SDAMPP Annual Meeting

Strategies For The Futures Of Medical Physics Programs

Room 116/117, Indiana Convention Center
8:00 - 11:00AM, Saturday, August 3, 2013

Moderator: J. Daniel Bourland, SDAMPP President

Start Time	*End Time*	*Title*		*Speaker*
7:30 AM	7:55 AM	**Continental Breakfast**		
7:55 AM	8:00 AM	**Welcome**	**Talk 0**	Dan Bourland
I. Challenges for Certificate and Graduate Programs				
8:00 AM	8:25 AM	**Challenges for Certificate Programs**	**Talk 1**	Cheng-Shie Wuu
8:25 AM	8:50 AM	**Challenges for MS Programs**	**Talk 2**	Tim Turkington
8:50 AM	9:35 AM	**Report 197S: Interpretation and Strategy for Inter-society Discussions**	**Talk 3**	Bruce Libby, Sonja Dieterich, Dan Low
9:35 AM	9:55 AM	**Coffee Break**		
II. Program Statistics and Opportunities				
9:55 AM	10:05 AM	**Graduate Program Statistics: 2012 Data**	**Talk 4**	Dan Bourland
10:05 AM	10:15 AM	**Graduate Achievements Data Survey: SDAMPP Posting**	**Talk 5**	John Bayouth
10:15 AM	10:25 AM	**Education Council Report**	**Talk 6**	Jim Dobbins
10:25 AM	10:35 AM	**American Board of Radiology Update**	**Talk 7**	Don Frey
III. The Match: Status and Future				
10:35 AM	10:40 AM	**Introduction**	**Talk 8**	Dan Bourland
10:40 AM	11:10 AM	**AAPM Common Application and Match Program**	**Talk 9** **Talk 10**	John Gibbons, John Antolak
Adjourn to SDAMPP Business Meeting				
11:10 AM	12:00 PM	**Secretary's Report, Treasurer's Report**		Secretary, Treasurer

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Challenges for Certificate Programs

Cheng-Shie Wuu, Ph.D., FACR, FAAPM

Columbia University

New York, NY

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Certificate Program

- A certificate program is a program of didactic coursework offered by a CAMPEP-accredited graduate or residency program, intended to enable individuals with a PhD or equivalent terminal degree in physics or a related discipline to meet the didactic requirements needed to enter a CAMPEP-accredited residency program.

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Didactic Courses (identified in AAPM Report 197S and adopted by CAMPEP)

- Radiological Physics and Dosimetry
- Radiation Protection and Radiation Safety
- Fundamentals of Imaging in Medicine
- Radiobiology
- Anatomy and Physiology
- Radiation Therapy Physics

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Didactic Courses

- No more than two required Medical Physics courses as specified in AAPM Report 197S can be taken in a 24 month residency program. If more than two courses must be completed, the residency program will have to be extended so that the resident can meet the above stated didactic requirements.

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Certificate Programs Setup

- A certificate program can be offered by a graduate medical physics program that is currently CAMPEP-accredited
- A certificate program can be offered by a CAMPEP-accredited medical physics residency program that is not associated with a graduate program that is CAMPEP-accredited.

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Who attended our certificate program

- Prior to 2012
  - Postdoc/residents from local physics residency programs (switching paths from physics related degrees)

- After 2012
  - Local physics residents
  - Individuals with a PhD in physics or related degrees planning to apply for a physics residency program

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ABR Part 1

- Candidates who file new applications for Part 1 in the year 2013 for the 2014 exam cycle must be enrolled in a CAMPEP-accredited education program, certificate program or residency.

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Didactic courses for remediation

- These classes must be at the graduate level and of sufficient depth and breadth to meet the requirements for admission to a residency program.

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Didactic courses for remediation

- In the event that graduate level classes in Medical Physics are not available locally, remediation may take the form of tutorials and evaluations conducted by Board-certified physicists.

- All remedial activities must be thoroughly documented. The pass/fail criteria need to be clearly defined together with the required action that will be taken if these expectations are not met.

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Issues/Challenges

- Number of residency positions available vs. number of graduates from certificate programs and graduate programs
- ABR accepts applicants who are enrolled in the in a CAMPEP-accredited education program, certificate program or residency program. Who will monitor the completion/quality of those 6 didactic courses?
- Some confusions over course offerings

Challenges in MS MP Programs – Duke Perspective

Tim Turkington, Ph.D.
Directors of Graduate Studies

DUKE UNIVERSITY
MEDICAL PHYSICS
GRADUATE PROGRAM

Challenges in MS MP Programs – Duke Perspective

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DUKE UNIVERSITY
MEDICAL PHYSICS
GRADUATE PROGRAM

Overview of Duke Medical Physics

- First students admitted 2005
- PhD and MS
- Four tracks:
  - Nuclear Medicine
  - Health Physics
  - Diagnostic Imaging
  - Radiation Therapy
- ~50 faculty, with primary appointments in:
  - Radiology (includes Radiation Safety faculty)
  - Radiation Oncology
  - Physics
  - Biomedical Engineering

Overview of Duke Medical Physics

- Duke Graduate School

MS Curriculum

Fall 1

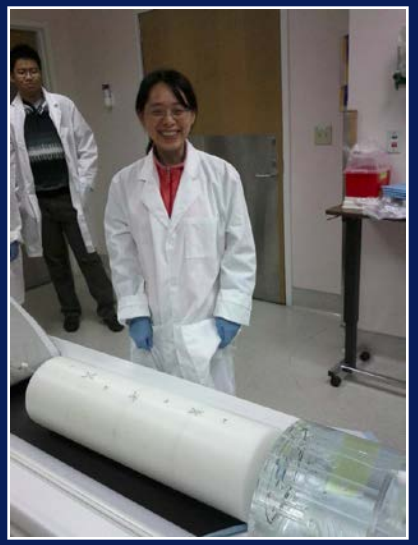
- Anatomy and Physiology
- Imaging Systems
- Radiation Physics
- Seminar (1 ch)

Spring 1

- Radiation Protection
- Radiation Therapy Physics
- Nuclear Medicine Physics
- Seminar (1 ch)

Year 2

- Advanced course + Practicum in chosen track
- Frontier course
- Elective (e.g. practicum or advanced course from another track, biostatistics, Monte Carlo methods, etc.)
- 3 ch research × 2
- Seminar (1 ch) × 2



Other requirements

- Qualifying Exam – beginning of 2nd year
  - Covers 1st-year curriculum
- Thesis (not required, but almost all do it.)
- English*
- RCR

Optional Activities

- Summer internship at another institution
- Summer training at Duke ($)
- Informal observation (of faculty, residents, PhD studies, other MS students)
- Independent study

Recruitment Tools

- Web page
- Facebook
- Open House – Fall and Spring
- Other individual visits
- Current students are very helpful

M.S. vs. Ph.D.

- Both degrees provide for professional career in medical physics.
- Ph.D. is training in research.
- If a student seems committed to a life of clinical medical physics, I steer him/her away from Ph.D.

Admissions

- Same admissions committee assesses MS and PhD
- We consider:
  - Transcripts (GPA, major, curriculum, …)
    - (How important are the physics prereqs?)
  - GRE
  - Personal Statement
    - Do they know what they're getting into?
    - Do they write well?
    - Why do they want to come to Duke?
    - …
  - Letters of recommendation
  - Other factors
- What factors correlate with successful students?

Admissions, cont'd

- Some (50%?) of our student enter without a definite career plan.
- We love the idea of training foreign students who will return to underserved regions of the world, but…
- For some PhD applicants who don't make the interview list, we offer M.S.
  - Most are happy with M.S.

Placement

- Will our graduates find jobs?
  - What jobs are they looking for? (clinical, residency, industry, PhD, government, …)
- Will our graduates find residencies?
- If not, will they be satisfied working at MacDonald's?

Balance of educational emphases

- Didactic training + Research + Clinical experience
- Our blend may be different from yours.
- That’s okay.
- Does the residency requirement change this?
  - Does the residency remove the need for clinical training?
  - Or do residencies expect some clinical experience?

General Challenges

- Getting students to learn.
- Getting students to take advantage of opportunities.
- Getting meaningful feedback.

Physician & Physicist Culture

Medical Culture

- What you did before is important- (undergraduate grades, undergrad college, standardized exam scores, etc)
- High barrier to entry (difficult to get in, once in taken care of)
- Licensure,

(Current) Physicist Culture

- *“what have you done for me lately”*
- *Low barrier to entry- take lots of people in but then have to perform to advance*
- *(Almost) no licensure*

We All Had a Lively Discussion on Required Coursework:

- Indrin Chetty, PhD, Henry Ford Health System, Detroit, MI
- Sonja Dieterich, PhD, University of California, Davis, CA
- Eric Klein, PhD, Washington University, St. Louis, MO
- X. Allen Li, PhD, Medical College of Wisconsin, Milwaukee, WI
- Bruce Libby, PhD, University of Virginia, Charlottesville, VA
- Daniel Low, PhD, University of California, Los Angeles, CA
- Moyed Miften, PhD, University of Colorado Anschutz Medical Campus, Aurora, CO
- Todd Pawlicki, PhD, University of California, San Diego, CA
- John Wong, PhD, John Hopkins University, Baltimore, MD

Optimized Entry Barrier Height?

High Barrier

+ Standardized didactic knowledge base
  - “Should” eliminate need to teach basic didactics
+ Quality metrics for use in residency interview process

Low Barrier

+ Diversity of background
  - Looking at the big questions from a new angle
  - Know about solutions & methods from other fields
  - Asking the questions we don’t even think about! (see: Leksell, Adler inventing new SRS machines)

6 courses from CAMPEP

Courses in 197 S	Comments
1. Radiological Physics and Dosimetry	1. Medical Physics specific
2. Radiation Protection and Safety	2. General Topic
3. Fundamentals of Imaging in Medicine	3. General Topic
4. Radiobiology	4. General Topic
5. Anatomy and Physiology	5. General Topic
6. Special Topics	6. “Everything else”; ethics now part of residency

Looking Closer at Courses 2-5

Hypothesis: Non-CAMPEP accredited graduate institutions can provide courses 2-5 with sufficient quality and content to prepare for residency.

Advantage for students:

- Accessibility
- Cost

“We share the view that these new requirements are creating significant hurdles in the advancement of the medical physics field. In addition, they are placing major obstacles in attracting the next generation of young multi-disciplinary scientists to lead our field. The future of medical physics demands both strong clinical practice and research and development. These two efforts are synergistic and cannot be separated. While CAMPEP certificate programs may provide an alternative pathway for such graduates, many outstanding students and post-docs may not be able to join CAMPEP certificate programs for legitimate reasons. Therefore additional alternative pathways should be considered.

We believe that physics and engineering graduates with rigorous coursework in nuclear and atomic physics, solid state physics, measurement devices, accelerator design, and electronics already have the competencies needed to enroll in a residency program. Such graduates do not require a year of full-time study to read good textbooks under the residency program director supervision and learn how physics principles are applied in medical physics. …”

(Letter to CAMPEP, text by M Miften PhD, Nuclear Engineer)

We want our field to have room for:

- Nuclear Physics:
  - Radhe Mohan, Saiful Huq, Robin Stern, Dan Low, Jim Dempsey
  - Joann Prisciandero, Krishni Wijisooriya, Sonja Dieterich, B Libby, Olivier Gayou
- Mathematics/Computer Science:
  - Sarah Geneser, Dan Ruan
- Engineering:
  - Kai Ding, Annie Hsu, Jing Cai, Jing Cui, ..
- Many others!

How do we set the correct barrier height to enter Medical Physics with respect to graduate didactics?

CAMPEP/SDAMPP Graduate Program Survey Results

E. Jackson, PhD

Chair, SDAMPP Outcome & Statistics Committee

Draft – 07/25/2013

Reporting Period

January 1, 2012 through December 31, 2012

Please Note:

This is a preliminary report.
The final report will be posted to the SDAMPP website.

Survey Logistics

- Survey tools:
  - CAMPEP Annual Program Survey
  - SDAMPP Survey (non CAMPEP-accredited)

- Results are presented in a format that allows comparison to the 2009, 2010, and 2011 survey results. However, the number of programs that responded each year differs, so comparisons among years are not “one-to-one”.

Program Response / Degree Offerings

- 2012 survey: 39 CAMPEP-accredited programs (31 US / 8 Canada). 30 had entire program accredited; 9 had select tracks accredited.
- 2012 survey: 2 non-CAMPEP-accredited programs.

