The Future of the Workforce: Can we make predictions?

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Disclosure Statement

- Nothing to disclose

Objectives:

- Review of:
  - the Workforce Summit December 2013
  - Identify a demand for Pathologists and AAMC Presentation on Supply
  - Discuss a survey of recently boarded through Maintenance of Certification American Board of Pathology
  - Discuss a survey of Neuropathology Program Directors on placement of graduates
- Comments and Questions

APC PRODS meeting 2005: Presentations on the Future of Pathology Future

Concerns about where Pathology is going is not new – 10, 20 even 30 years ago presentations began

Comments from Jared Schwartz, former CAP President on the AUTOPSY'S Future and the need for pathologists to be members of the "health care team"

"Virtual autopsy" – Dover (more than 3000 cases of military)

Informatics and the Future – Michael Hogarth, UC Davis

Predictions on the growth of internet usage in practice

AAMC workforce assessment 2006

- Increase in need for pathologists by **30%** by **2015**
- Per-capita MD enrollment has fallen since 1980 prediction at 5 per 100,000 as compared to 7.5 in 1980
- Less than 2/3 of physicians entering GME in 2005 are US grads
- 33% of Pathology grads are IMGs

Physicians over the age of 50

- One out of three would retire today if they could afford to
- 42% of those 50-54
- 41% of those 55-59
- Almost half of pathologists in 2005 are over 55

The changing face of medicine

- Almost half of med students today are women
- Implications for practices – however, many women physicians have physician spouses and both would like part-time work to accommodate family
- Lots of women in pathology – 51% of path residents are women
- 72% of women physicians under 50 are active in medicine full time

FLEXIBILITY: Time for family and personal life most important factor in desirable position for physicians under 50

- Time for family 69%
- Adequate support staff 47%

- 4 of 5 new physicians say they would work less hours if possible

- 66% would not work harder for more pay

Predictions on Demographic Changes

- Population over age 65 doubles by 2030 and therefore utilization of services rises with age and time
- Cancer incidence rates also rise per 100,000 with age (male>female)
- Bottom line: mismatch between supply and demand of physicians
- Effective supply of physicians likely to be lower as physicians work fewer hours
- The baby boom generation – with higher expectations will begin to turn 70 in 2016

2005:

- Residents in pathology are down approximately 2%
- There is a lack of diversity in medicine
  - US physicians: 74% White, 15% Asian, 5% Black, 5% Hispanic, <1% Hawaiian/Pacific islander
  - Without an increase in medical school capacity, continuation of training for IMGs, and an expansion of GME the nations total physician supply will decrease

Economics - 2005

- Who is going to pay to increase medical education?
  - Change in education delivery – less "face" time, more PODcasts etc,,,,,
- Threat to allopathic medical schools?
  - "Dumbing down"? - no data to support the idea that American medical students are better, smarter, etc than IMGs or Dos
  - Raised a generation of "good" test takers – Kaplan courses, etc. – however, depth of **critical thinking** is becoming an issue – recent discussions in 2015 on need to train residents this area
  - US IMGs score lower than non-US IMGs on USMLEs

Economics – comments/questions

- Researcher support in allopathic schools partially responsible for more expensive education as compared to DO and Caribbean schools
- As technology continues to be used and the costs rise, how do we continue to deal with this? Continued growth seems unsustainable- Socialist idea – unless government raises taxes can't continue; addition of non-physician providers

Factors affecting utilization of physician services - 2005

- Aging and growth of population
- Wealth of the nation
- Public expectations
- Growth in non-physician clinicians
- New medical interventions
- Evolution of care delivery
- Changes in financing

Workforce Summit December 2013

- More than 24 pathology representative organizations in attendance
- Sponsored by ABP, CAP, ASCP and APC
- Dr. Anthony Yachnis represented the AANP

Propositions for Consideration by the 24 Cooperating Societies and the ACGME Representative

- **Proposition 1:** The **supply** of pathologists and lab professionals will **decrease** substantially over the next 20 years
- **Proposition 2A:** The **demand for pathology and lab services will not remain constant, but will likely increase** (ie a greater demand) over the next 10-20 years
- **Proposition 2B**: There are likely to be **substantial changes in the mix of pathology and lab services provided**. Population trends, the changing nature of health care technology and the changing organization of health care delivery systems combine to put qualitative pressures on pathology and lab medicine (ie demand for a different mix of services)

Propositions for Consideration by the 24 Cooperating Societies and the ACGME Representative

- **Proposition 3**: Reduced workforce supply, combined with increasing and changing demand, means that ensuring Americans' future access to lab med services cannot rely on "business as usual" projections. A serious and realistic consideration of likely numbers of future providers of lab-based healthcare services is needed, and needed urgently, as the recruitment and training process is long. In a resource-constrained environment, these factors require creative reconsideration of the nature of recruitment and training, as well as advocacy for adequate resources. In some areas of lab medicine, these challenges are forecasted for the future – 10 or 20 years down the road. In others, the problem is now.

