical physics residency programs.
- We now know with reasonable certainty we will need to train a minimum of 125 and ideally 200 radiation oncology physicists each year after 2014
- The Typhon Group software tools and database will allow tracking of resident case reports, coursework, competencies and time.
- As a web based tool, the Typhon Group software tools may be used simultaneously by any number of clinical sites for a given program.
- Such tools are a necessary component if the medical physics profession is to meet the projected needs for qualified medical physicists in future years.