# Programs offering:	2009	2010	2011	2012
MS Degrees	28	31	32	39
PhD Degrees	21	22	24	29
MS & PhD Degrees	20	19	20	27
MS Degree Only	8	12	9	11
PhD Degree Only	1	3	2	2
DMP	0	1	1	1
Certificate				**7**

Applicants

	2009	2010	2011	2012
# applications reviewed	1351	1668	1604	2023
# offered admission	385	501	484	563
# matriculated	196	276	258	306
GRE (V+Q)	1293	1282	1269	1267* 312**
GRE (A)	4.3	4.1	4.0	3.8
Average GPA	3.52	3.46	3.56	3.51

*For programs reporting in pre-2011 GRE score format

**For programs reporting in 2011 and later GRE score format

Entering Class - Gender

Gender	2009	2010	2011	2012
MS/MSc – Male	71%	70%	72%	68%
MS/MSc – Female	29%	30%	28%	32%
PhD – Male	60%	78%	80%	70%
PhD – Female	40%	22%	20%	30%

Entering Class - Nationality

Nationality	2009	2010	2011	2012
MS/MSc – Domestic	87%	91%	82%	82%
MS/MSc – International	13%	9%	18%	18%
PhD – Domestic	56%	82%	75%	85%
PhD – International	44%	18%	25%	15%

Enrollment and # Graduates

	2009	2010	2011	2012
Enrollment				
MS/MSc	333	431	450	466
PhD	345	458	465	534
DMP				20
Total	678	889	915	1020
# Graduates				
MS/MSc	147	168	148	198
PhD	63	69	67	80
DMP				4
Total	210	237	215	282

Delay Before First Job (Mean)

Delay before job (mo)	2009	2010	2011	2012
MS/MSc	4.3	2.7	3.5	2.9
PhD	1.2	1.3	0.7	0.9

- This does not include students who went on for additional degrees or a residency.
- There was a rather wide range of values reported for both MS/MSc and PhD programs.

MS/MSc Graduate Destination

	2009	2010	2011	2012
Entered RP residency	15 (12%)	20 (12%)	33 (24%)	44 (22%)
Entered IP residency	2 (2%)	3 (2%)	1 (1%)	1 (<1%)
Junior med phys job	62 (50%)	75 (47%)	53 (38%)	62 (32%)
Went on for another degree	22 (18%)	22 (14%)	20 (14%)	49 (25%)
Took job in industry	3 (2%)	8 (5%)	12 (9%)	6 (3%)
Still seeking a position				16 (8%)
Other	20 (16%)	33 (20%)	20 (14%)	17 (9%)

PhD Graduate Destination

	2009	2010	2011	2012
Entered RP residency	10 (16%)	22 (32%)	23 (34%)	24 (30%)
Entered IP residency	3 (5%)	4 (6%)	5 (7%)	6 (8%)
Junior med phys job	18 (30%)	12 (18%)	15 (22%)	18 (23%)
Post-doc	16 (26%)	14 (21%)	15 (22%)	11 (14%)
Went on for another degree	0 (0%)	2 (3%)	2 (3%)	1 (1%)
Took job in industry	5 (8%)	7 (10%)	4 (6%)	9 (11%)
Still seeking a position				6 (8%)
Other	9 (15%)	7 (10%)	4 (6%)	4 (5%)

Students Who Entered Board Exam Process

	2009	2010	2011	2012
ABR	104	190	238	241
CCPM	1	2	0	18
ABMP	0	0	0	1
ABSNM	0	0	0	0

Faculty and Student Productivity

	2009	2010	2011	2012
# Faculty (formal affiliation)	17.3 (2-55)	20.7 (1–71)	20.2 (3-65)	20.0 (5-70)
Mean # presentations per program	15	12	17	20
Mean # publications per program	10	8	13	12

Program Plans for DMP?

	2009	2010	2011	2012
No	21	22	22	26
Under consideration	1	6	4	5
In preparation	3	3	4	5
Expect approval soon	0	1	3	0
Awaiting CAMPEP accreditation	1	0	0	1
CAMPEP accredited	0	1	1	1

Program Plans for New or Additional Residencies?

	2009	2010	2011	2012
No	4	8	7	9
Under consideration	7	4	3	7
In preparation	2	4	5	2
Expect approval soon	2	2	0	0
Awaiting CAMPEP accreditation	5	3	5	4
CAMPEP accredited	5	12	14	18

Didactic / Clinical Training

	2009	2010	2011	2012
Credit hours – didactic courses				
MS/MSc	34	35	33	34
PhD	55	48	43	50
Contact hours – req'd clinical*				
MS/MSc	160	141	117	115
PhD	45	57	66	76

* A wide range of values reported for both MS/MSc and PhD programs.

Additional Training

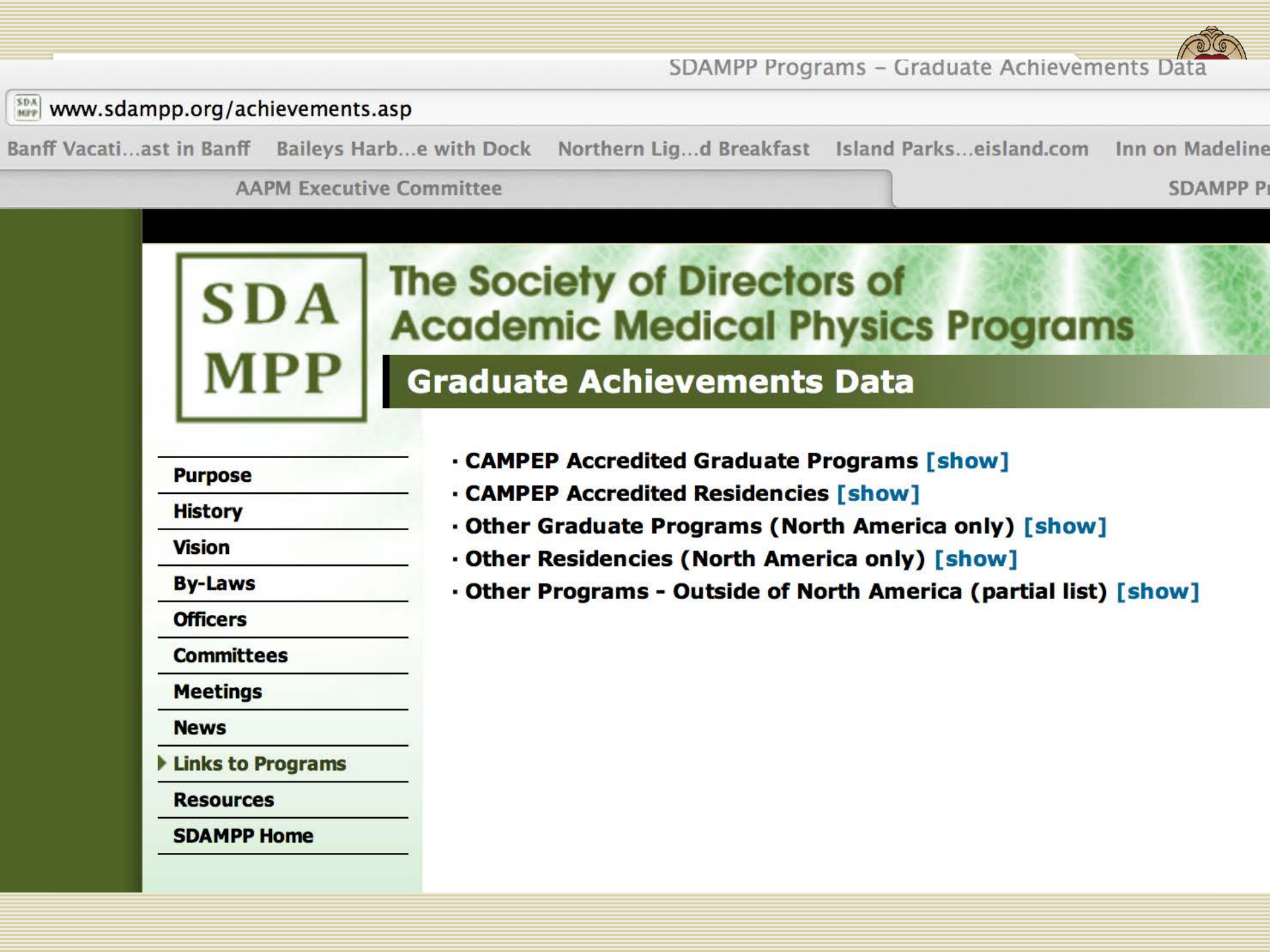
	2009			2010			2011			2012		
Area	% Req'd	% Opt	% No	% Req'd	% Opt	% No	% Req'd	% Opt	% No	% Req'd	% Opt	% No
Safety	100	0	0	91	3	6	97	3	0	93	7	0
Responsible Conduct	62	23	15	76	15	9	76	18	6	78	17	5
Professionalism	46	23	31	50	15	35	59	27	14	71	17	12
Leadership	15	27	58	9	26	65	15	23	62	15	37	48
Regulatory Issues	73	8	19	82	9	9	82	12	6	67	26	7
Career Development	23	35	42	24	36	39	12	47	41	15	48	37
Board Exam Prep	19	27	54	27	21	52	15	35	50	15	36	49

Clinical Training Opportunities

Option	%programs offering in 2009	%programs offering in 2010	%programs offering in 2011	%programs offering in 2012
Rotations in clinic	59	55	56	72
Clinical experience during research	76	82	91	82
Practicum options	45	55	59	46
Internships at institution	24	18	21	28
Internships outside institution	24	24	21	36
Lab courses	59	73	82	87
Summer rotations / internships	28	27	29	31
Clerkships	7	9	3	3
Periods of extensive clinical work during regular semester	38	33	35	33

Graduate Achievements Data Survey: SDAMPP Posting

John Bayouth, PhD
Chief of Physics and Professor
Department of Human Oncology
University of Wisconsin - Madison


SDAMPP Programs – Graduate Achievements Data
www.sdampp.org/achievements.asp
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Inn on Madeline
AAPM Executive Committee
SDAMPP Pr
SDA MPP
The Society of Directors of Academic Medical Physics Programs
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· Other Residencies (North America only) [show]
· Other Programs - Outside of North America (partial list) [show]

Graduate Achievements Data

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- **CAMPEP Accredited Graduate Programs** [show]
- **CAMPEP Accredited Residencies** [hide]

INSTITUTION	YEAR	TOTAL # OF APPLICANTS	TOTAL # OFFERED ADMISSION	TOTAL # MATRICULATED	TOTAL GRADU
CAMPEP Accredited Residencies					
Univ of Arkansas					
Univ of California, Irvine Medical Center					
Univ of California, San Diego					
CancerCare Manitoba					
Cancer Institute of New Jersey, UMDNJ - Robert Wood Johnson Medical School					
Central Arkansas Radiation Therapy Institute (CARTI)					
Univ of Chicago Medical Center					
Cross Cancer Institute; Univ of Alberta					
Cross Cancer Institute; Univ of Alberta					
Duke Univ Medical Center					
Geisinger Health System					
Henry Ford Health System					
Henry Ford Health System					
Ireland Radiation Oncology Physics					
Johns Hopkins University					
Kansas City Cancer Center					
Univ of Florida					
Univ of Iowa	123	0	0	0	0
London Regional Cancer Program					
Karmanos Cancer Center, Gershenson Radiation Oncology Center					
Univ of Kentucky Medical Center					
Univ of Louisville School of Medicine					

CERTIFICATION STATUS			GRADUATION DESTINATION			
PASS	FAIL	CONDITIONAL	CLINICAL	ACADEMIC	INDUSTRY	OTHER
0	0	0	0	0	0	0

Method of Data entry

- Using the SDAMPP website to meet CAMPEP requirement for display requires active link from a program's website
- Future possibilities include:
  - Direct input from CAMPEP survey
  - Add information through on-line form

The (Un)spoken question

- Is there an over-production of medical physics graduate students, and if so, what should be AAPM's role?

