



The Society of Directors of  
Academic Medical Physics Programs

# Annual Meeting 2017, Denver Colorado

**E. ISHMAEL PARSAI, PH.D.,  
FACRO, FIOMP, FAAPM**



The Society of Directors of  
Academic Medical Physics Programs

## Historical Remarks

- ▶ The founding of SDAMPP was initiated when an ad hoc meeting of 16 leaders in our field representing a range of existing medical physics academic programs met on July 24, 2007 during the 2007 AAPM annual meeting in Minneapolis..
- ▶ The meeting was initiated by **Jim Dobbins** and **Ehsan Samei** from the graduate program at Duke, along with significant input by Bill Hendee, Gary Fullerton, and others.
- ▶ A steering committee of 19 individuals representing a range of academic programs was formed to work on establishing the organization.



The Society of Directors of  
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- ▶ A charter was developed, bylaws were written, and 501(c)(3) nonprofit status was secured.
- ▶ It was then proposed that the organization be launched in 2008, and had its first annual meeting to coincide with the AAPM meeting in summer of 2008.



The Society of Directors of  
Academic Medical Physics Programs

## Purpose

- ▶ Facilitate the interaction of key leaders in academic medical physics programs.
- ▶ Provide a forum for program directors to discuss issues of mutual concern, and to formulate thoughtful and unified responses to issues such as professional requirements for trainees that would have significant impact on the future health of academic programs.
- ▶ Serve as a resource to institutions starting new programs.
- ▶ Assist medical physicists around the world as they seek to establish their own local educational programs
- ▶ Serve as an independent organization that gives voice to the perspective program directors.



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## Vision:

- ▶ Promote better coordination between academic MP programs, to
  - foster establishment of best practices,
  - monitor production of students relative to job market,
  - help new programs get started, and
  - serve as a voice for academic program directors.



The Society of Directors of  
Academic Medical Physics Programs

## 2017 BOD Officers

- ▶ **Treasurer:** Richard Wendt (2016-2018)
- ▶ **Graduate Board Member-At-Large:** Hania Abdulraouf Al-Hallaq (2017-2019)
- ▶ **Secretary:** Doracy Fontenla (2017-2019)
- ▶ **Chair of the Board:** Amy Harrison (2017)
- ▶ **Graduate Board Member-At-Large:** Edward Jackson (2015-2017)
- ▶ **Residency Board Member-At-Large:** Bruce Libby (2015-2017)
- ▶ **Graduate Board Member-At-Large:** Wayne Newhauser (2017-2019)
- ▶ **President-Elect:** E. Ishmael Parsai (2017)
- ▶ **Residency Board Member-At-Large:** Robert Pizzutiello (2017-2019)
- ▶ **Residency Board Member-At-Large:** Lawrence Rothenberg (2015-2017)
- ▶ **President:** Timothy Turkington (2017)
- ▶ **Liaison:** Michael Woodward



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## Founding Board Members

- ▶ James Dobbins: Duke University
- ▶ Gary Fullerton: UT Health Science Center at San Antonio
- ▶ Ehsan Samei: Duke University



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## Association Needs Your Help

- ▶ Our web page:  
<http://sdamp.org/index.php>
- ▶ We need your help and participation in running this organization
- ▶ Please contact any of us if you are interested in helping in any way..



# Initial Certification Update

2017AAPM Annual Meeting

G. Donald Frey, ABR AED-MP  
American Board of Radiology

## Topics

- Introduction of New Item Types
- New Emphasis on Professionalism & Ethics (P&E) Items
- Improved Content Guide
- 2016 & 2017 Results and Statistics

# New Item Types

## New Item Types

- Introduced in the 2017 Exam
  - August 2017
- Will Play a Larger Role in Future Years

- Case Based Items
- Multiple Select Items
- Fill In the Blank Item
- Point and Click Questions
- Extended Matching

# Professionalism and Ethics

## There is a new emphasis of P&E

- We will slightly be increasing the number of P&E questions on all exams (Part 1-General , Part 2 & Oral)
- Content Guide on ABR Website
- List of Sources of Content is in the Content Guide

# Improved Content Guides

## Assembly of ABR Exams from Blueprint

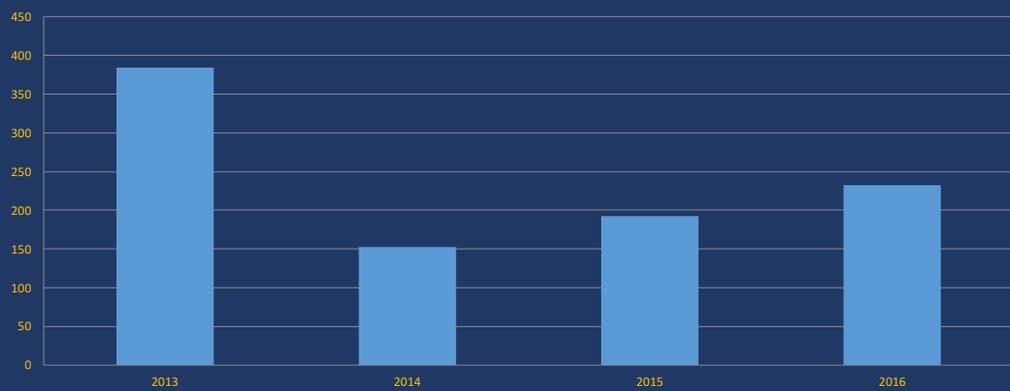
1. Top Level 2
  1. Main Sublevels
    1. Detail
      1. Subdetail
    2. Main Sublevels
  2. Top Level 2