Propositions for Consideration by the 24 Cooperating Societies and the ACGME Representative

- **Proposition 4: Workforce projections must take into account all members of the laboratory team**. In other areas of medicine such as primary care, the roles of professional team members are typically hierarchical, with the services of some providers being distinguished from those of others by the level of complexity of the case, rather than by their providing distinct and complementary technical elements of a given service. Lab professionals' roles tend to be technically distinct and complementary of one another, rather than merely being subsets of similar skills. These differences, which may appear self-evident from the perspective of a member of the lab team, are not apparent to most healthcare providers outside the lab, much less to the majority of policy-makers. And it is therefore essential to develop a clear ability to communicate the distinct need for each of the elements that make up the lab healthcare force

Propositions for Consideration by the 24 Cooperating Societies and the ACGME Representative

- **Proposition 5**: Maintaining an adequate supply of qualified pathologists and lab professionals depends on access to education and training opportunities
  - Knowledge of opportunities: Pathology has to sell itself regardless – to undergraduate and graduate students, and to medical students who see integrated diagnostics as the most fulfilling medical career possible
  - Students need to be made aware of the scope of opportunities in lab medicine EARLY
  - Requires early exposure and recruitment
  - Access to education and training: must include aggressive and drastic changes to training programs

- **Recommendation 1**: With regard to medical education, trainers, testers and regulators should reevaluate whether pathologist training programs need to/can be revised to meet the future needs of the American health care system, in particular, these groups should reassess what every pathologist needs to know, and identify new ways to ensure adequate numbers of pathologists acquire subspecialized expertise, especially in key emerging areas

ACGME Data collection comment from Julia Iezzoni, Chair of RRC

- With ACGME data collection, PDs would do a survey with questions about all the various criteria and credentialing criteria from ABP: 1) were you adequately trained to do your job or 2) were you insufficiently trained, and 3) did you have training that was not necessary for your practice

CAP Pathology "Supply" Model

- Stan Robboy, M.D.,
- Duke University
- Archives of Pathology and Laboratory Medicine June 2013

Pathologist Workforce in the United States

I. Development of a Predictive Model to Examine Factors Influencing Supply

Stanley J. Robboy, MD; Sally Weintraub, MBA; Andrew E. Horvath, MD; Bradden W. Jensen, MD; C. Bruce Alexander, MD; Edward P. Fody, MD; James M. Crawford, MD, PhD; Jimmy R. Clark, MD; Julie Cantor-Weinberg, MPP; Megha G. Joshi, MD; Michael B. Cohen, MD; Michael B. Prystowsky, MD, PhD; Sarah M. Bean, MD; Saurabh Gupta, BPharm; Suzanne Z. Powell, MD; V. O. Speights Jr, DO; David J. Gross, PhD; W. Stephen Black-Schaffer, MD; and additional members of the Workforce Project Work Group

• *Context.*—Results of prior pathology workforce surveys have varied between a state of equilibrium and predictions of shortage.

Objective.—To assess the current and future supply of pathologists, and apply a dynamic modeling tool for assessing the effects of changing market forces and emerging technologies on the supply of pathologists' services through 2030.

Design.—Data came from various sources, including the literature, College of American Pathologists' internal data, and primary research through custom-developed surveys for the membership and for pathology practice managers

Results.—Through 2010, there were approximately 18 000 actively practicing pathologists in the United States (5.7 per 100 000 population), approximately 93% of whom were board certified. Our model projects that the absolute and per capita numbers of practicing pathologists will decrease to approximately 14 000 full-time equivalent (FTE) pathologists or 3.7 per 100 000 in the coming 2 decades. This projection reflects that beginning in 2015, the numbers of pathologists retiring will increase precipitously, and is anticipated to peak by 2021. Including all types of separation, the net pathologist strength will begin falling by year 2015. Unless workforce entry or exit rates change, this trend will continue at least through 2030. These changes reflect the closure of many training programs 2 to 4 decades ago and the substantially decreased number of graduating residents.