Society of
Directors of
Academic
Medical
Physics
Programs

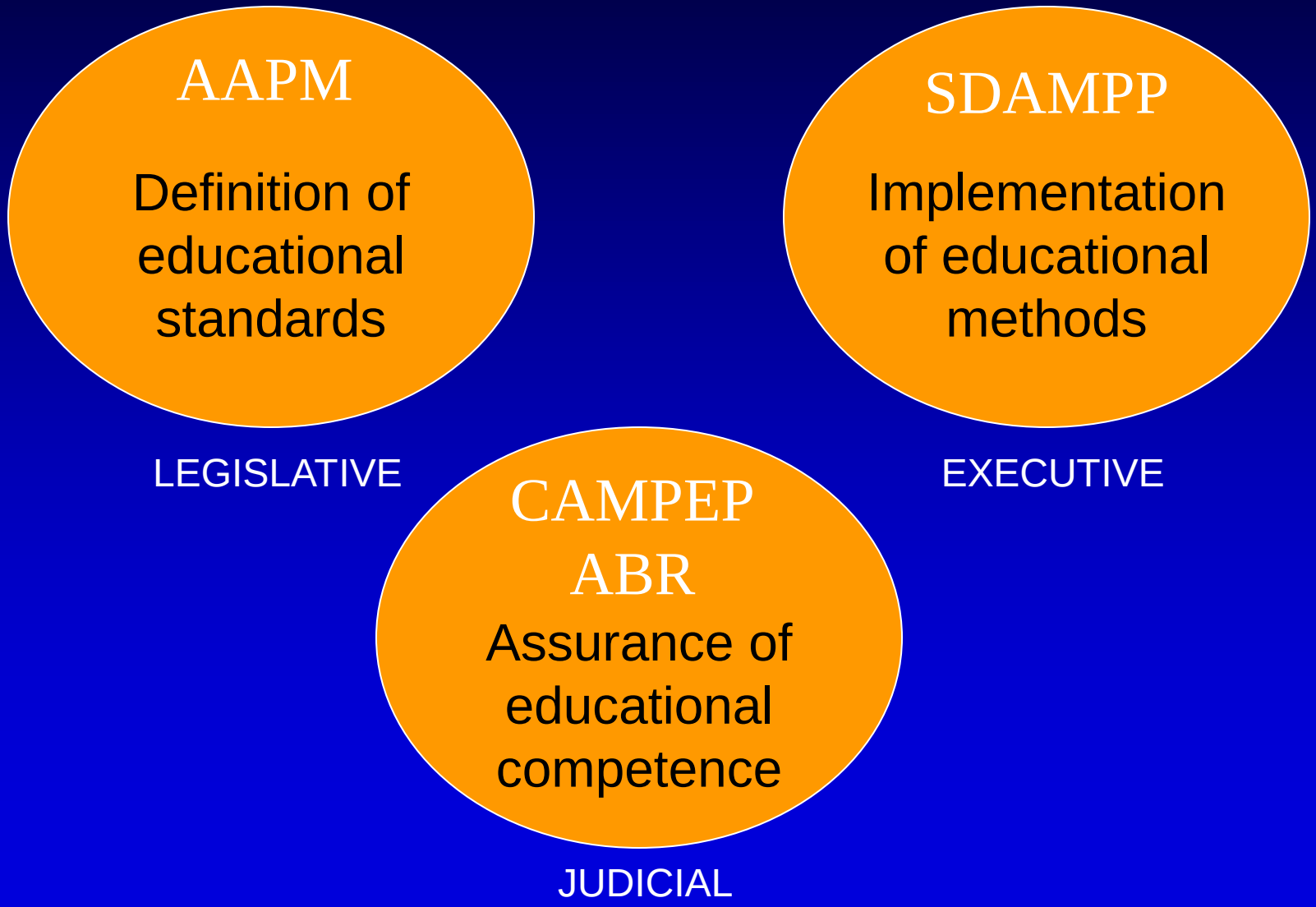
AAPM Education Council Report

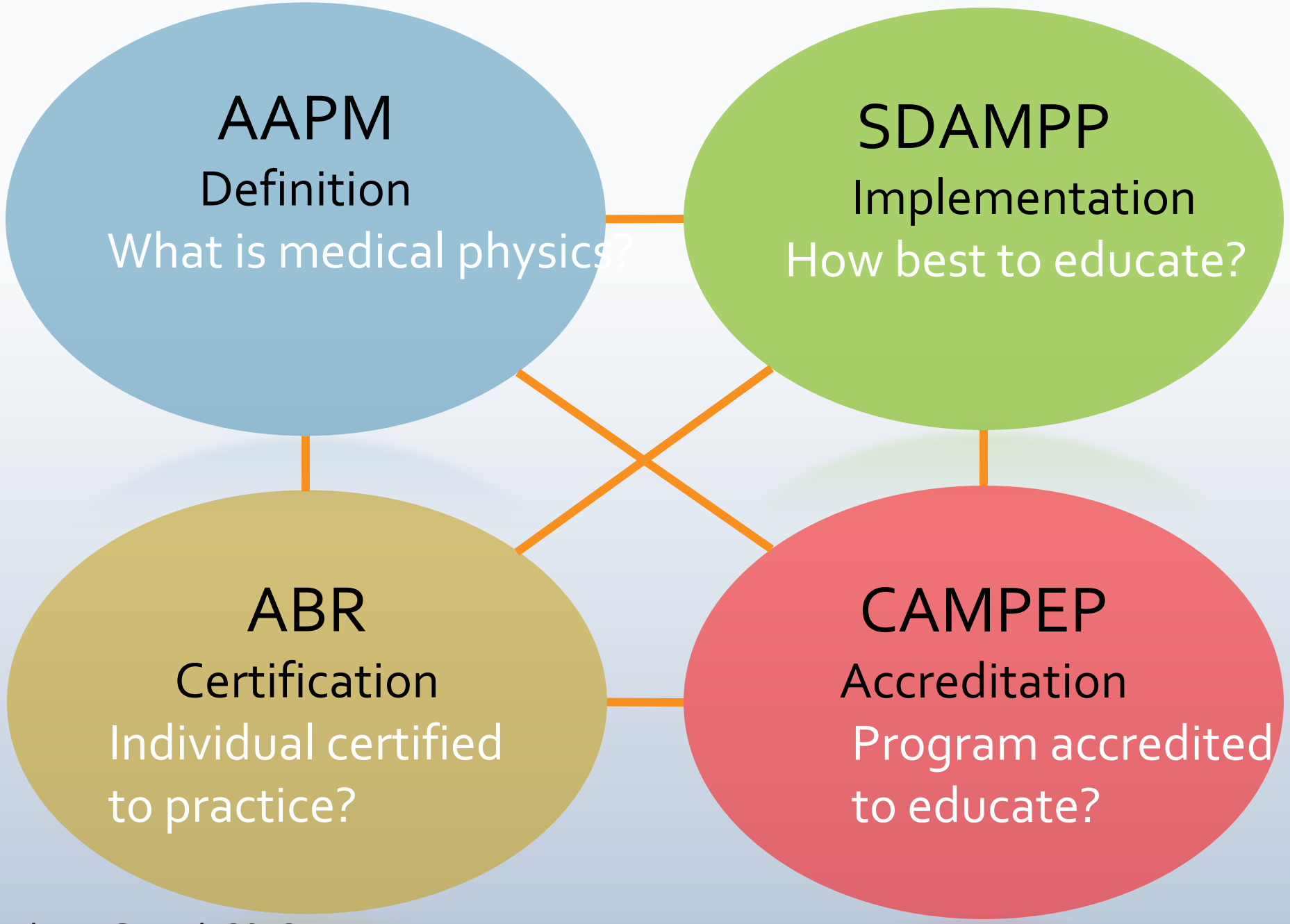
James T. Dobbins III, Ph.D., FAAPM

Vice-chair, AAPM Education Council

Organizational Landscape

MOU, 2012





Ehsan Samei, 2012

Summary of recent EC activities

- Board priorities
  a. Review and develop methods for funding of residencies
  b. Provide administrative infrastructure for small residencies
  c. Expand online services and find ways to enhance revenue, especially from outside groups. Develop business plan for online continuing education.
  d. Request from Strategic Planning Committee to ascertain if there is an overproduction of medical physics graduate students, and if so, what is AAPM's role

Summary of recent EC activities

- Council actions
  a. Identify liaisons with other organizations, including SDAMPP
  b. Meeting to be established with representatives from EC, SDAMPP, WG FUTURE to clarify questions regarding educational needs required to meet future research needs of the field, and the evolution of the field of medical physics.

Summary of recent EC activities

- Education and Training of Medical Physicists Committee (ETC)
  a. Subcommittee to report on feasibility of residency match – should be coordinated with SDAMPP
  b. Will contact PC to develop document for achievement and MOC on new technologies
  c. Promote hub-and-spoke residency programs
  d. Develop online training courses on ethics, safety, FMEA
  e. Assist educators in developing online training modules

Summary of recent EC activities

- Committee on Medical Physics Education of Physicians
  a. Requesting funding for liaisons to ARRS and program directors orgs in radiology and radonc
  b. Will explore how AAPM can be more involved in the education of radiation oncology residents
  c. Will contact RSNA to arrange AAPM input into selection of RSNA physics refresher courses as SAMs sessions

Summary of recent EC activities

- Other items
  a. All committee chairs will identify a WG to generate content for the Educators Resource Guide (ERG)
  b. Will explore Suggestion Box for education on AAPM website
  c. Ed Council Symposium at 2014 AAPM meeting on Online Education
  d. EC reports in newsletter, including online continuing education, education of the public, and alternative careers
  e. New TG being proposed on Online Education (will survey available resources, identify gaps, and recommend roles for various organizations)

Summary of recent EC activities

- New business
  a. Discussion topic: What role should AAPM play as a provider of medical physics education?

Areas of coordination of EC and SDAMPP

- SDAMPP liaison with EC
- SDAMPP coordination with ETC on feasibility of residency match
- SDAMPP participation on informal committee to explore educational implications of future research needs in medical physics
- SDAMPP representative on proposed EC TG on Online Education

Status of residency programs

(as of July 1, 2013)

- Therapy: 66 approved, 8 in process, 5 incomplete (~119 residents)
- Imaging: 8 approved, 3 in process, 3 incomplete (~21 residents)
- DMP: 1 approved, 3 in process, 3 under construction

Feedback from EC to SDAMPP

- Some grad programs are not abiding by the April 15 agreement for binding offers of admission; SDAMPP should remind program directors of this agreement
- Some residency programs are making offers early; SDAMPP may want to work with Antolak's subcommittee to educate residency directors about offer deadlines

Thank you

For comments or questions:

james.dobbins@duke.edu

ABR
SDAMPP Review
AAPM 2013

G. Donald Frey, Ph.D.
Associate Executive Director

American Board of Radiology Mission

"To serve patients, the public, and the medical profession. . ."

"By certifying that its diplomates have acquired, demonstrated, and *maintained* a requisite standard of knowledge, skill, and understanding. . ."

Medical Physics Training

Increasing Standardization

Current Requirements

Part 1 and the Clinical Exams are given at Pearson View Centers throughout the USA and Canada

Current Requirement

- **Applicants for Part 1:General & Clinical Exam must be enrolled in one of the following CAMPEP Accredited Programs:**
  - Graduate Education Program
  - Certificate Program
  - Residency

The candidate must be in good standing and the enrollment must be attested to by the program director

Current Requirements

Applicants for Part 2 must have completed a CAMPEP Accredited Residency

Applicants for the Oral must have passed Part 2

Part 2 Exams are given at Pearson View Centers throughout the USA and Canada
Oral Exams are given in a central location

Candidates from Previous Years

- ABR usually allows candidates to finish under the requirements they came in under
- There are exceptions but we usually give 1-5 years notice

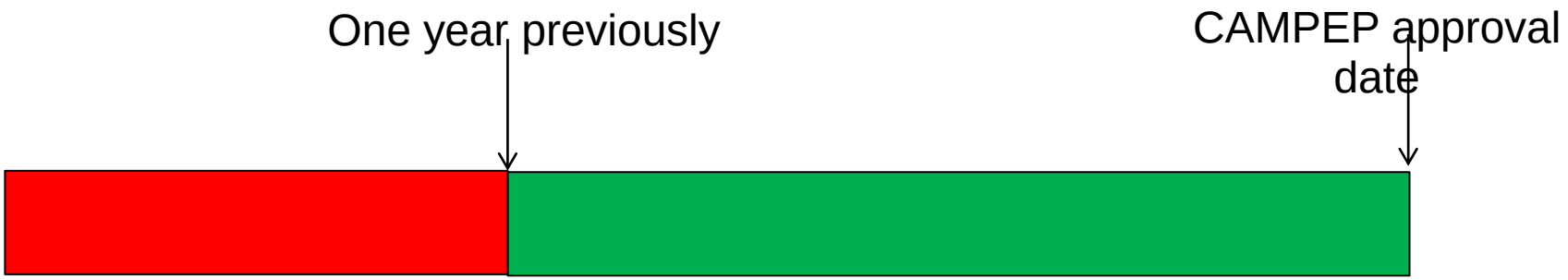
Candidates from Previous Years

Candidates from 2013 and earlier can still use the “clinical experience” pathway

Candidates from 2011 and earlier do not require a CAMPEP education

CAMPEP Certification Policy

For programs (didactic or residency) that become CAMPEP certified the ABR will treat candidates that completed the program up to one year previously as meeting the CAMPEP requirement



Residency Completion

The ABR regards a residency as an integrated experience. No clinical credit is given until the residency is completed.