Content guides show the blueprint to the top two levels

# Statistics

## Part 1 - General

Part 1 - General- First Time Takers  
Enrolled in a CAMPEP Program



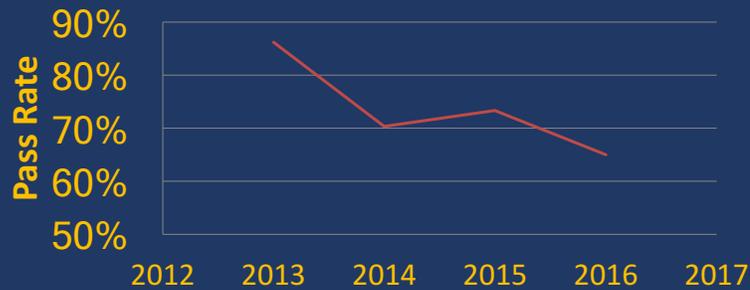
# Part 1 General

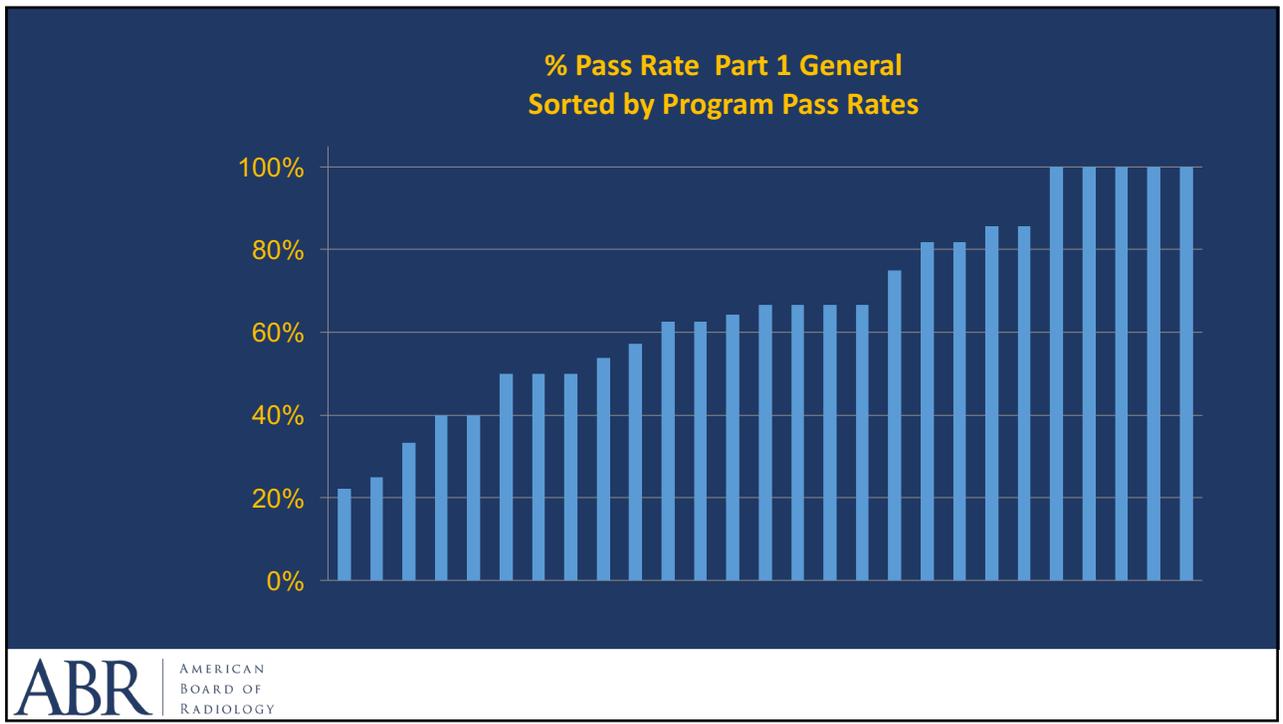
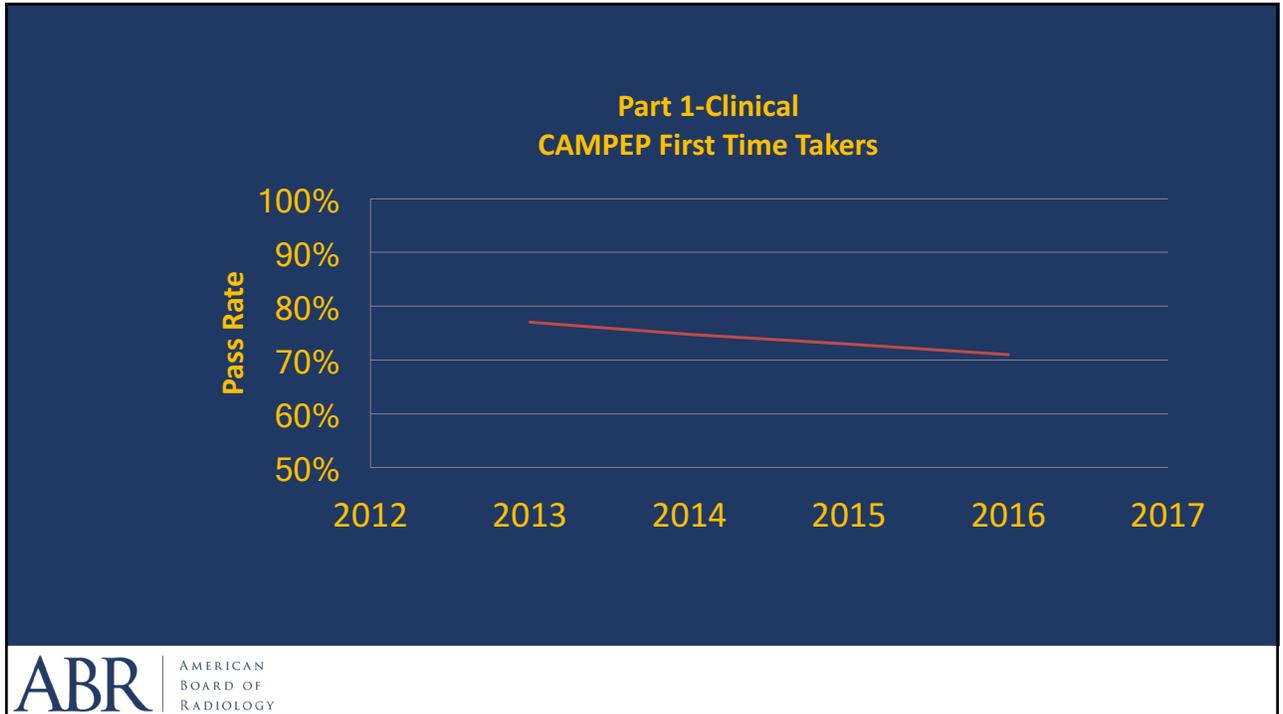
## First Time Takers Enrolled in a CAMPEP Program

Exam	% Pass	Total
2013	86%	384
2014	70%	152
2015	73%	192
<b>2016</b>	<b>65%</b>	<b>232</b>

Almost everyone is enrolled in a CAMPEP program

## Part 1- General Pass Rate for First Time Takers Enrolled in a CAMPEP Program





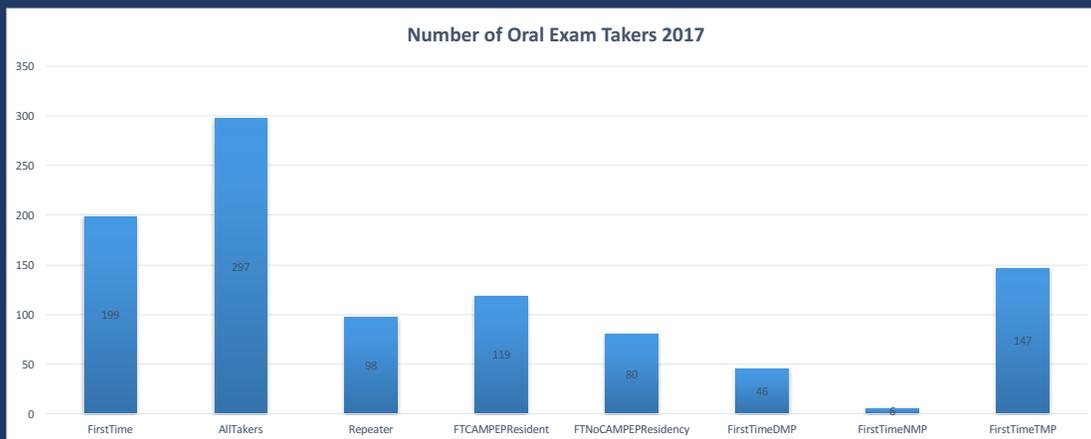
## Part 2 2016 Candidates

Specialty	Part 2 -First Time Takers	
DMP	38	21%
NMP	5	3%
TMP	140	77%

### Part 2 - First Time Takers

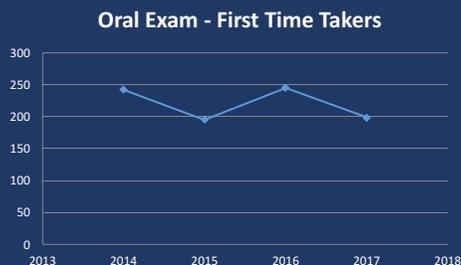
Exam	% Pass		
2013	78%		
2014	75%		
2015	80%		
2016	83%		

# Oral Exam



# Oral Exam

	DMP	NMP	TMP	Total
Total Certifications in 2017	52	10	155	217
Percent	24%	5%	71%	



	DMP	NMP	TMP	Total	DMP/TMP
2010	22	1	181	204	12%
2011	41	11	263	315	16%
2012	29	2	232	263	13%
2013	45	8	213	266	21%
2014	54	8	217	279	25%
2015	26	7	183	216	14%
2016	40	5	177	222	23%
2017	52	10	155	217	34%
AVG	38.6	6.5	202.6	247.8	19%





## Volunteer Opportunities with the ABR

- Eligible one year after certified
- Item writers
- Angoff committee members
- SAM reviewers
- Advisory committee members
- Board members

[www.theabr.org/abr-volunteering](http://www.theabr.org/abr-volunteering)

ABR AMERICAN BOARD OF RADIOLOGY

ABR | AMERICAN  
BOARD OF  
RADIOLOGY

## Questions

[Dfrey@theabr.org](mailto:Dfrey@theabr.org)

843 693-5718

OR



## QUESTIONS?

Please contact ABR Connections Customer Service at:

[information@theABR.org](mailto:information@theABR.org)

or

(520) 519-2152



## MedPhys Match 2015 2017 The dawn of a new age

John A. Antolak, PhD

2015-2017 SDAMPP Annual Meeting  
July 11, 2015-29, 2017

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## MedPhys Match 2017

### Basic statistics

- 291 applicants (402 in 2015)
  - 67 (122\*) withdrew or did not submit a rank list
- 81 (77) residency programs
  - 114 (112) positions
- 224 (280) applicants competing for 114 (112) positions
- 107 or 94% (108 or 96%) positions filled
  - 7 (4) positions unfilled



\*Numbers in parentheses indicate 2015 statistics

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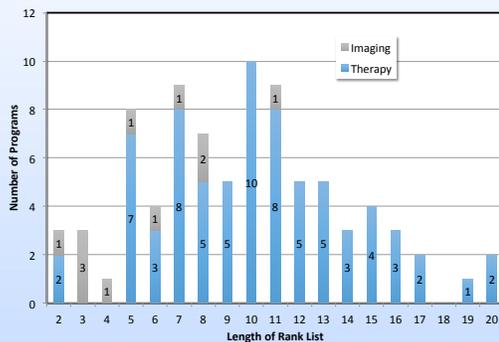
## MedPhys Match 2017

### The not-so-bright, but brighter side

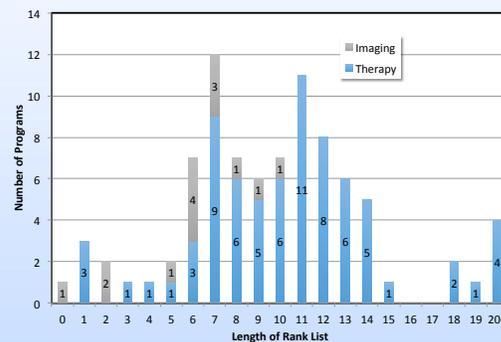
- Only 107 (48%) of 224 applicants that filled in rank lists were matched to positions
  - In 2015, this was 108 of 280 (39%)
- However, only 174 of those 280 were ranked by at least one program
  - Of those applicants, 8 submitted no rank list
  - Considering only those 166 applicants, the match success rate for applicants is 64% (58% in 2015)