Conclusions.—This comprehensive analysis predicts that pathologist numbers will decline steadily beginning in 2015. Anticipated population growth in general and increases in disease incidence owing to the aging population, to be presented in a companion article on demand, will lead to a net deficit in excess of more than 5700 FTE pathologists. To reach the projected need in pathologist numbers of nearly 20 000 FTE by 2030 will require an increase from today of approximately 8.1% more residency positions. We believe a pathologist shortage will negatively impact both patient access to laboratory services and health care providers' abilities to deliver more effective health care to their patient populations.

(*Arch Pathol Lab Med.* 2013;137:1723–1732; doi: 10.5858/arpa.2013-0200-OA)

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From the Department of Pathology, Duke University Medical Center, Durham, North Carolina (Drs Robboy and Bean); College of American Pathologists, Waukegan, Illinois (Mses Weintraub and Cantor-Weinberg, and Dr Gross); the Department of Pathology,

CAP's Integrated Workforce Model

- Methods
- Results
- Implications

Methods: Policy Questions

- Will we have the right number of pathologists in the U.S. to meet future patient needs?
- What federal government policies might affect this situation?

Methods: Model Development

- Decision to look at 20-year time frame
  - Recognizing it may take a decade to initiate workforce changes through changes in GME

CAP's Integrated Workforce Model

- Developed over a two-year period:
  - Comprehensive
  - Flexible
  - Evidence-based
  - Interactive spreadsheet model