This only is important for candidates in the system as of 2012

Residency Completion Date

As of September 1, 2013 the latest date for completion of a residency is moved to 8/31. Exceptions to this will only be given in very unusual circumstances.

Nature of Exams

- Exams are “criterion referenced.”
- Everyone who meets the “standard” passes.
  - In principle everyone could pass of fail
- This can be compared to “norm referenced” where the purpose of the test is to rank the participants

Examples

- **Pure Criterion Referenced**
  - Board Certification
- **Pure Norm Referenced**
  - Scholastic Aptitude Test
- **Mixed**
  - Typical College Grades (A>B>C>D>F)

How Are Criterion Determined?

- **Expert Analysis**
- **Practice Surveys**
- **Professional Guidelines**

Passing Score

Set by psychometric analysis

Changes in the Exams

Clinical Exam

- In 2014 the number of questions will increase to 75 items from the current 60 items
- The amount of time for the exam will increase to 6 hrs for the Part 1 General & Clinical combined.

Changes in the Exams

Medical Physics Initial Certification (2014)		
Exam	**Questions**	**Time**
Part 1 & Clinical	80 + 75	6 hrs
Clinical Only	75	1.5 hrs
Part 2	80	4.5 hr
Orals	25	2.5 hr
Note: Question numbers will vary slightly		

Part 1 and Part 2

No expected changes in organization or content

Starting this year a list of common constants and values will be provided

List of Commonly Used Constants

- Beginning this year a list of commonly used constants and physical values will be provided for IC candidates for Parts 1 and 2
- This reflects common practice for medical physicists where constants are readily available
- Informally called “Google List”
- List is on the ABR website

Orals

New location

Revised categories

Location of Orals

- **Orals move to Dallas in 2015**
- **Orals will be in the month of June**

Categories and Content

The overall content of the orals will not change. The exam has a focus on clinical medical physics

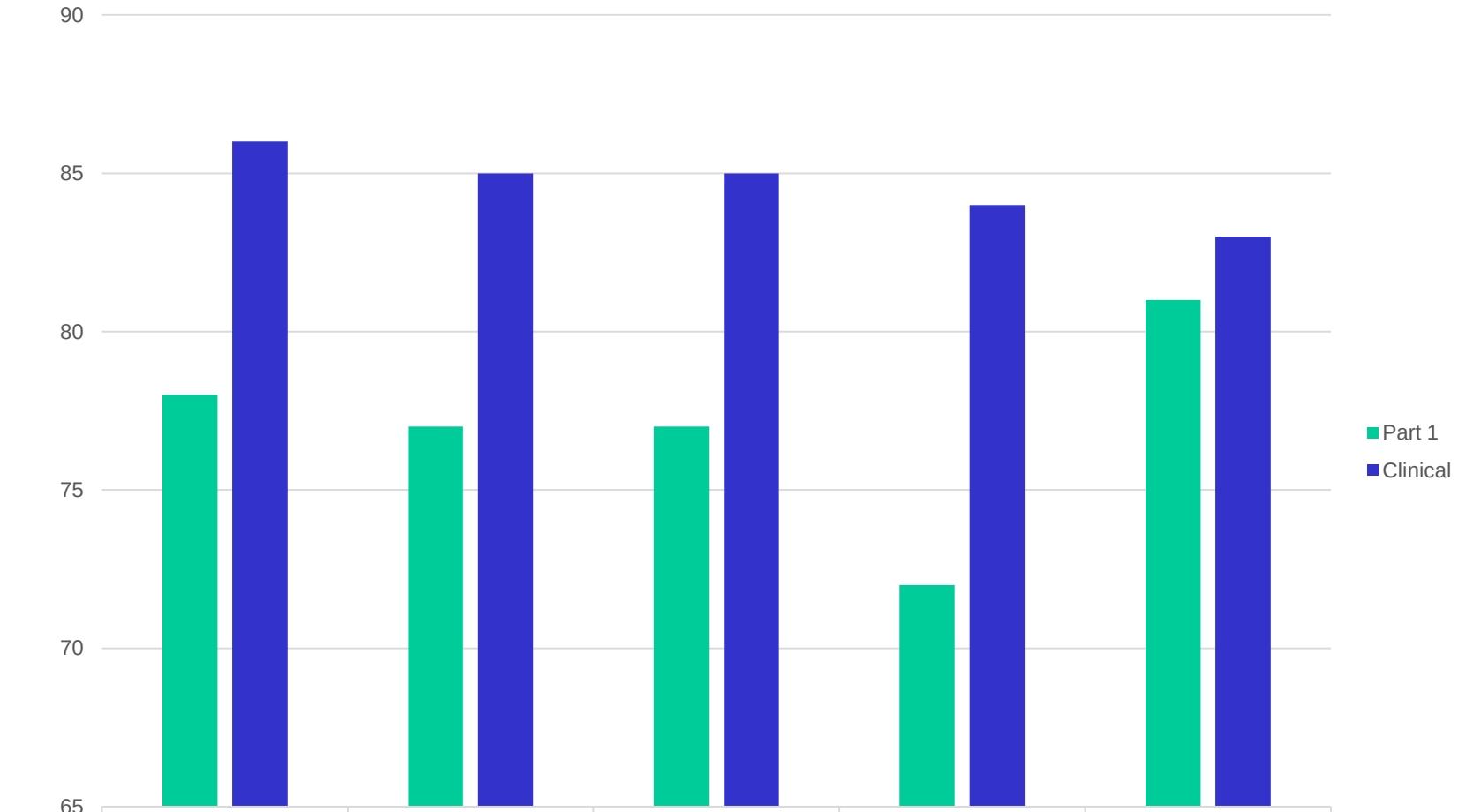
The categories will be reorganized starting in 2015

New Oral Categories

	DMP	NMP	TMP
Category 1	Radiography, Fluoroscopy, and Interventional Radiology	SPECT & hybrids, including gamma cameras	Radiation Protection and Patient Safety
Category 2	Computed Tomography	Radiation Protection	Patient-related Measurements
Category 3	Non-ionizing Techniques – MRI and Ultrasound	PET & hybrids	Image Acquisition Processing & Display
Category 4	Shielding, Radiation, and Protection	Radiation Measurements	Calibration, Quality Control, and Quality Assurance
Category 5	Radiation Dosimetry and Patient Safety	Clinical Procedures	Equipment

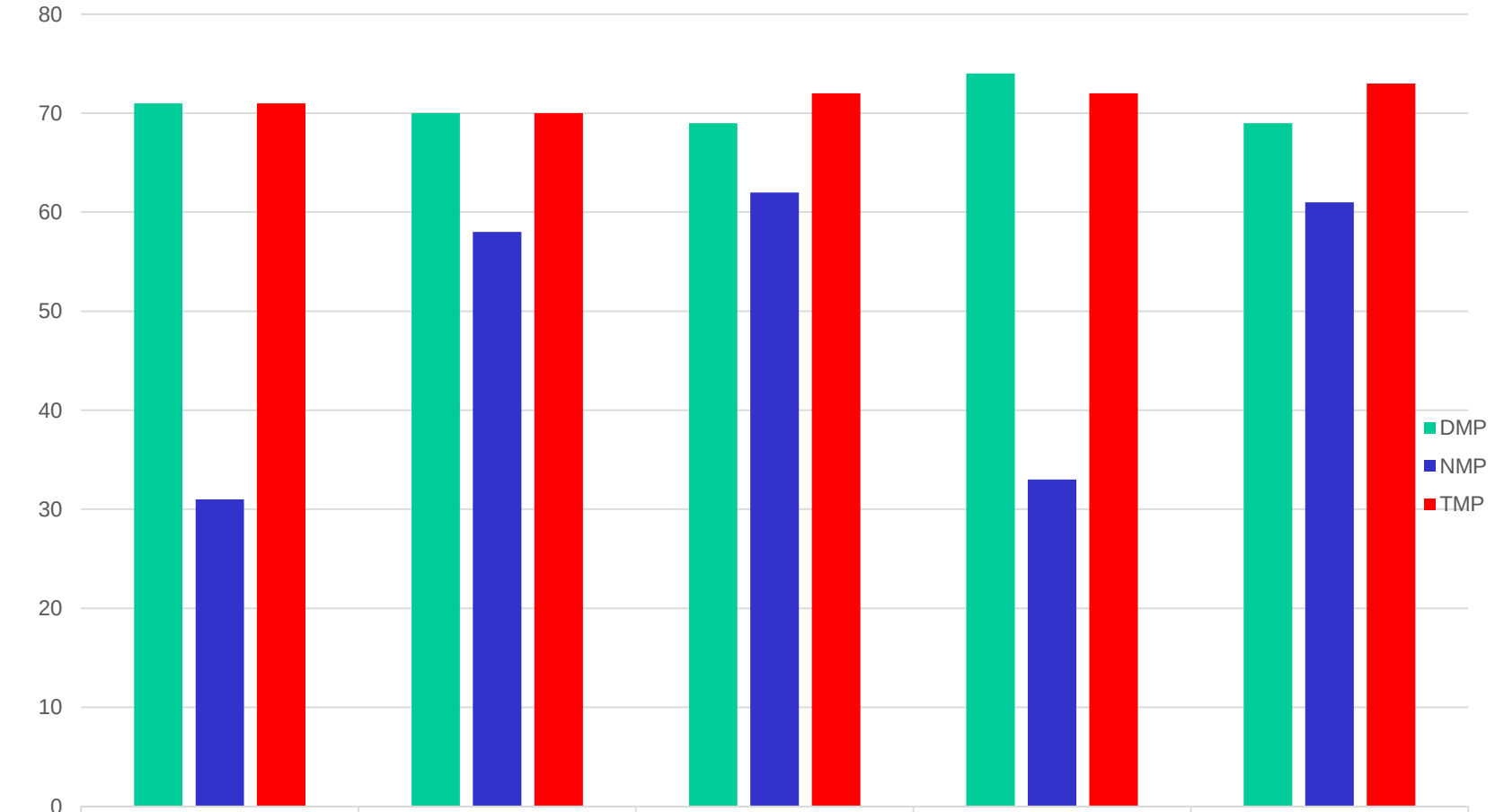
Pass Rates

Pass Rate Part 1:General & Clinical



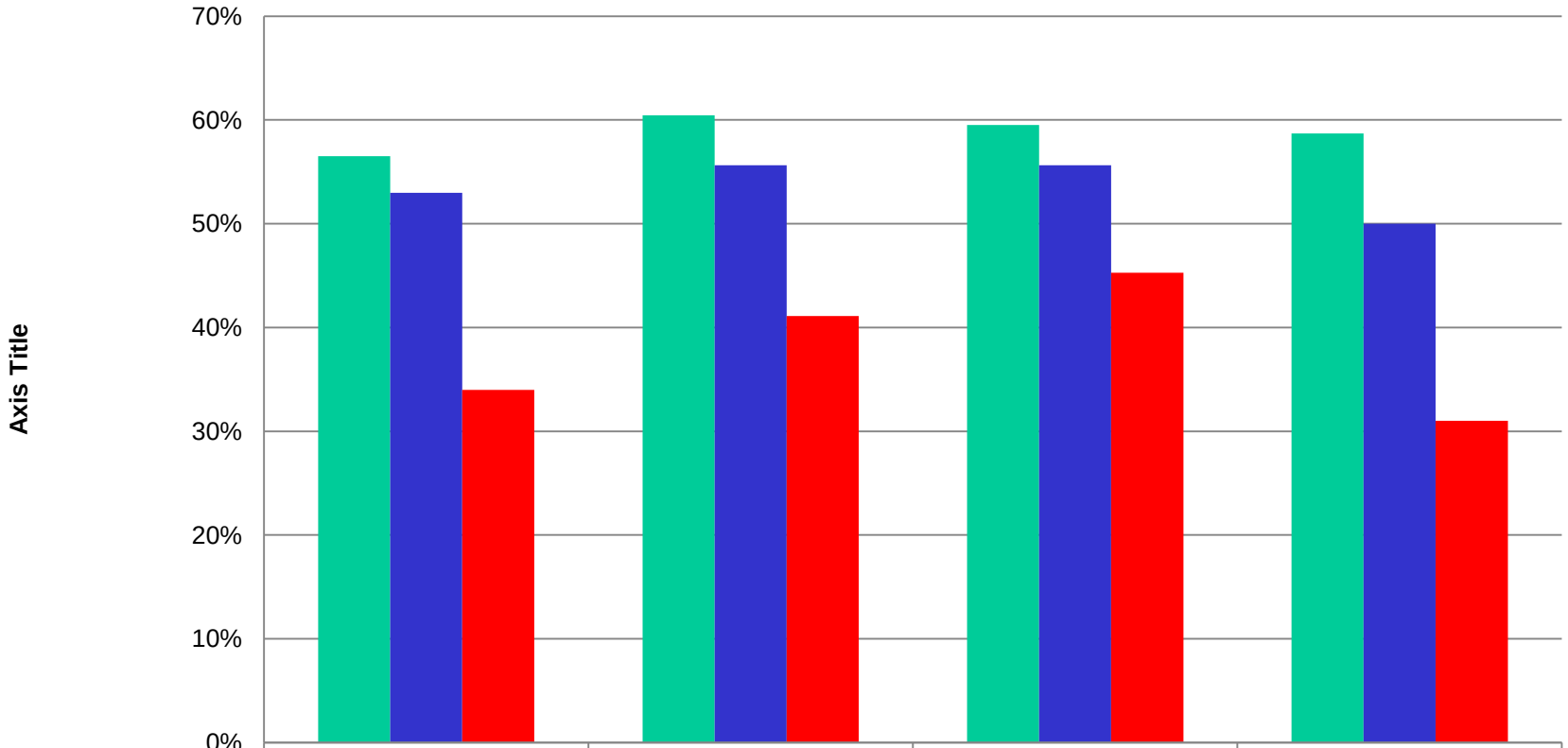
	2008	2009	2010	2011	2012
Part 1	78	77	77	72	81
Clinical	86	85	85	84	83