## Program Rank List Length



2015



2017



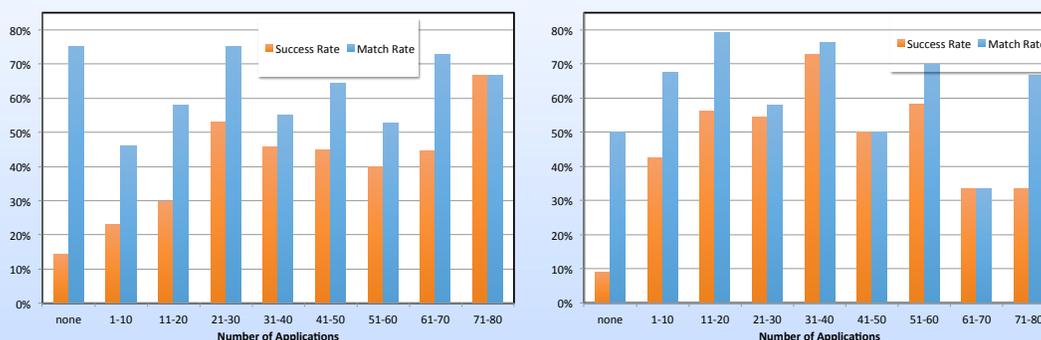
## Success and Match Rates

- **Success rate** is the percent matched, relative to the total number of applicants participating (submitting a rank list)
- **Match rate** is the percent matched, relative to the total number of applicants that are ranked by at least one program
  - This filters out applicants that are not really serious about getting into a residency program
  - It also filters out applicants that truly do want to get into a residency program, but are unable to land an interview
- By definition, Match rate  $\geq$  Success rate



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## Number of MP-RAP applications submitted Success and match rates



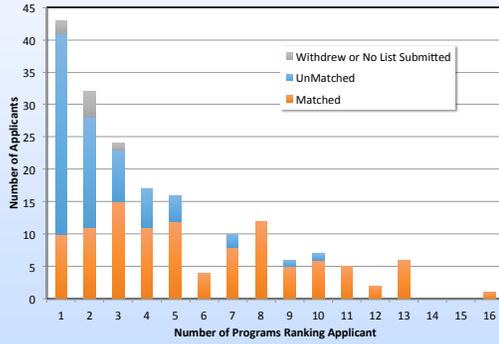
2015

2017

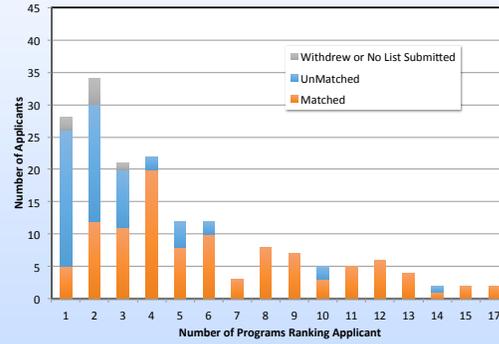


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## Number of Programs Ranking Applicant Number of interviews (approx.)



2015

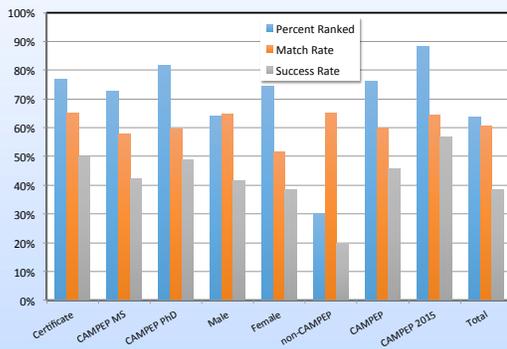


2017

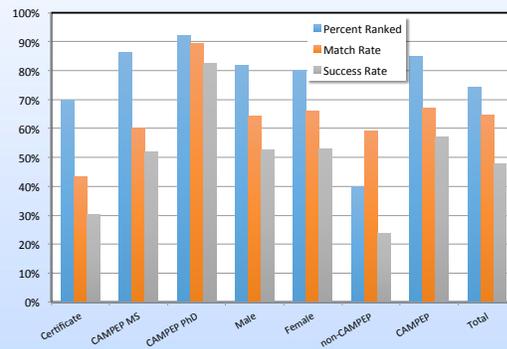


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## Demographic Breakdown



2015



2017



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## Concluding Remarks

- MedPhys Match continues to be successful
  - Thanks to partnership with NMS and sponsorship of SDAMPP and AAPM
  - Subsidy ends after the next MedPhys Match
- Program rank lists appear to be getting longer
- The number of applications submitted has dropped, probably due to the fee that is being charged
  - Has not affected applicant success
- Number of interview per applicant appears to be up slightly
- Demographically, relative to 2015
  - Male vs female holding steady
  - CAMPEP degrees appear to have an advantage over certificates
  - CAMPEP PhD appears to have a possibly significant advantage of CAMPEP MS
  - Non-CAMPEP applicants are still at a disadvantage, as expected



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Thanks for your attention!

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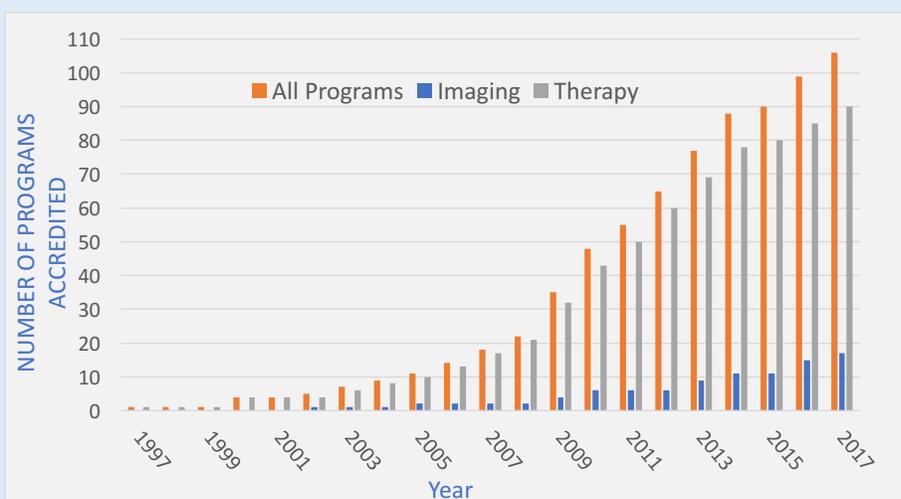
# CAMPEP Survey Data

## Residency Program Director Submissions Calendar Years 2009 – 2016

Edward Jackson – 7/26/2017

Data presented were obtained from CAMPEP/SDAMPP annual surveys of Program Directors. Both accredited and non-accredited programs were invited to participate; CAMPEP-accredited program responses required.

## Growth in Residency Programs



### Current Number of Accredited Programs (7/26/2017):

Graduate:	52
RT Residency:	90
IP Residency:	17*
DMP:	4
Certificate:	24
*6 with NM option	

### Residency Program Locations:

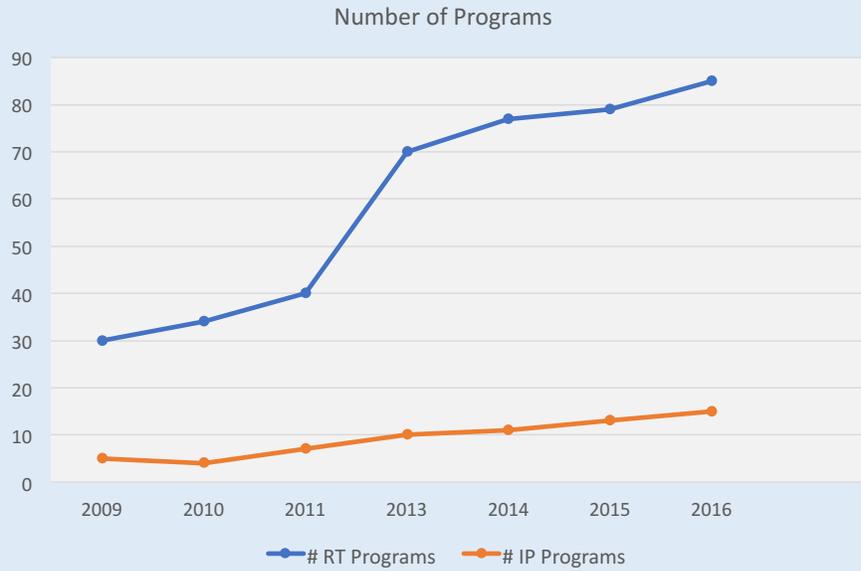
US:	95 (15 Imaging Physics)
Canada:	11 ( 1 Imaging Physics)
Ireland:	1

New Programs in Process: Residency: 8 RT, 5 IP (2 w/NM option)