CAP's Integrated Workforce Model: Modeling Supply

CAP's Integrated Workforce Model: Modeling Demand

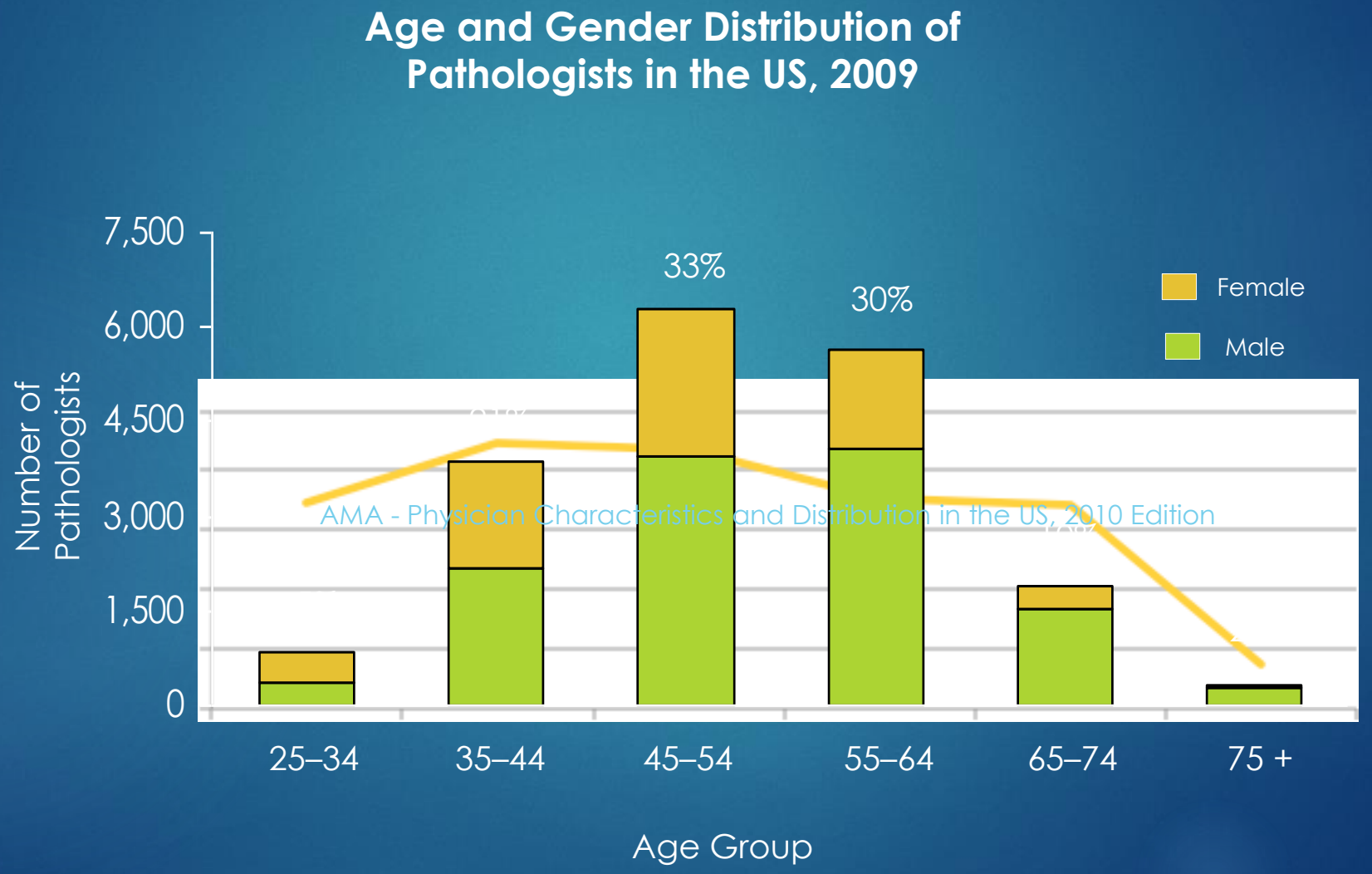
CAP's Integrated Workforce Model

- Methods
- Results
- Implications

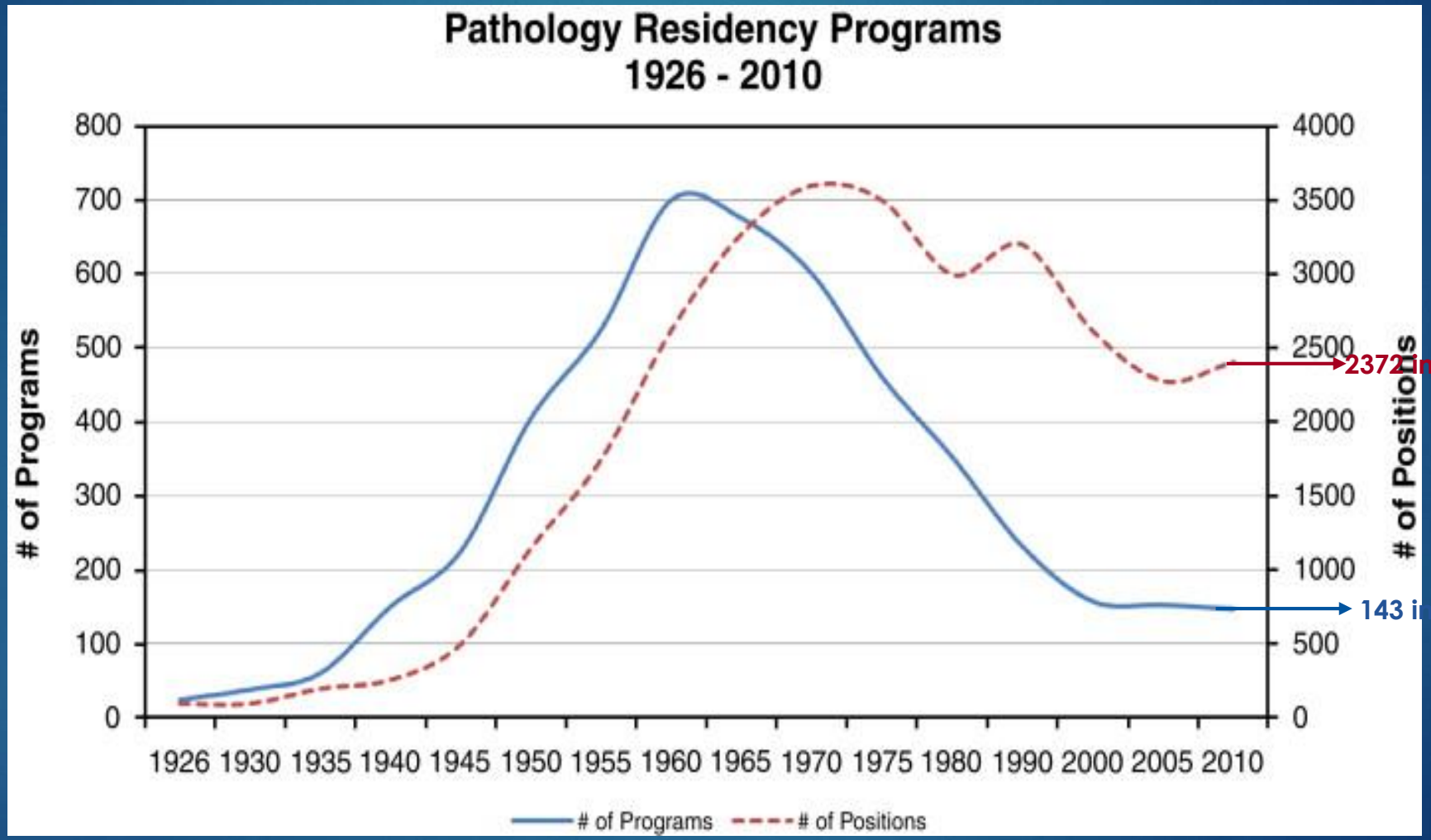
Results

- Most important findings:
- An imminent pathologist shortage
- Without increased supply input (pathologists in training), patients and their clinicians will experience potentially disruptive changes in current patterns of practice

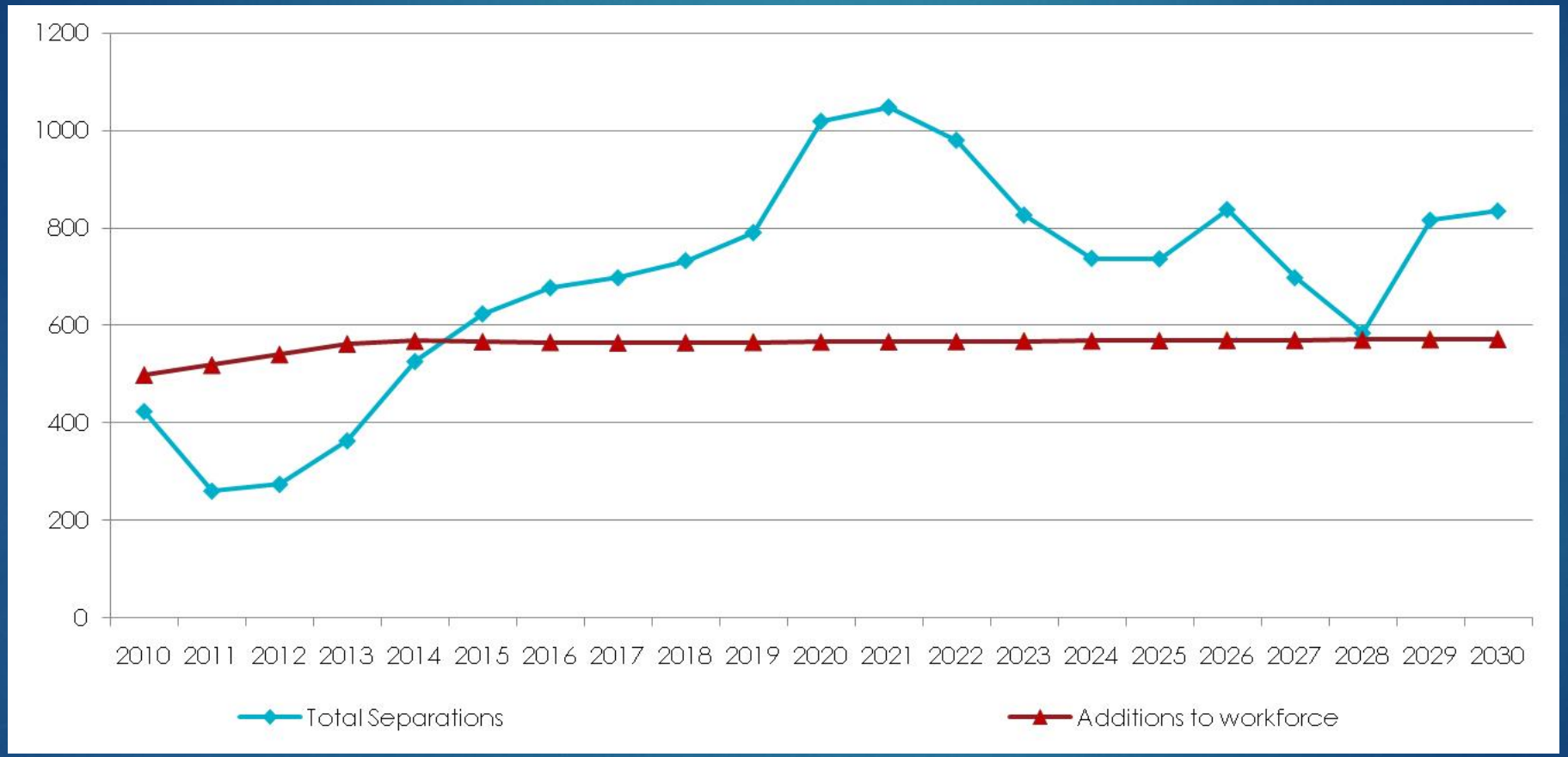
Many pathologists are approaching retirement age