Pass Rate Part 2



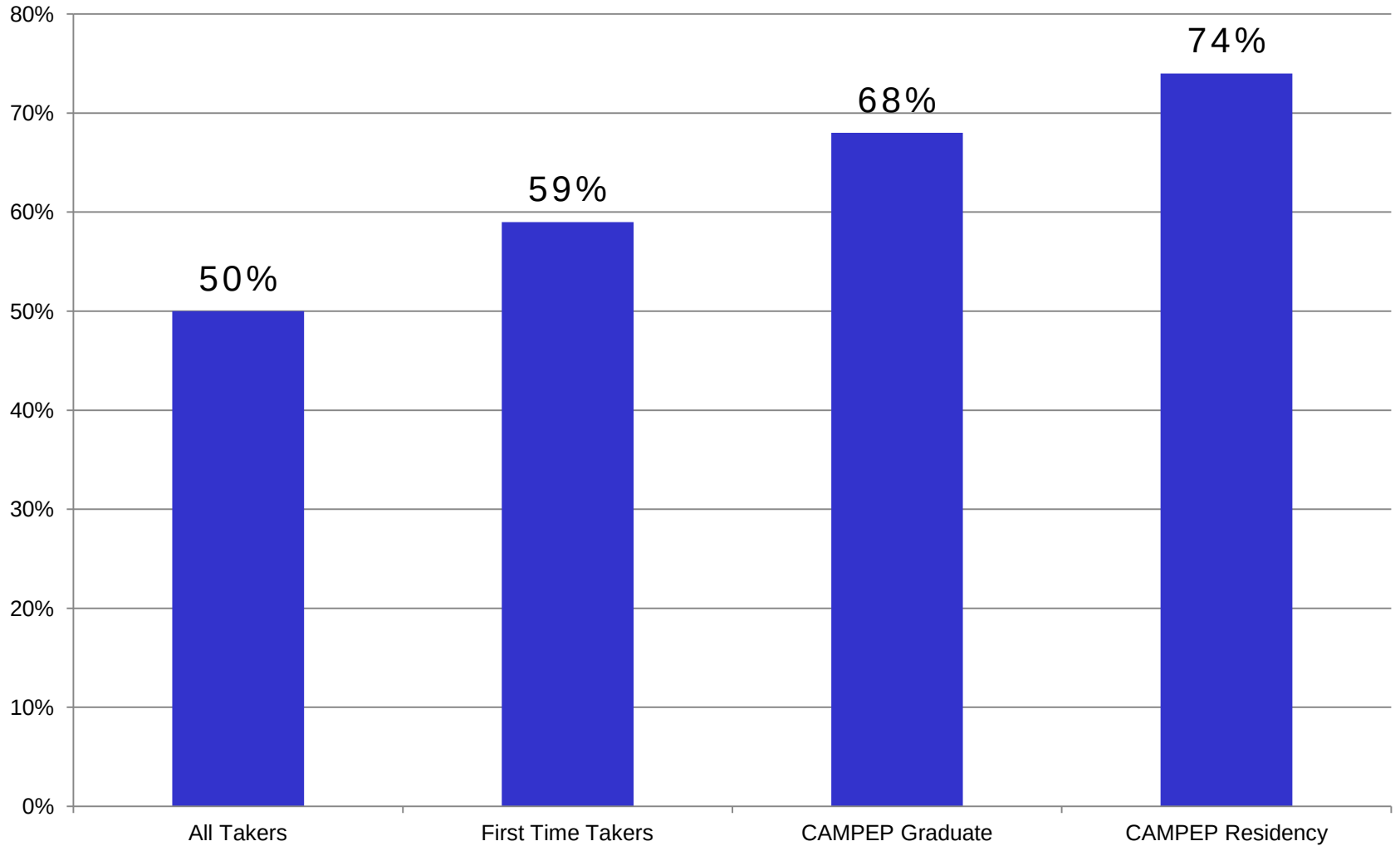
	2008	2009	2010	2011	2012
DMP	71	70	69	74	69
NMP	31	58	62	33	61
TMP	71	70	72	72	73

Pass Rate – Oral Examination

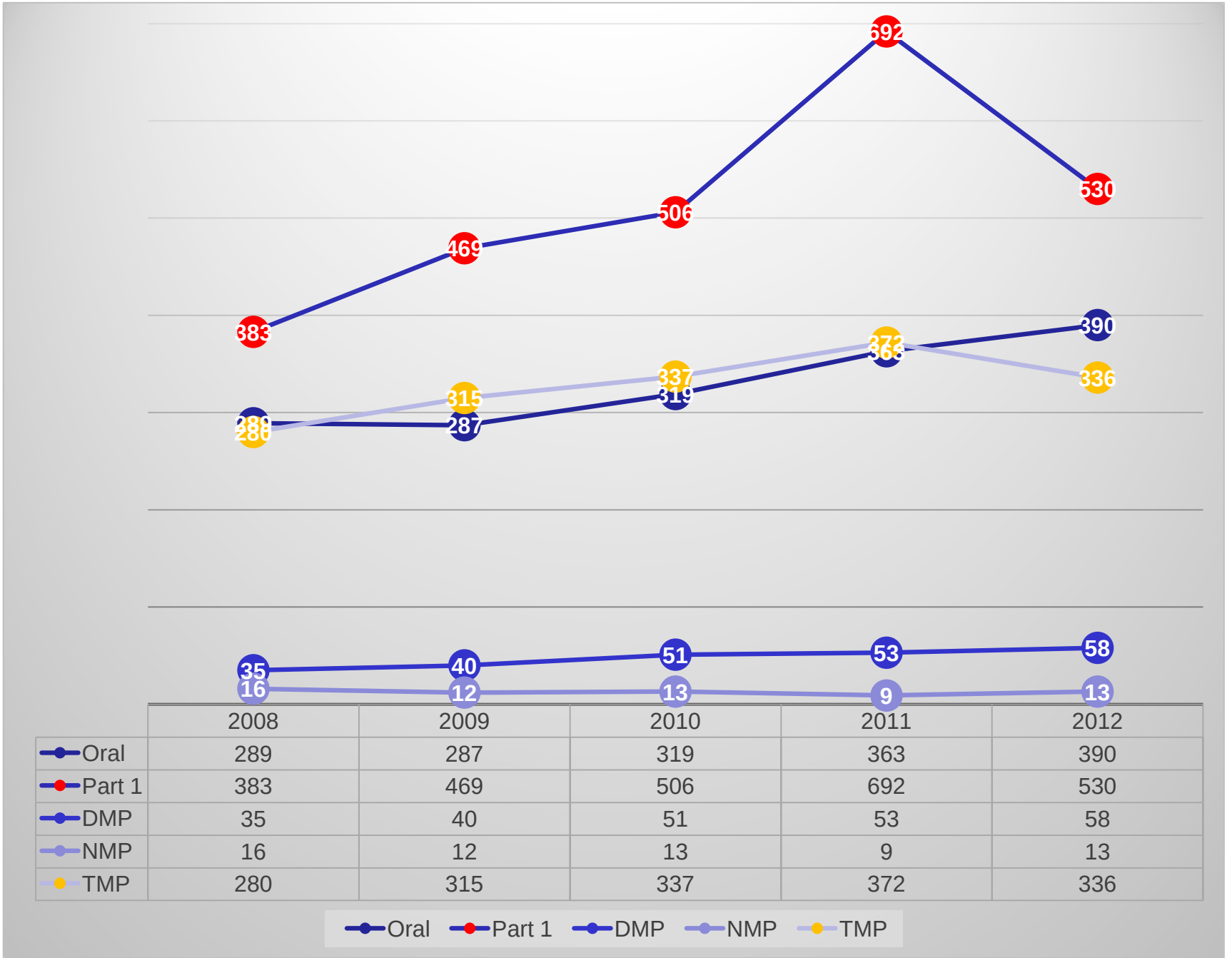


	2010	2011	2012	2013
First Time Takers	57%	60%	60%	59%
All Candidate	53%	56%	56%	50%
Repeat Candidates	34%	41%	45%	31%

Oral Pass Rates 2013



Number of Candidates



	2008	2009	2010	2011	2012
Oral	289	287	319	363	390
Part 1	383	469	506	692	530
DMP	35	40	51	53	58
NMP	16	12	13	9	13
TMP	280	315	337	372	336

Time Limits and Board Eligible

Concepts

- Replace “opportunities” with time limits
- Require additional education and training if candidate “times out”
- Make board eligible an official status

Part 1 and Clinical

- **Approved after January 1, 2011**
  - Must pass Part 1 & Clinical within 5 years of approval
- **Approved prior to January 1, 2011**
  - Must pass Part 1 & Clinical by December 31, 2016
- **If you do not pass by the required date you must complete an additional year of training at an institution that has a CAMPEP accredited educational program before you can be approved to retake part 1**

Part 1 to Part 2 Approval

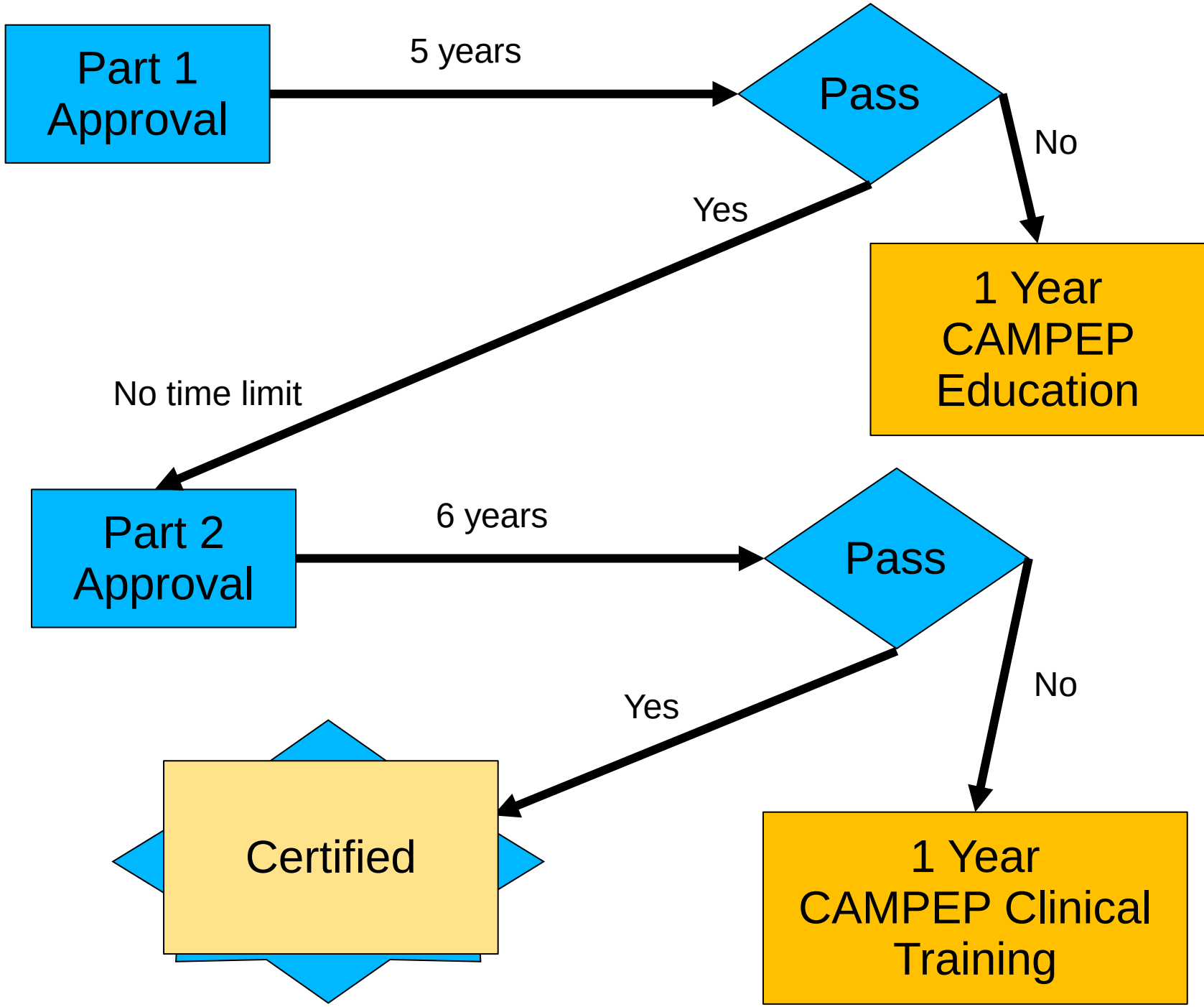
The ABR does not have a time limit between passing Part 1 and being approved for Part 2