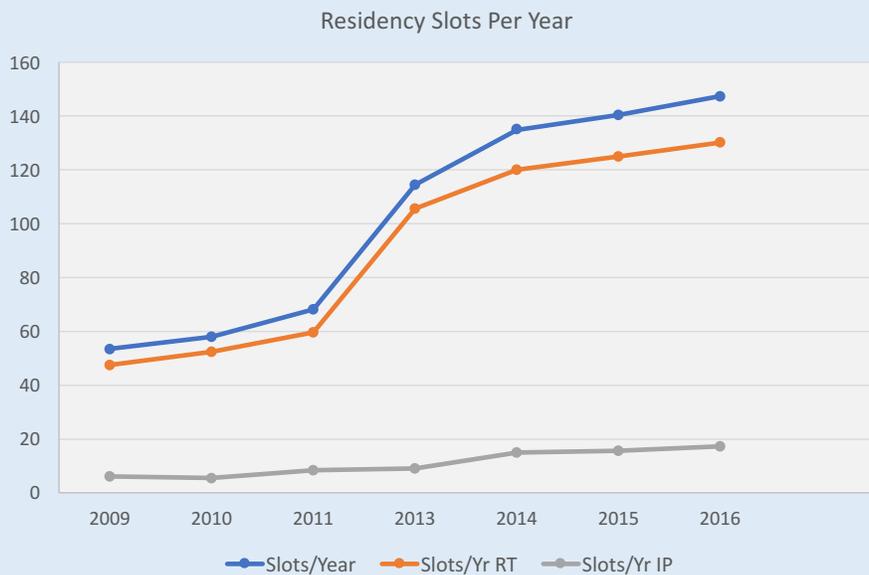
Graduate: 2

(As of 7/26/2017)

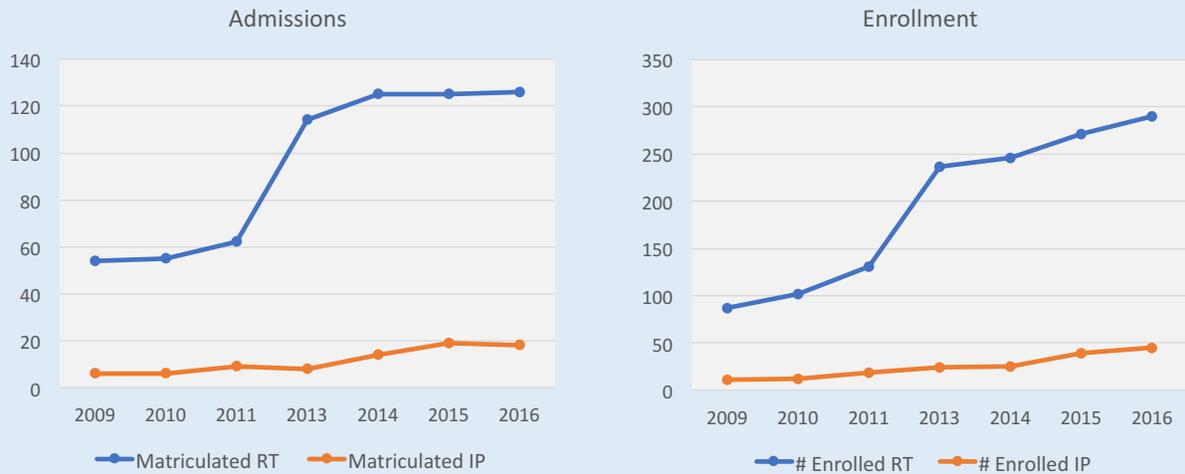
## Number of Programs Providing Survey Reports



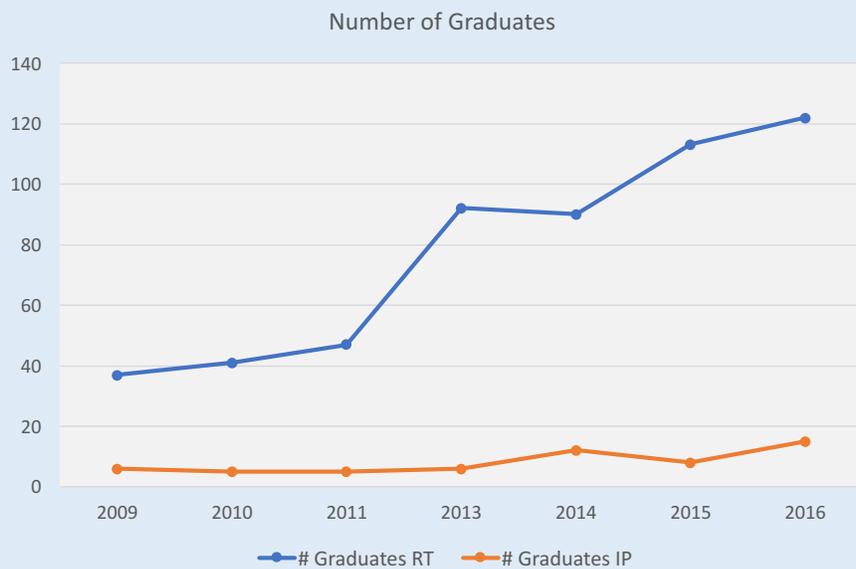
## Reported Slots Per Year



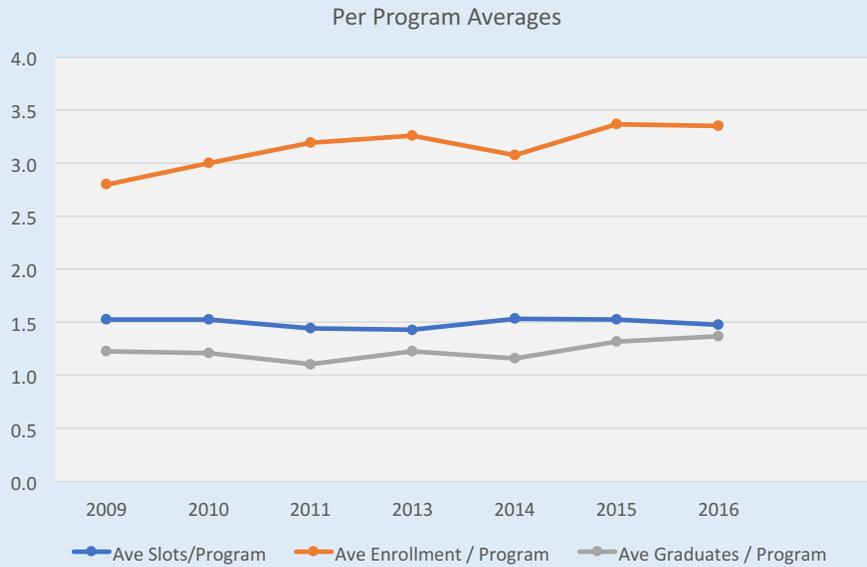
## Reported Admissions and Enrollment



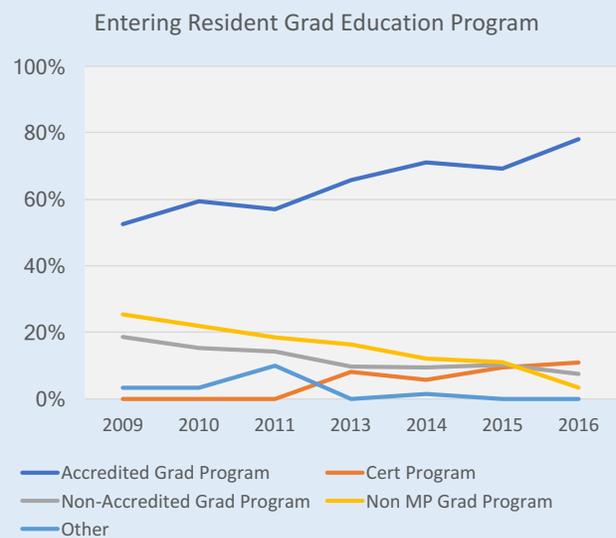
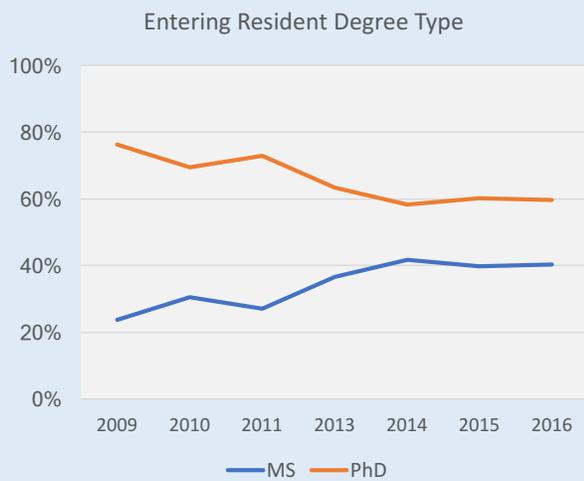
## Reported Residency Graduates



## Per Program Averages



## Admissions Information



## Destination of Graduates

### Destinations of Residency Program Graduates (N=145)

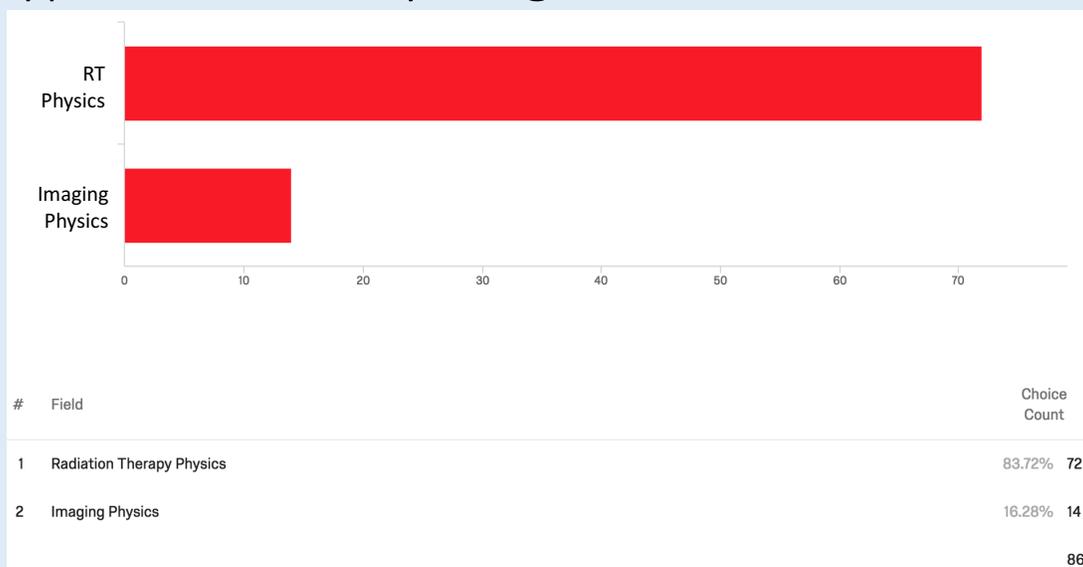
Private or Community Hospital	28.3% (41)
Government Hospital	1.4% (2)
Medical School or University Hospital	49.7% (72)
College or University	1.4% (2)
Government (Non-Hospital)	0.0% (0)
Medical Physics Service Group	6.9% (10)
Medical (Physician's) Group	0.7% (1)
Industry or Commercial Firm	0.7% (1)
Cancer Center	9.0% (13)
Position Outside of Medical Physics	0.0% (0)
Still Seeking a Position	1.4% (2)
Other	0.7% (1)

# CAMPEP Residency Program Director Survey

June-July 2017

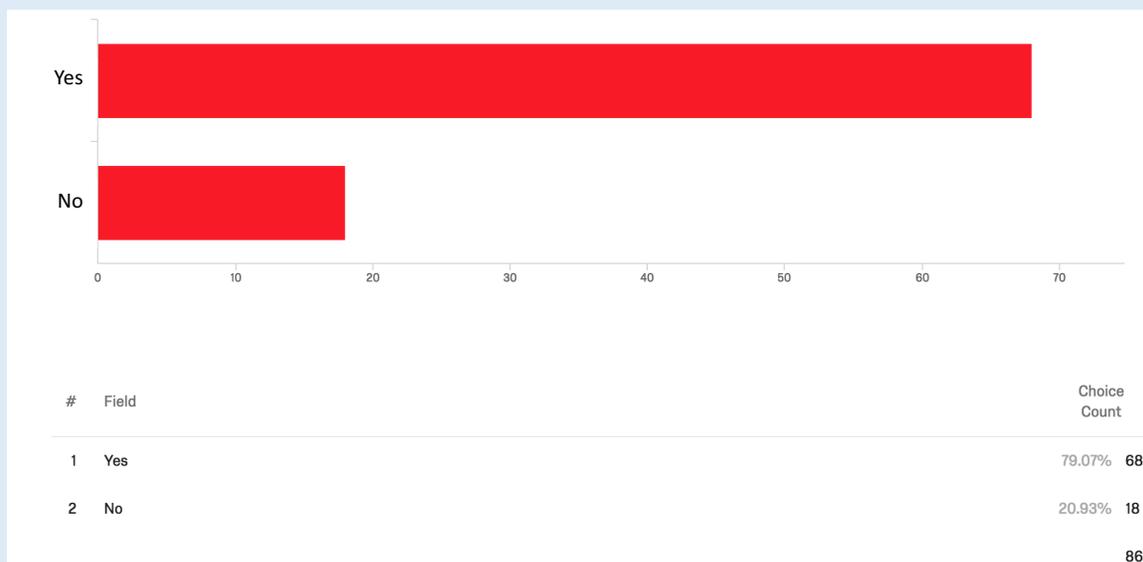
Prepared by Edward Jackson on behalf of CAMPEP, Inc.

## Type of Residency Program

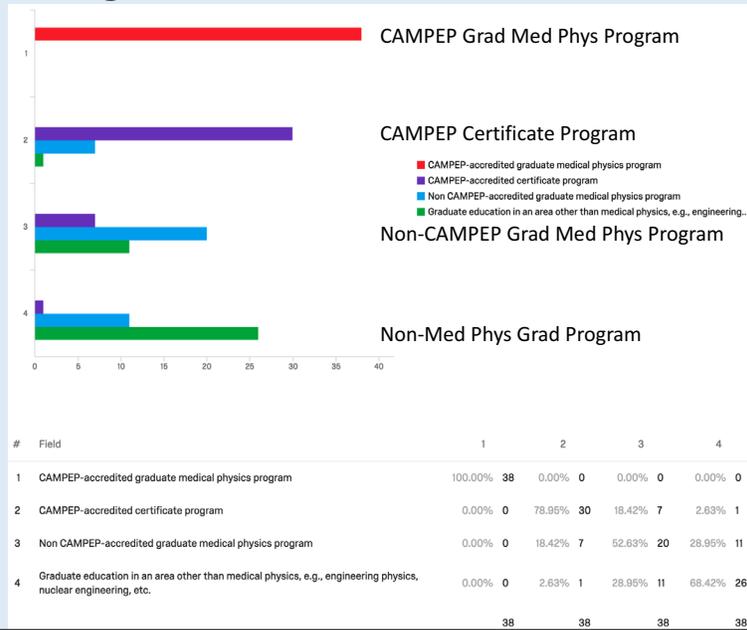


Response rate: 86 of 106 accredited programs (81.1%)

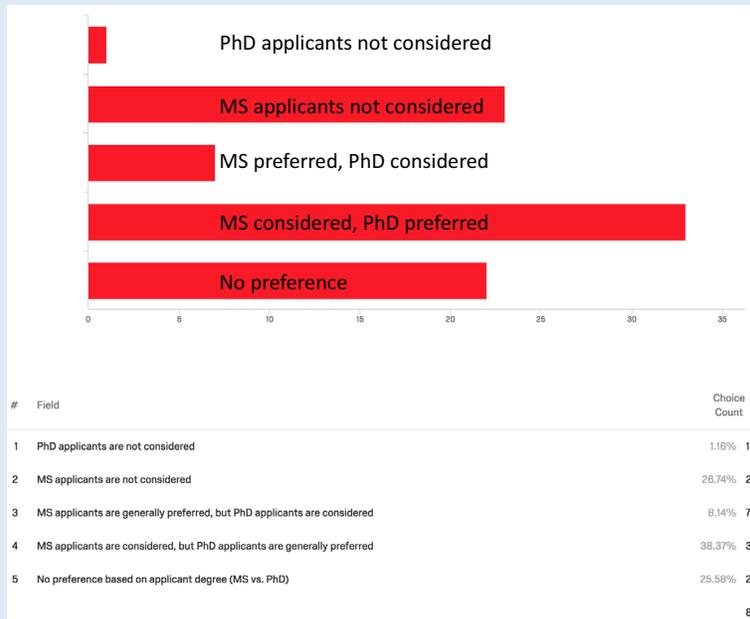
## Preference for Graduate Background?



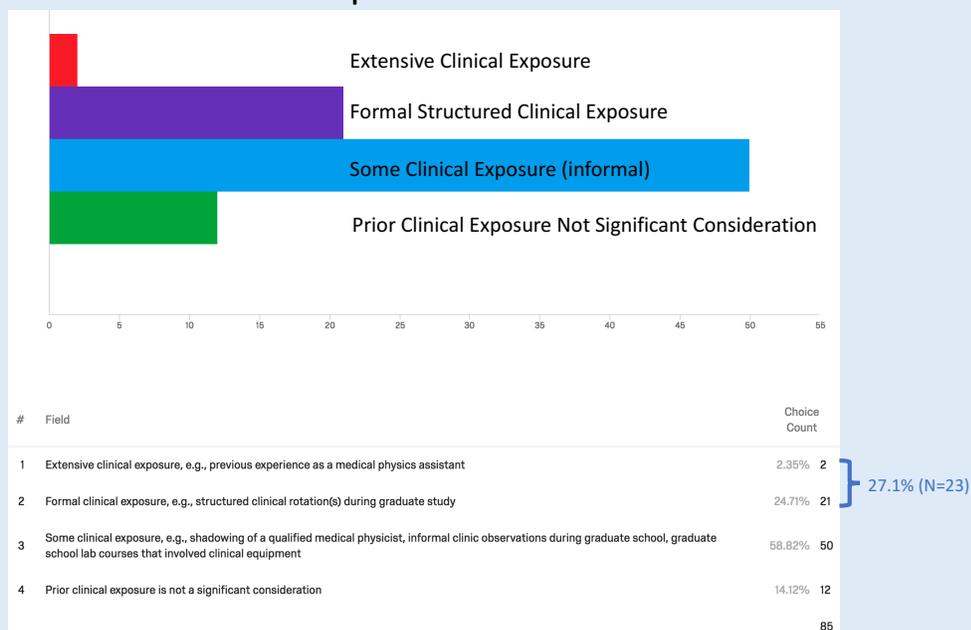
# Type of Program Preferred



# PhD vs. MS Preference



## Preferred Clinical Experience Level



## CAMPEP Graduate Program Report (Subset of Data)

AAPM Denver, 1 August 2017

B Clark, PhD  
Chair, CAMPEP GEPRC

## 2017 Status (2016)

• # Accredited graduate programs:	52	(50)
• # Accredited DMP programs:	4	(3)
• # Programs in initial review process:	2	
• # Accredited programs in:		
• US	38	
• Canada	12	
• Outside North America	2	
Accredited Certificate Programs		
• # in Graduate programs:	20	(19)
• # in Residency programs:	4	
• # Residency programs w/approved courses:	2	