Board Eligible

- When one is approved for Part 2 or completes a CAMPEP residency one becomes board eligible
- This is an official ABR and ABMS status and the candidate may describe themselves as “board eligible”
- The ABR will report the candidate as board eligible

Board Eligible

- **Approved after January 1, 2011**
  - Must become certified within 5 years of approval
- **Approved prior to January 1, 2011**
  - Must become certified by December 31, 2016
- **If you do not pass by the required date you must complete an additional year of training at an institution that has a CAMPEP accredited residency program before you can be approved to be board eligible**
- **The ABR will show your status as “Not Certified and Not Eligible for Certification”**

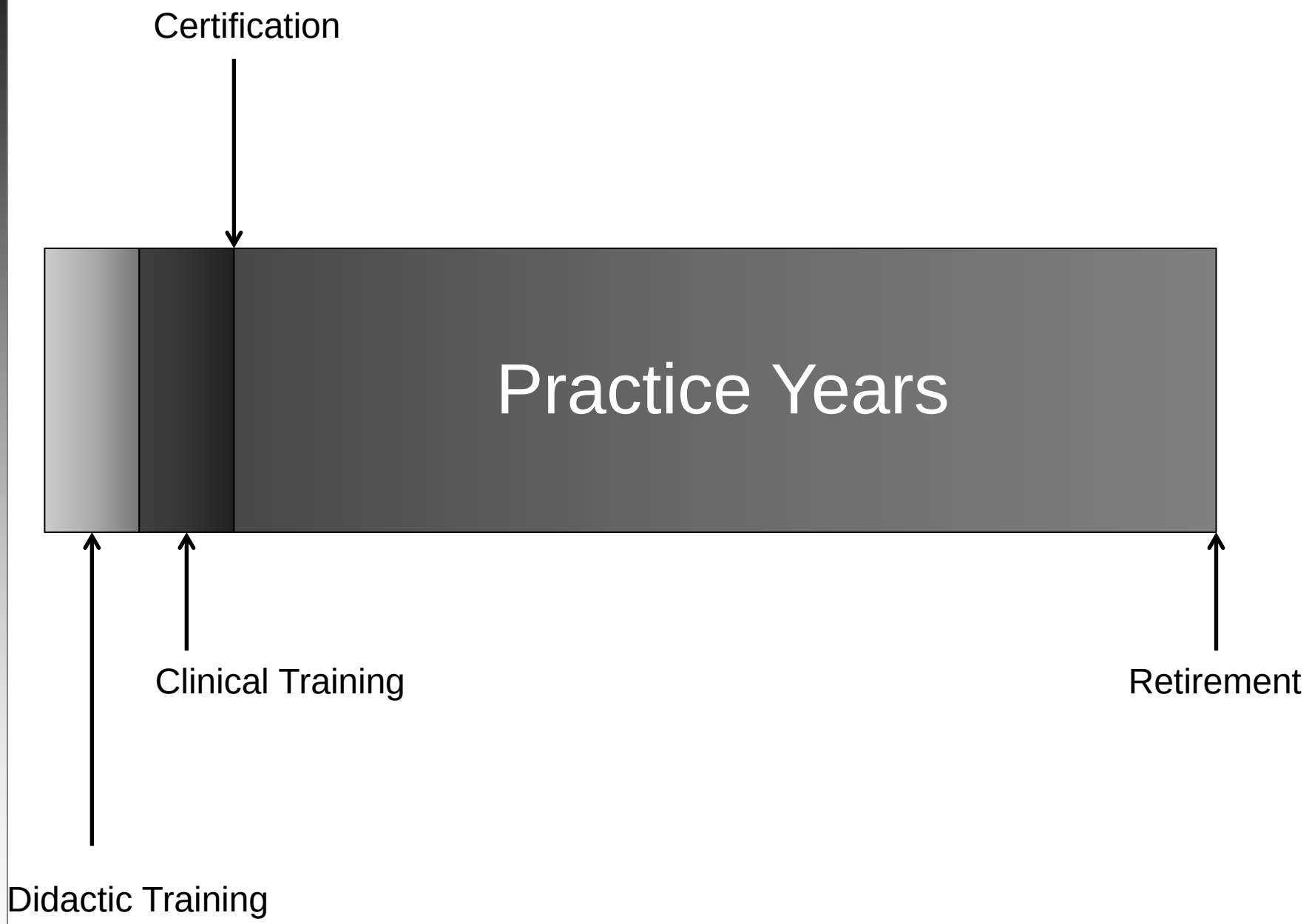

Part 1 Approval
5 years
Pass
No
Yes
1 Year CAMPEP Education
No time limit
Part 2 Approval
6 years
Pass
No
Yes
Certified
1 Year CAMPEP Clinical Training

Additional Certificates

You may apply for additional certificates after 1 year of clinical training under the supervision of an ABR physicist

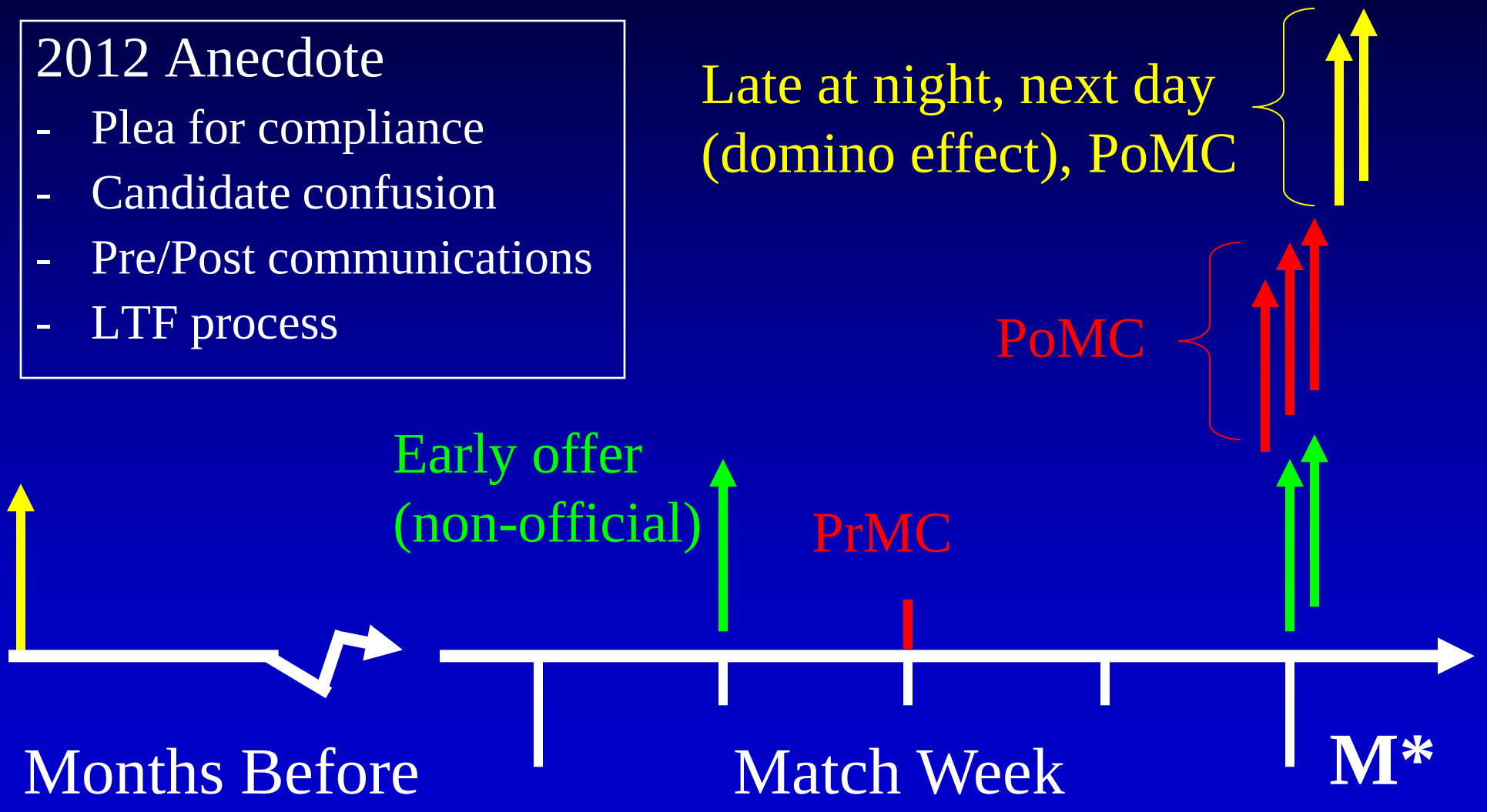
You are then “Board Eligible” in additional discipline

- Part 2
- Oral
- You must become certified in the additional field within 6 years or a year of formal clinical training at an institution that has a CAMPEP residency is required


Certification
Practice Years
Clinical Training
Retirement
Didactic Training

The Match: Status and Future

2012 Anecdote
- Plea for compliance
- Candidate confusion
- Pre/Post communications
- LTF process



National Medical Physics Residency Match

SDAMPP Annual Meeting

August 3, 2013

John P. Gibbons, Jr., Ph.D.

Director, Radiation Oncology Physics Residency Program

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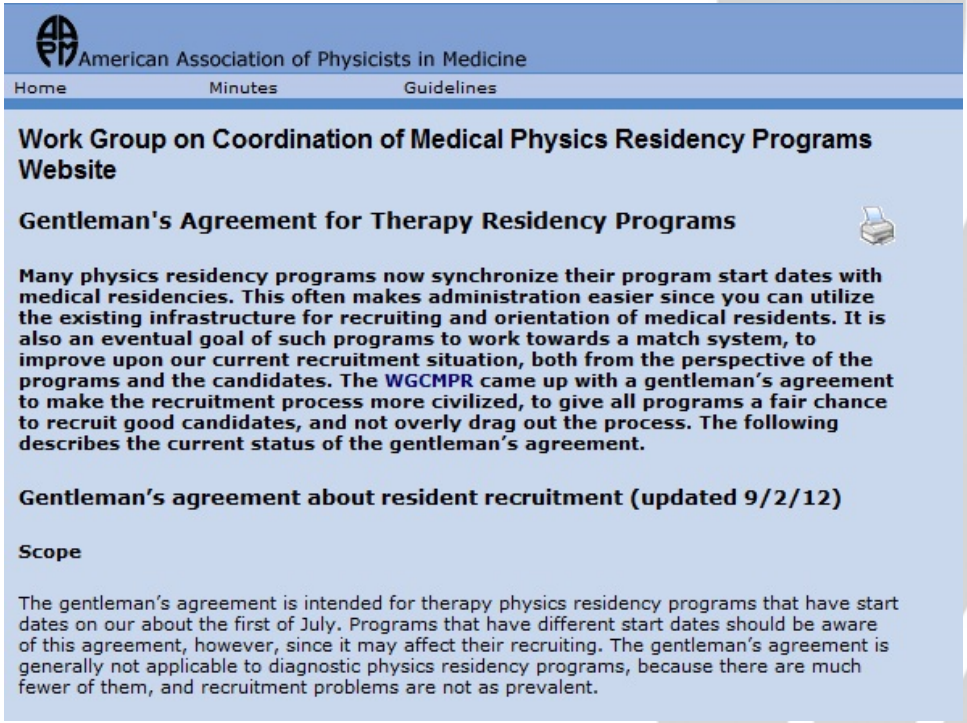
AAPM Gentleman's Agreement

- 2012 Statement:
  - No openings posted before 9/15/11
  - No app deadlines before 12/15/11
  - No offer deadlines before 3/4/12

http://www.aapm.org/org/committees/committee/article.asp?id=3340



American Association of Physicists in Medicine

Home Minutes Guidelines

Work Group on Coordination of Medical Physics Residency Programs Website

Gentleman's Agreement for Therapy Residency Programs

Many physics residency programs now synchronize their program start dates with medical residencies. This often makes administration easier since you can utilize the existing infrastructure for recruiting and orientation of medical residents. It is also an eventual goal of such programs to work towards a match system, to improve upon our current recruitment situation, both from the perspective of the programs and the candidates. The WGCMPR came up with a gentleman's agreement to make the recruitment process more civilized, to give all programs a fair chance to recruit good candidates, and not overly drag out the process. The following describes the current status of the gentleman's agreement.