## Program Response / Degree Offerings

# Programs offering:	2012	2013	2014	2015	2016
MS Degrees	39	43	43	46	47
PhD Degrees	29	30	34	34	36
MS & PhD Degrees	27	28	30	30	31
MS Degree Only	11	13	13	13	16
PhD Degree Only	2	2	3	3	5
DMP	1	1	2	4	4

## Graduate Program Applicants

	2012	2013	2014	2015	2016
# applications reviewed	2061	1801	1953	1836	1921
# offered admission	570	545	602	577	608
# matriculated	311	289	324	294	325
Average GPA (MS/PhD)	3.5/3.6	3.5/3.6	3.5/3.6	3.5/3.6	3.5/3.7

## Entering Class – Gender

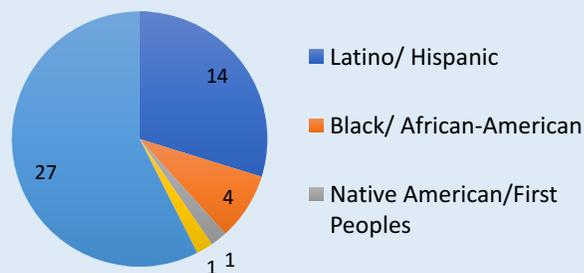
	2012	2013	2014	2015	2016
MS/MSc – Male	68%	64%	69%	67%	61%
PhD – Male	70%	71%	69%	68%	63%
DMP - Male			60%	85%	58%

## Entering Class - Nationality

Nationality	2012	2013	2014	2015	2016
MS/MSc – Domestic	82%	91%	80%	80%	77%
PhD – Domestic	84%	80%	77%	78%	73%

### Under-Represented Ethnic Groups (8 programs chose not to respond)

21 institutions reported 47 students (4.8%)



## Enrollment and Graduates

	2012	2013	2014	2015	2016
<b>Enrollment*</b>					
MS/MSc	466	467	458	449	402
PhD	534	572	559	572	577
DMP	20	20	25	35	35
<b>Total</b>	<b>1020</b>	<b>1059</b>	<b>1042</b>	<b>1056</b>	<b>1014</b>
<b>Graduates*</b>					
MS/MSc	198	162	164	202	139
PhD	80	113	107	99	89
DMP		4	5	6	6
<b>Total</b>	<b>278</b>	<b>279</b>	<b>276</b>	<b>307</b>	<b>234</b>

\*Does not include Certificate Programs

## MS/MSc Graduate Destination

	2012	2013	2014	2015	2016
Entered RT residency	44 (22%)	37 (23%)	40 (25%)	46 (23%)	42 (30%)
Entered IP residency	1 (<1%)	4 (3%)	5 (3%)	10 (5%)	5 (4%)
Junior MP position	62 (31%)	48 (30%)	39 (24%)	26 (25%)	24 (17%)
Another degree	49 (25%)	27 (17%)	39 (24%)	51 (13%)	48 (35%)
Position in industry	6 (3%)	17 (11%)	14 (19%)	19 (10%)	11 (7%)
Position in government			4 (2%)	5 (3%)	3 (2%)
Still seeking position	16 (8%)	16 (10%)	8 (5%)	9 (5%)	3 (2%)
Other	17 (9%)	12 (7%)	15 (9%)	32 (16%)	8 (5%)

## PhD Graduate Destination

	2012	2013	2014	2015	2016
Entered RT residency	24 (30%)	28 (25%)	31 (29%)	44 (47%)	33 (37%)
Entered IP residency	6 (8%)	4 (4%)	7 (7%)	6 (6%)	8 (9%)
Junior MP position	18 (23%)	26 (24%)	16 (15%)	8 (8%)	13 (15%)
Position in academia	11 (14%)	18 (16%)	14 (13%)	20 (20%)	17 (19%)
Another degree	1 (1%)	3 (3%)	0	1 (1%)	0
Position in industry	9 (11%)	9 (8%)	5 (5%)	7 (7%)	3 (3%)
Position in government			2 (2%)	2 (2%)	3 (3%)
Still seeking a position	6 (8%)	5 (5%)	2 (2%)	2 (2%)	3 (3%)
Other	4 (5%)	11 (10%)	0	8 (8%)	7 (8%)

## Certificate Programs

26 programs accredited, 24 programs reporting student numbers in 2016

	# Applicants	# Students Enrolled	# Students Graduated
Graduate	89	81	19
Residency	18	19	5
<b>Total</b>	<b>107</b>	<b>110</b>	<b>24</b>
2015	110	113	28
2014	63	49	21
2013	53	36	9

## DMP & Certificate Program Graduate Destinations

	DMP	Certificate
Entered RT residency	N/A	11 (39%)
Entered IP residency	N/A	1 (4%)
Junior MP position	3 (50%)	1 (4%)
Academic position	1	9 (32%)
Another degree	1	1 (4%)
Took job in industry		
Still seeking a position	1	4 (14%)
Other		1 (4%)
<b>Total</b>	<b>6</b>	<b>28</b>

## Plans for DMP

	2012	2013	2014	2015	2016
No	26	29	32	39	38
Under consideration	5	4	4	3	6
In preparation	5	4	5	1	2
Waiting for institution approval	1	3	2	4	2
Awaiting CAMPEP accreditation	0	2	2	1	1
CAMPEP accredited	1	1	2	3	4

Society of Directors of Academic Medical Physics Programs  
July 29, 2017

## Visa Issues for Graduate Programs and Residencies: Ongoing and New Considerations

### Your Presenter



**Michelle Larson-Krieg, J.D.**

- Director, International Student & Scholar Services, University of Colorado Denver | Anschutz Medical Campus
- Member, American Immigration Lawyers Association (AILA) and AILA Colorado
- Member, NAFSA Association of International Educators and NAFSA's Healthcare Institutions Interest Group (HIIG)
- [Michelle.Larson-Krieg@ucdenver.edu](mailto:Michelle.Larson-Krieg@ucdenver.edu) | 303.315.2235

## Outline of Presentation

- Working with Immigration Services
  - What ISSS Does
  - Considerations specific to Medical Physics
- Visa Options for Graduate Students
- Visa Options for Medical Physics Residents
- Acquiring a Visa and Entering the U.S.
- Challenges in the current immigration environment

## What ISSS Does

- Provide expert immigration advice to international students, scholars, hiring units, and the faculty and staff who educate and support them.
- Safeguard the institution's ability to utilize the F Student and J Exchange Visitor programs to enroll international students and host and employ foreign nationals.
- Ensure compliance with complex immigration rules and regulations when foreign nationals come to the U.S. to study, teach, conduct research, or engage in other academic pursuits.
- Keep up with developments in immigration law, federal agency policies and procedures, as well as institutional policies and procedures in the areas of academics, student services, and human resources.

## Considerations When Evaluating Visa Options

- Medical Physics is a STEM Field
- Requires Graduate Degree in Medical Physics or closely related field
- Medical Physics Residency – 2 year program
- Requires Board Certification
- Works closely with medical professionals as critical member of patient care team, but is not an MD (or does not “practice medicine”).

## Visa Options for Graduate Students

- F-1 Student Visa
  - Full-Time Enrollment Requirement
  - Limitations on on-line courses
  - On Campus employment limited to 20 hours/week.
  - Curricular Practical Training (CPT) must be granted by Designated School Official.
  - Students who complete a degree are eligible to apply for Optional Practical Training (OPT) and may be eligible for OPT STEM extensions.

## Visa Options for Graduate Students

- J-1 Student Visa
  - Eligibility requirements: 1) Written agreement; or 2) significant funding from a source other than self or family.
  - Much more flexible on what constitutes full-time study.
  - Academic Training (AT) may be used pre or post completion, up to 36 months of AT is available to Ph.D. students.
  - J-2 dependents can apply for work authorization.
  - May be subject to 2 year home residency requirement.
  - All funding must be shown "up front."

## Visa Options for Residents

- **F-1 Student - Optional Practical Training**
- **J-1 Exchange Visitor – Academic Training or Research Scholar Category**
- **H1B Temporary Worker in a Specialty Occupation**
- **TN – Treaty NAFTA (Citizens of Canada and Mexico)**
- **E-3 – Australian Professionals**
- **O-1 – Individuals of Extraordinary Ability**

## Optional Practical Training (OPT)

- A foreign national who earned an academic degree in the U.S. while in F-1 student status is generally eligible for 12 months of Optional Practical Training (OPT) following the completion of that degree.
- OPT is work authorization that can be used anywhere in the U.S. provided that the foreign national is working in his/her field of study.

## OPT Advantages

- Prospective resident works with DSO at school where degree earned to submit a relatively straightforward application to USCIS. Must present EAD card when completing I-9.
- Prospective resident pays USCIS application fee – currently \$410.
- Program does not need to take any immediate action with respect to resident's immigration status.
- No requirement that the department pay prevailing wage.
- 60-day grace period at end of OPT.

## OPT Disadvantages

- Individual remains in F-1 student status and must continue to report employment and address changes to DSO at degree-granting school.
- Must also obtain a travel signature from a DSO when travelling outside the U.S.
- F-2 dependents are not eligible for work authorization.

## STEM OPT

- Individual on post-completion OPT who graduated with a degree in a designated STEM field like Medical Physics is eligible for a 24-month extension of OPT.
- STEM OPT is work authorization that can be used anywhere in the U.S. provided that the foreign national is working in his/her field of study for an E-verified employer.

## STEM OPT Considerations

- STEM OPT regulations require completion of a formal training plan, to be submitted prior to the STEM OPT extension request and when there are any material changes to the training plan. Requires specific information about the organization, the agreed-upon practical training schedule and compensation, and a detailed training plan. Includes employer attestations that there are sufficient resources and trained personnel available to provide appropriate mentoring and training.
- Employer must confirm (1) that the terms and conditions of a STEM OPT student's employment, including duties, hours, and compensation, are commensurate with those for similarly situated U.S. workers, and (2) that no U.S. worker will be terminated, laid off, or furloughed as a result of a STEM OPT opportunity.

## STEM OPT Considerations

- Employee must submit a self-evaluation within 12 months of the OPT STEM start date, and a second, final assessment that recaps the training and knowledge acquired during the complete training period. The employer must review the employee's annual self-evaluation on their own progress and sign it to attest to its accuracy.
- The employer and employee both must notify the DSO at the school where the employee's I-20 was issued when the employee's employment is terminated for any reason before the end of the authorized extension period. The employer must report such a change in employment to the appropriate DSO at the school where the employee's I-20 was issued no later than five business days after the employee's employment terminates or the employee has departed.

## J-1 Exchange Visitor

- Research Scholar category may be an option for Medical Physics residents, but is not a perfect fit.
- “Research Scholar” is defined in the regulations as an individual primarily conducting research, observing, or consulting in connection with a research project at research institutions, corporate research facilities, museums, libraries, post-secondary accredited educational institutions, or similar types of institutions.
- Some institutions also have legitimate concerns about patient contact.
- Duration = 5 years max

## J-1 Advantages

- No employer filing fees.
- Institution has more control of the process because USCIS (U.S. Citizenship & Immigration Services) approval is not required.
- J-2 spouses can obtain work permission.
- A J-1 or J-2 Exchange Visitor is granted a 30 day grace period following the completion of a J program.

# J-1 Disadvantages

- Sponsored individual must pay SEVIS Fee of \$180 before applying for initial J-1 visa.
- For temporary visits only; requires that individual maintain a residence in his/her home country and have no intent to immigrate to the US.
- Two-year home residency requirement for those whose skills are on their home country's skills list, who receive government funding for their J-1 program, or who are J-1 physicians sponsored by ECFMG.
- May be relatively difficult (but not impossible) to change from J-1 to another nonimmigrant visa status if exchange visitor is subject to the two-year home residency requirement.

# DS-2019 Certificate of Eligibility for J-1 Visa

**CERTIFICATE OF ELIGIBILITY FOR EXCHANGE VISITOR(J-1) STATUS**

U.S. Department of State

1. Name: **HERMANO SYDIAK** | 2. Date of Birth: **12-15-1998** | 3. Passport No.: **38-8110** | 4. Program: **UNIVERSITY POLYMER RESEARCH INTERCHANGE** | 5. Dates: **04-15-2019 to 12-31-2020**

6. Sponsor: **UNIVERSITY OF MARYLAND** | 7. Address: **1101 00 Campus Parkway, College Park, MD 20742-1000**

8. Signature of Sponsor: **[Signature]** | 9. Signature of Applicant: **[Signature]**

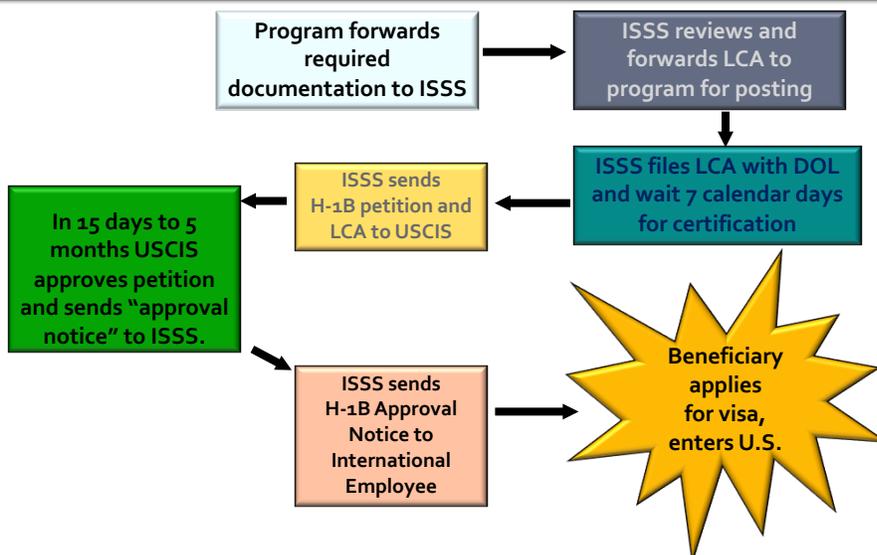
10. QR Code: **[QR Code]**



## H-1B Considerations

- Employer must pay salary that meets or exceeds the prevailing wage as determined by the U.S. Department of Labor.
- Filing fees can add up quickly: I-129 Filing Fee \$460 + Anti-Fraud Fee \$500 (initial petition only) + I-539 Filing Fee \$370 (if family members in the US) + Premium Processing Fee \$1,225 (optional).
- Most H-4 dependents cannot work.
- If employee is terminated for any reason before the requested H1B expiration date, employer must pay cost of transportation to employee's home country.

## Process and timing of H-1B



## Visa Issuance

- Visa stamp in passport granted to permit entry into the US in a particular visa status.
- Forms I-20, DS-2019, and I-797 indicate visa *eligibility*, but do not guarantee issuance of a visa.
- Only a U.S. Embassy or Consulate abroad can issue a visa stamp.
- “Visa Status” reflects a person’s current nonimmigrant classification, authorized activity, and allowable duration of stay.
- Canadians must have a valid immigration documents, but don’t need a visa stamp.

## Visa Delays

- Impact to Resident
  - Delayed start of training program
  - Delays in credentialing (SSN, license, access, etc.)
  - Impact on future training dates
- Impact to Program
  - Adjustment to rotation schedules
  - Revisions to training agreement
- Impact to Institution
  - Tracking off-cycle visa sponsorship; ensuring timely renewals
  - Additional staff time needed

## Current Immigration Environment

- Issues: Travel Ban, Elimination of DACA, the Wall, Extreme Vetting, proposed revamping of H1B program, heightened enforcement.
- Stay informed by seeking out reliable sources of information: ISSS staff, USCIS.gov, State.gov, AILA, Murthy Law Firm.
- Most changes won't happen overnight: It takes months for an agency to modify regulations.

## Questions





# Elekta Internship Program

## Operational Physics

Paul Naine  
Director, Clinical Operations





<p>Current State of Elekta Internship</p>	 <p>Program Overview</p>	 <p>Program Objective</p>
 <p>Relevant Statistics</p>	 <p>Internship Structure</p>	 <p>What does an intern do during their time at Elekta?</p>



## Intern Qualifications

- Experience of AAPM Task Group Reports.
- Medical Physics degree from certified program (*MS preferred*).
- Treatment Planning Experience.
Efficient Communicator.
- Theoretical familiarity with Linac QA methodologies.
- Self-Starter.
AAPM, ICRU, IAEA dosimetry protocols familiarity.
- Strong interpersonal skills to work effectively with customers.