Gentleman's agreement about resident recruitment (updated 9/2/12)

Scope

The gentleman's agreement is intended for therapy physics residency programs that have start dates on our about the first of July. Programs that have different start dates should be aware of this agreement, however, since it may affect their recruiting. The gentleman's agreement is generally not applicable to diagnostic physics residency programs, because there are much fewer of them, and recruitment problems are not as prevalent.

Gentleman's Disagreement

- Programs wishing to obtain top applicants make early offers.
  - Because the applicant/residency slot >> 1, students are motivated to accept less-desirable positions.
  - Over time, more programs violating agreement and extending early offers

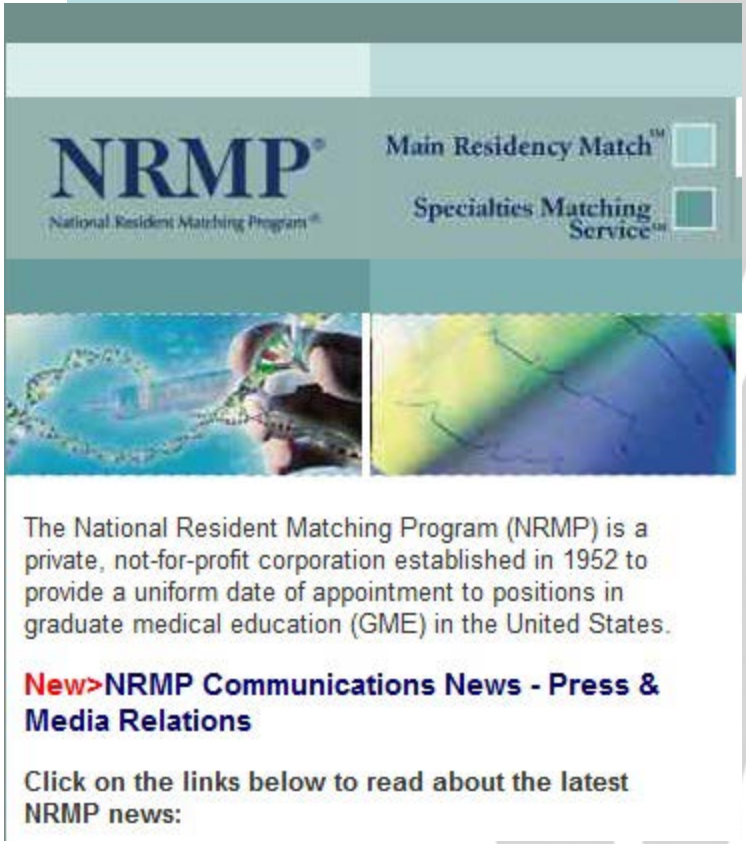
Possible Solution: National Medical Physics Match Program

- Establish National Match Program which parallels the NRMP for physicians.
- Algorithm is simple, and can be implemented through current CAP system.
- Applicants/Programs that participate sign a pledge not to seek/recruit for positions outside of the match.

National Residency Match Program

- Established 1952
- Independent Org.
- 2012 Match Data
  - 4400 Programs with 27000 positions
  - 38,000 Applicants
    - 17,000 U.S. 2012 Med Student Grads
    - 21,000 “Independent” applicants
- Matches Physicians only

http://www.nmrp.org



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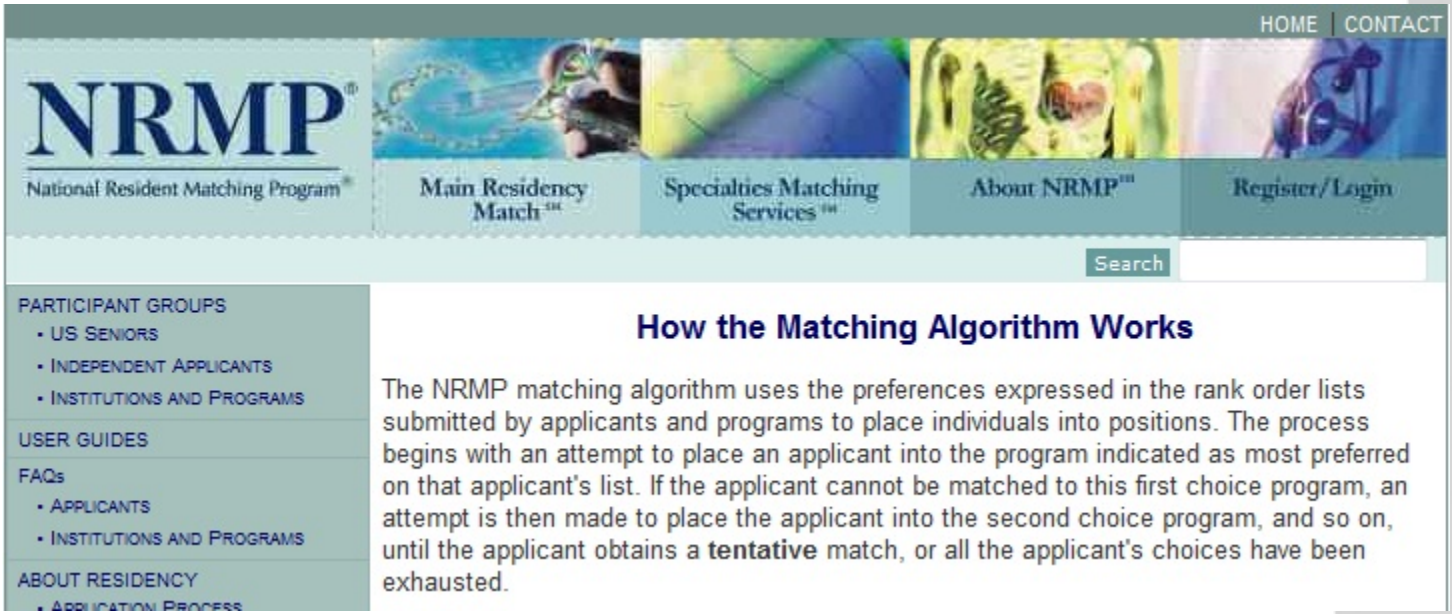
NRMP Algorithm

http://www.nrmp.org/res_match/about_res/algorithms.html



NRMP Algorithm Example

Applicants' Rank Order Lists

Eight applicants are applying to four programs. After considering the relative desirability of each program, the applicants submit the following rank order lists to the NRMP.

Anderson	Brown	Chen	Davis	Eastman	Ford	Garcia	Hassan
1. City	1. City	1. City	1. Mercy	1. City	1. City	1. City	1. State
	2. Mercy	2. Mercy	2. City	2. Mercy	2. General	2. Mercy	2. City
			3. General	3. State	3. Mercy	3. State	3. Mercy
			4. State	4. General	4. State	4. General	4. General

NRMP Algorithm Example

Programs' Rank Order Lists

Two positions are available at each program. The four programs, having determined their preferences for the eight applicants, also submit rank order lists to the NRMP.

Mercy	City	General	State
1. Chen	1. Garcia	1. Brown	1. Brown
2. Garcia	2. Hassan	2. Eastman	2. Eastman
	3. Eastman	3. Hassan	3. Anderson
	4. Anderson	4. Anderson	4. Chen
	5. Brown	5. Chen	5. Hassan
	6. Chen	6. Davis	6. Ford
	7. Davis	7. Garcia	7. Davis
	8. Ford		8. Garcia

NRMP Algorithm Example

APPLICANT	TRY TO PLACE IN	CURRENT PROGRAM STATUS	ACTION / RESULT (Shaded boxes indicate the final matches when the process is completed.)
ANDERSON	1. City	City has 2 unfilled positions.	Tentatively match Anderson with City.
BROWN	1. City	City has 1 unfilled position.	Tentatively match Brown with City.
CHEN	1. City	City is filled with more preferred applicants.	
	2. Mercy	Mercy has 2 unfilled positions.	Tentatively match Chen with Mercy.

NRMP Algorithm Example

EASTMAN	1. City	Although filled, City prefers Eastman to its least preferred current match (Brown).	Brown is removed from City to make room for Eastman. Tentatively match Eastman with City.
			Since Brown has just been removed from a previous tentative match, an attempt must now be made to re-match Brown.
BROWN	1. City	City is filled with more preferred applicants.	
	2. Mercy	Mercy did not rank Brown.	Brown remains unmatched.

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OncoLogics, Inc.
Treating Cancer Personally

WILLIS-KNIGHTON HEALTH SYSTEM

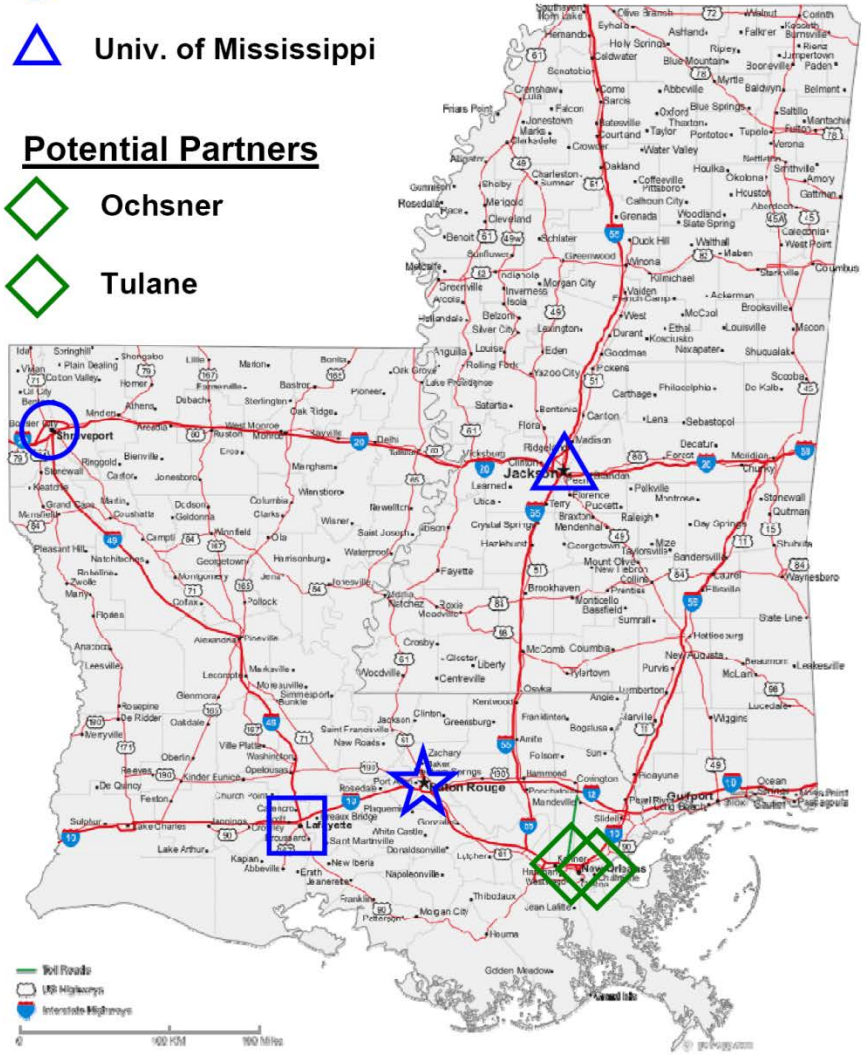
THE UNIVERSITY OF MISSISSIPPI MEDICAL CENTER

Current Partners

- Mary Bird Perkins
- OncoLogics
- Willis-Knighton
- Univ. of Mississippi

Potential Partners

- Ochsner
- Tulane



Resident Recruitment

Residency Placement

- LSU Medical Physics students/Post docs receive first priority
  - Residency position not guaranteed, only the opportunity

- Student assigned ~mid-January to training site based on *internal* match system using National Resident Matching Program (NRMP) algorithm

- Unfilled positions opened to outside applicants.