## Internship

- Length: 4-Months
- Frequency: Quarterly



## Program Objectives

- The internship program will highlight non-residency career paths
- The internship program will teach skills need for non-residency career paths
- The interns will receive practical training on broad range of RO Products
- The internship program shall actively promote holistic best practice of medical physics regardless of career path

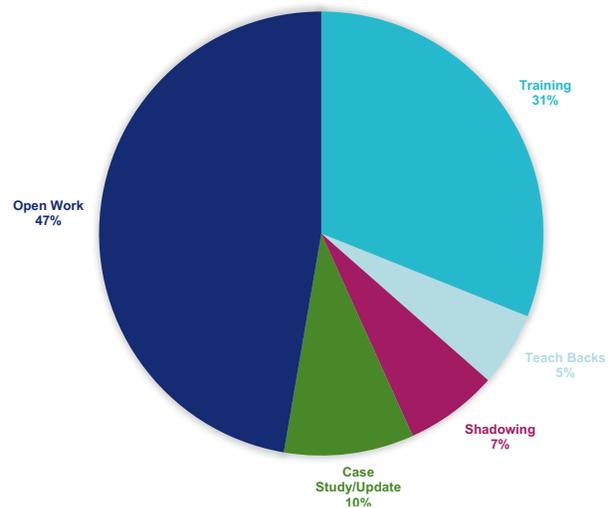
7 | Focus where it matters



# The Program Structure

## Intern's Time Breakdown

	Number of Days	Percentage
Training	23	31%
Teach Backs	4	5%
Shadowing	5	7%
Case Study/Update	7	9%
Open Work	35	47%
<b>TOTAL</b>	<b>74</b>	<b>100%</b>



## Program Structure: Courses

### Linear Accelerator Courses

#### 1. Physics 1: Medical Accelerator Introduction

- This course covers Theory of Operation, Control System and System Communication, Beam Measurement and Dosimetry, Agility Beam Limiting Device, Imaging Systems and Introduction to IGRT on the Medical Accelerator

#### 2. Medical Accelerator Quality Assurance

- This course reviews the philosophy and purpose of the recommendations given in the AAPM TASK GROUP 142 REPORT report: Quality assurance of medical accelerators.

#### 3. Volumetric Modulated Arc Therapy (VMAT) QA

- This course reviews the rationale for VMAT as a treatment technique and the different methods for creating VMAT treatment plans. The course will also cover VMAT delivery, commissioning, and quality assurance for the Elekta medical accelerator as well as advantages and limitations for VMAT as a treatment technique.

#### 4. Stereotactic Radiosurgery & Stereotactic Body Radiotherapy Physics

- The course covers the physics behind the operation of an Elekta Medical Accelerator with Agility MLC, APEX MLC, and Stereotactic Cones. Students will learn about the principles of each of the systems in regards to their Commissioning, Quality Assurance and Application for SRS and SBRT.

11 | Focus where it matters



## Program Structure: Courses

### Treatment Planning Courses

#### 1. Monaco 3D/ IMRT/ VMAT

- After this class the interns should be able to use Monaco for 3D and IMRT/VMAT treatment planning. This course provides an understanding of the Monaco software enabling the user to efficiently create effective 3D/IMRT/VMAT treatment plans.

#### 2. Monaco Physics

- After this class the interns should be able use the algorithms and the QA Tools available in Monaco. This course provides an understanding of algorithms used in dose calculation, optimization and segmentation.

12 | Focus where it matters



## Program Structure: Other Activities



### 1. Case Studies

- Interns are given sample customer cases to strategically problem solve real industry issues
- Ex: Model Adjustments, QA Field Creation, Machine Characterization for TPS

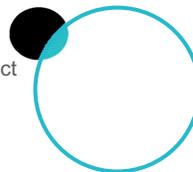
### 3. Soft Skill Development

- Presentations



### 2. Shadowing

- Exposer to company departments that interact with Clinical Physicists



13 | Focus where it matters



## Program Structure: Projects

### 1. Course Development

- IGRT- New course content
- Regionalizing other course material to assist in global deployment
- Create handouts for practical part of course



### 2. Process Improvement

- Development of algorithm to accelerate post modeling adjustment process



14 | Focus where it matters



## 100% Employment Rate After Internship

Two  
Internal

Two  
Residencies

One  
QA Vendor

## Testimonials

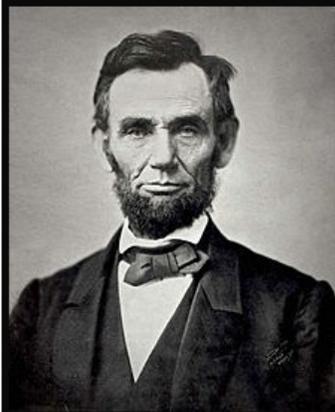
"I hired an Elekta Intern for one of our medical physics residency positions at OHSU. The fact that she had completed an internship with Elekta was a big plus for us during the interviewing process. It will take most medical physicists years to become as knowledgeable about Elekta linear accelerators as she already was when she arrived. This has proven to be very valuable for us. She also absorbed the culture of the physics team in Atlanta, which is that problems are there to be solved. She gets on projects, works hard, and gets it done. I will definitely try to hire Elekta interns again."

- Wolfram Laub





To advance the science, education and professional practice of Medical Physics; a broad-based scientific and professional discipline...



You can't escape the responsibility of tomorrow by evading it today.

(Abraham Lincoln)



# Medical Physics Careers at Varian



AAPM 2017, Denver CO

Eric Abel, PhD Varian Medical Systems

7/29/2017



## Varian Organization pre 2016



Summer 2016



Ginzton  
Technology  
Center  
(GTC)



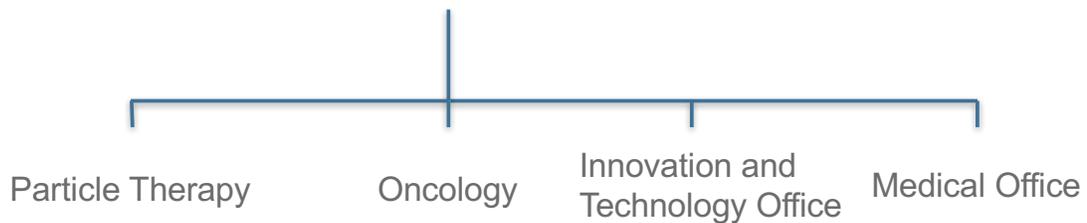
Summer 2016



Ginzton  
Technology  
Center  
(GTC)



## Winter 2017



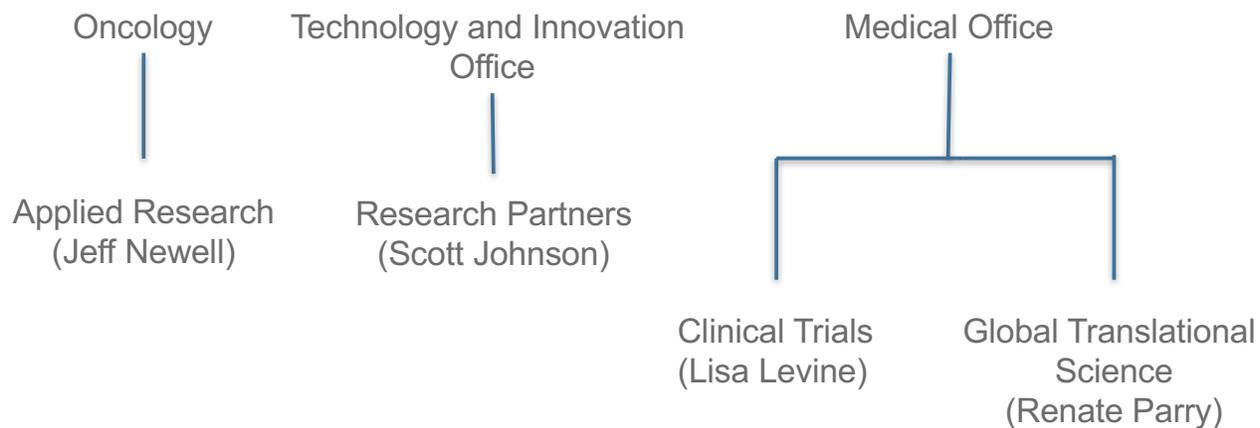
## The New Varian



Dow Wilson  
CEO



## R&D at Varian



VARIAN  
medical systems

## Global Translational Science

- Charter : Innovate and translate novel clinical solutions through a combination of internal research and external collaborations
- Multidisciplinary (Biology, Physics, Engineering)
- State-of-the-art wet lab, computation resources, microscopy



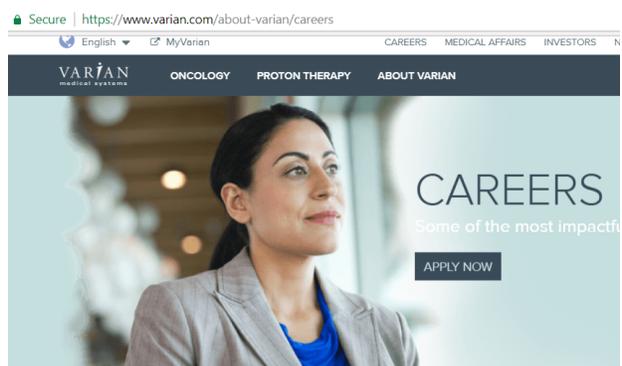
VARIAN  
medical systems

## Careers for Medical Physicists at Varian

- Full list of job opportunities world-wide at:

<https://www.varian.com/about-varian/careers>

- Job types
  - Full time
  - Part time
  - Contract
  - Intern



VARIAN  
medical systems

## Questions



Eric Abel  
Physics Research Manager  
Global Translational Science  
Eric.Abel@varian.com

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