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MBPCC Match Example

	Applicant rank lists						
	Applicant 1	Applicant 2	Applicant 3	Applicant 4	Applicant 5	Applicant 6	Applicant 7
1	Site 1	Site 1	Site 3	Site 1	Site 1	Site 1	Site 1
2	Site 2		Site 1	Site 2		Site 3	Site 2
3			Site 2	Site 3		Site 2	

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MBPCC Match Example

	Institution rank lists		
	Site 1	Site 2	Site 3
1	Applicant 3	Applicant 6	Applicant 4
2	Applicant 5	Applicant 3	Applicant 3
3	Applicant 4	Applicant 1	Applicant 6
4	Applicant 6	Applicant 4	
5	Applicant 1	Applicant 7	
6	Applicant 2		
7	Applicant 7		

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MBPCC Match Example

	Final Match		
	Site 1	Site 2	Site 3
1	Applicant 3	Applicant 6	Applicant 4

Applicant 3 accepted, but applicants 4 and 6 took positions elsewhere, so…

	Final Placement		
	Site 1	Site 2	Site 3
1	Applicant 3	Applicant 7	Unfilled

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MBPCC Match Example

- Applicant 4 received Site 3 offer because his top two choices were filled
- Applicant 3 received Site 1 offer because his top choice was filled.
- Applicant 5 was unmatched and took an outside position.
- When Applicant 4 declined, could have placed Applicant 3 in Site 3, and Applicant 5 in Site 1 for better result

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Conclusions

- A National Match System would be
  - Fairer to applicants. Eliminating pressure to accept offers before all their options are known
  - Fairer to programs. Allowing them to compete equally with other programs in Match

Conclusions

- A National Match system presents challenges:
  - works best if all participate
  - Medical physics graduation dates vary
  - Potential liability
  - Other issues
    - Supplemental match for unfilled position
    - Matching couples
    - Matching PGY-2 applicants

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CAP Statistics

July 2013 Recruitment Season

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Program Raw Numbers

- **37 Programs (49 total positions)**
  - **2 imaging programs got about 50 applicants, with no more than 5 of those applying only for imaging**
  - **35 therapy programs received between 57 and 157 applicants**

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Participating Programs

Cancer Institute of New Jersey; UMDNJ-RWJMS
Cleveland Clinic, Radiation Oncology
Emory University Physics Residency Position
Geisinger Health System
Henry Ford Health System Imaging Physics Res
M.D. Anderson Radiation Oncology Residency
Mary Bird Perkins RadOnc Physics Residency
Mayo Clinic in Arizona Medical Physics Residency
Mayo RadOnc Clinical Medical Physics Fellowship
MD Anderson Cancer Center - Imaging Physics
Medical Physics Residency, UT Southwestern
Medical Physics Resident
Medical Physics Resident Position at S&W Hospital
Medical University of South Carolina
Northwest Med Phys Ctr RadOnc Physics Residency
NYU Langone Medical Center - Therapy
Stanford University Medical Physics Residency
Texas Oncology

The Ohio State University - James Cancer Hospital
TJUH Physics Residency/Postdoc Fellow Position
TJUH-Medical Physics Residency Positions
U of Texas SCH at San Antonio - Med Phys Res
UC Davis Therapy Physics Residency Position
UCLA Medical Physics Residency
UIHC - Medical Physics Residency Program
Univ of Alabama at Birmingham Radiation Oncology
Univ of Florida Medical Physics Residency Program
University of Arizona Medical Physics Resident
University of California, Irvine
University of Colorado Anschutz Medical Campus
University of Maryland Medical Center
University of Michigan
University of Minnesota Medical Physics Residency
University of Nebraska Medical Center
University of Virginia
University of Washington
Vassar Brothers RadOnc Residency Program

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Program Raw Numbers

- Total of 3642 applications filed
  - 98 ± 30 applications per program
- 12 therapy programs PhD only
  - All others MS or PhD (no MS only)
- CAMPEP degree required for 15 programs

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Applicant Raw Numbers

- 275 unique applicants
- Number of applications per applicant ranged from 1 – 37 (mean 13.2 ± 9.5)
  - 3 applicants applied for all 37 positions
  - 23 applicants applied for just 1 position

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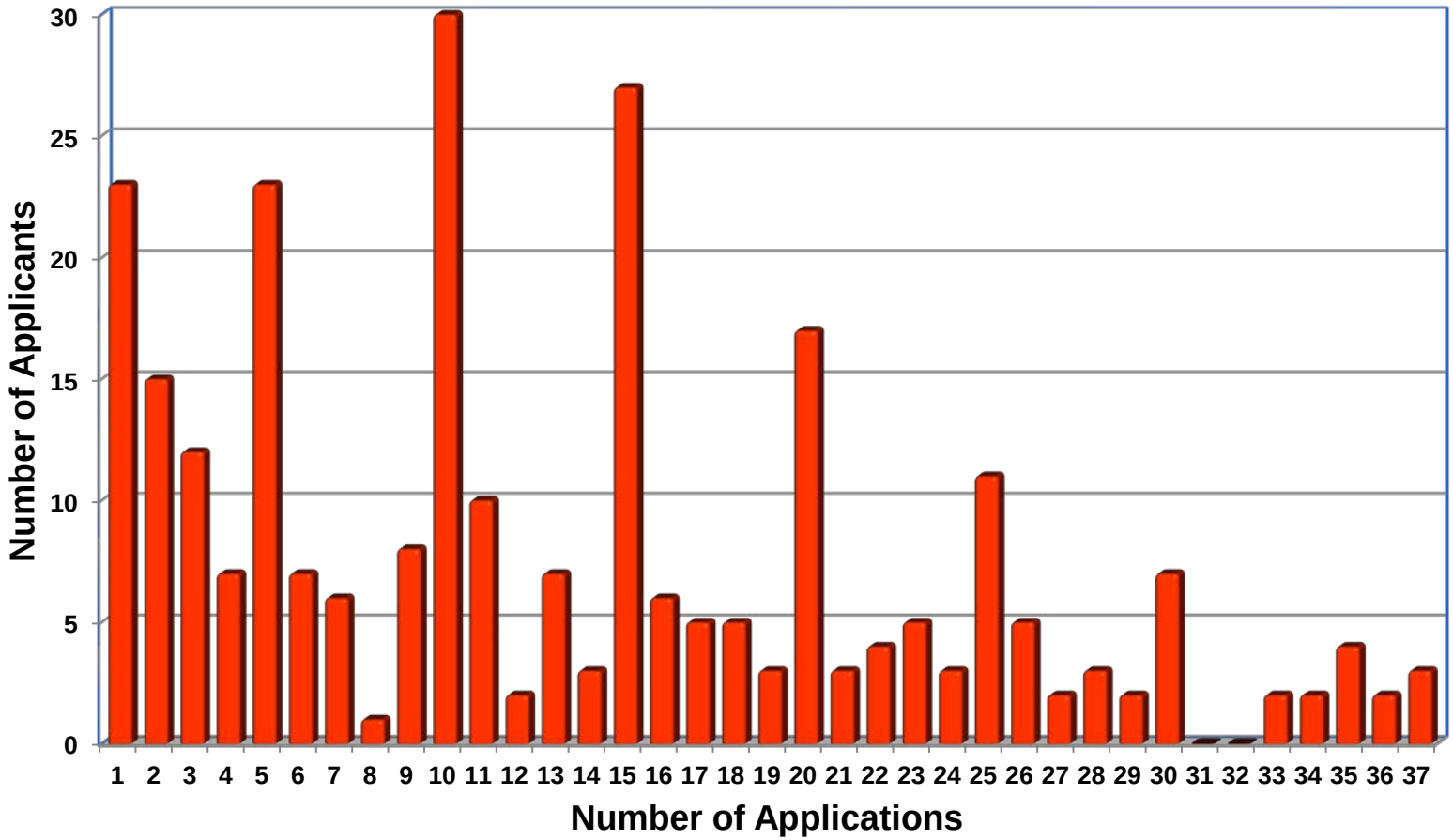
Number of Applications per Applicant



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Current Problems with Recruiting?

- Every program feels they deserve the best candidates (of course)
  - Programs don't consider applicant preference
- Too many programs going after the same applicants
  - 10–20 applicants probably show up on most program's top-10 list
- Leads to conflict, recruiting race

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The Match

July 2014?

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What is a True Match?

- Fair to applicants and programs
- Monopolistic
  - All (or the vast majority) of the applications have to go through the match in order for it to work
- Match algorithm ensures that there are no possible applicant-program pairs where
  - The applicant prefers that program over the matched program AND
  - The program prefers that applicant over the matched applicant(s)
- For more information, see http://www.pitt.edu/~daz1/1jama.html#Note11

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What is CAP Proposing?

- **Simple Match**
  - **Applicants rank programs where they interviewed**
  - **Programs rank interviewed applicants**
  - **Only for July start date recruiting**
- **No couples match**
  - **Greatly complicates the algorithm, and we don’t see the need**

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Advantage for Programs & Applicants

- **Algorithm guarantees a good match**
  - **Every applicant that is higher on your rank list preferred their matched program over yours**
  - **Every program that is higher on the applicant's rank list preferred their matched applicant over them**

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What Do We Want from Programs?

- **Sign up to use CAP for your applications**
- **We are going to send out a survey asking if accredited programs are willing to use the CAP, and if they want us to do a match**
  - **We need almost all programs to participate, or it does not work**

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What Do We Want from Programs?

- Interview more applicants than you think you need to
  - With more competition comes a need to have a long rank list
    - Short rank list leads to no match
  - Rank only those applicants that you find acceptable
  - Medical residency programs typically interview 10 or more candidates for every residency slot

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Can CAP Guarantee a Match?

- **NO**
  - **If you don't have a long rank list, it is possible (likely) that you will not match**
  - **The same holds true for applicants**
    - **Fewer interviews means that the rank list is shorter, and it is more likely that there will not be a match (as expected)**

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Can CAP Help if We Don't Match?

- **YES**
  - **If we have everyone going through CAP, then CAP can provide a list of applicants that applied to your program, but did not match**
    - **Focus recruiting on non-matched applicants that you thought about interviewing**
    - **We can configure CAP to give you a list of your applicants that were ranked by other programs, but did not match (your colleagues considered them acceptable)**

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Resident Match is Win-Win

- **Algorithm guarantees a good match**
- **CAP can help narrow the list of applicants if a match is not made**

Secretary's Report

SDAMPP Business Meeting

August 3, 2013

Indianapolis, IN

Beth Schueler

Approval of 2012 Meeting Minutes

Update on Membership

- As of July 5, 2013:
  - 68 members submitted 2013 dues
    - Regular members: 62
    - Emeritus members: 1
    - Associate members: 5
- 2 new member nominees to be submitted for approval at upcoming SDAMPP Board Meeting

Membership Categories

- Regular Members (voting)
  - Currently engaged in senior leadership positions
- Emeritus Members (voting)
  - Formerly held positions of senior leadership
- Honorary Members (non-voting)
  - Rendered outstanding service in the field of medical physics education, but not otherwise qualify for membership
- Associate Members (non-voting)
  - Interested in medical physics education and SDAMPP, but ineligible for other categories of membership

Treasurer's Report

SDAMPP Business Meeting August 2013

Sam Armato

2013 Income (expected)

Dues	$15,525
108 members (95 reg + 4 emer @ $150 and 1 honor + 8 assoc @ $75)	

2013 Expenses (expected)

AAPM staff support	$6,074
Annual meeting food	$900
CT Corp fee	$365
D.C. corporate filing fee	$0
Checking account fees	$300
Projected Net FY13	$7,886

2013 Income (actual YTD)

Dues	$10,506
equivalent to 68 members @ $150	

2013 Expenses (expected)

AAPM staff support (2012+2013)	$11,915
Annual meeting food	$900
CT Corp fee	$365
D.C. corporate filing fee	$0
Checking account fees	$300
Projected Net FY13	$(2,974)

July 2013 account balance $14,596

2012 Expenses outstanding

AAPM staff support	$5,616

2013 Expenses outstanding (projected)

AAPM staff support	$6,074
Annual meeting food	$900
CT Corp fee	$365
D.C. corporate filing fee	$0
Checking account fees	$300

Projected end FY12 balance $1,341

July 2013 account balance $14,596

2012 Expenses outstanding

AAPM staff support	$5,616

2013 Expenses outstanding (projected)

AAPM staff support	$6,074
Annual meeting food	$900
CT Corp fee	$365
D.C. corporate filing fee	$0
Checking account fees	$300

Projected end FY13 balance $1,341

If meet 2013 budgeted dues revenue, projected end FY13 balance: $6,360