Pathology Residency Programs and Positions from 1926 to 2013

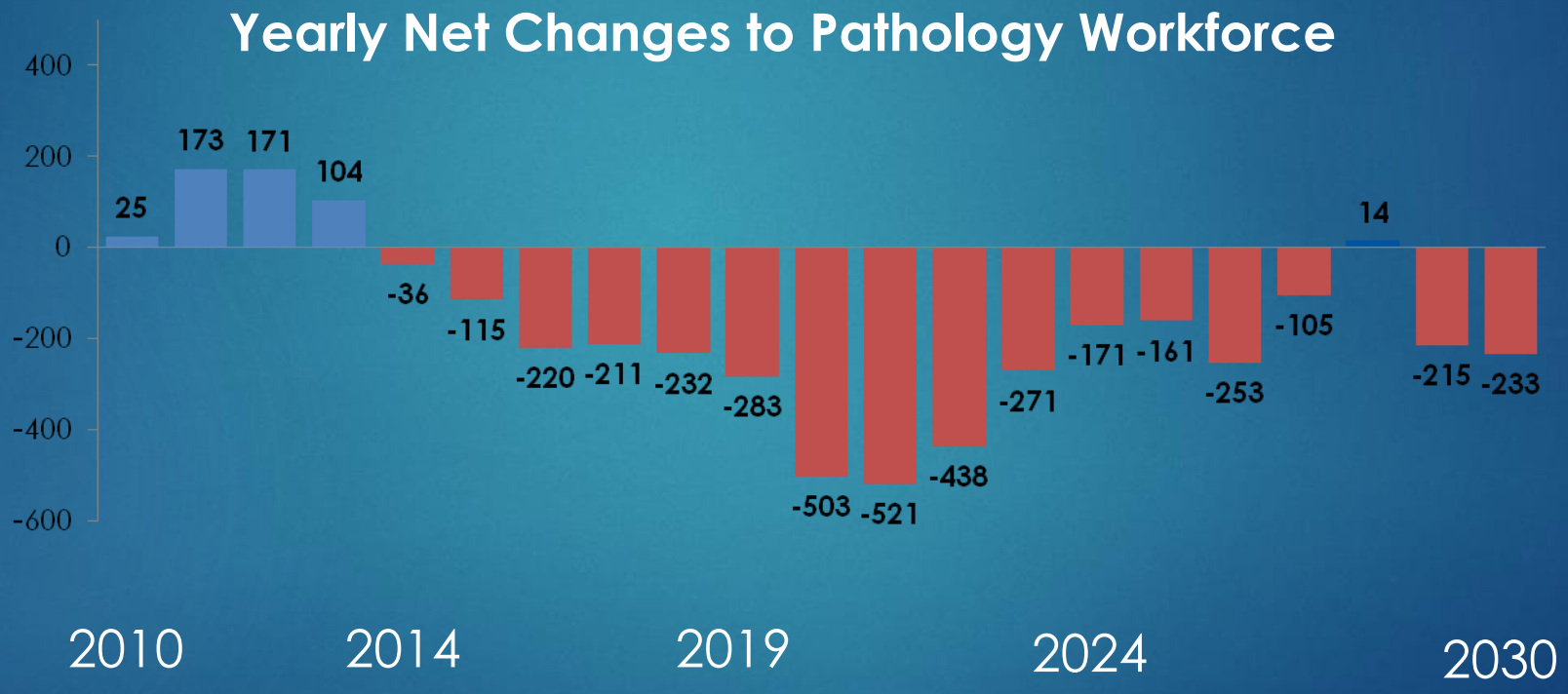


"Retirement Cliff" is coming, but residency slots remain constant



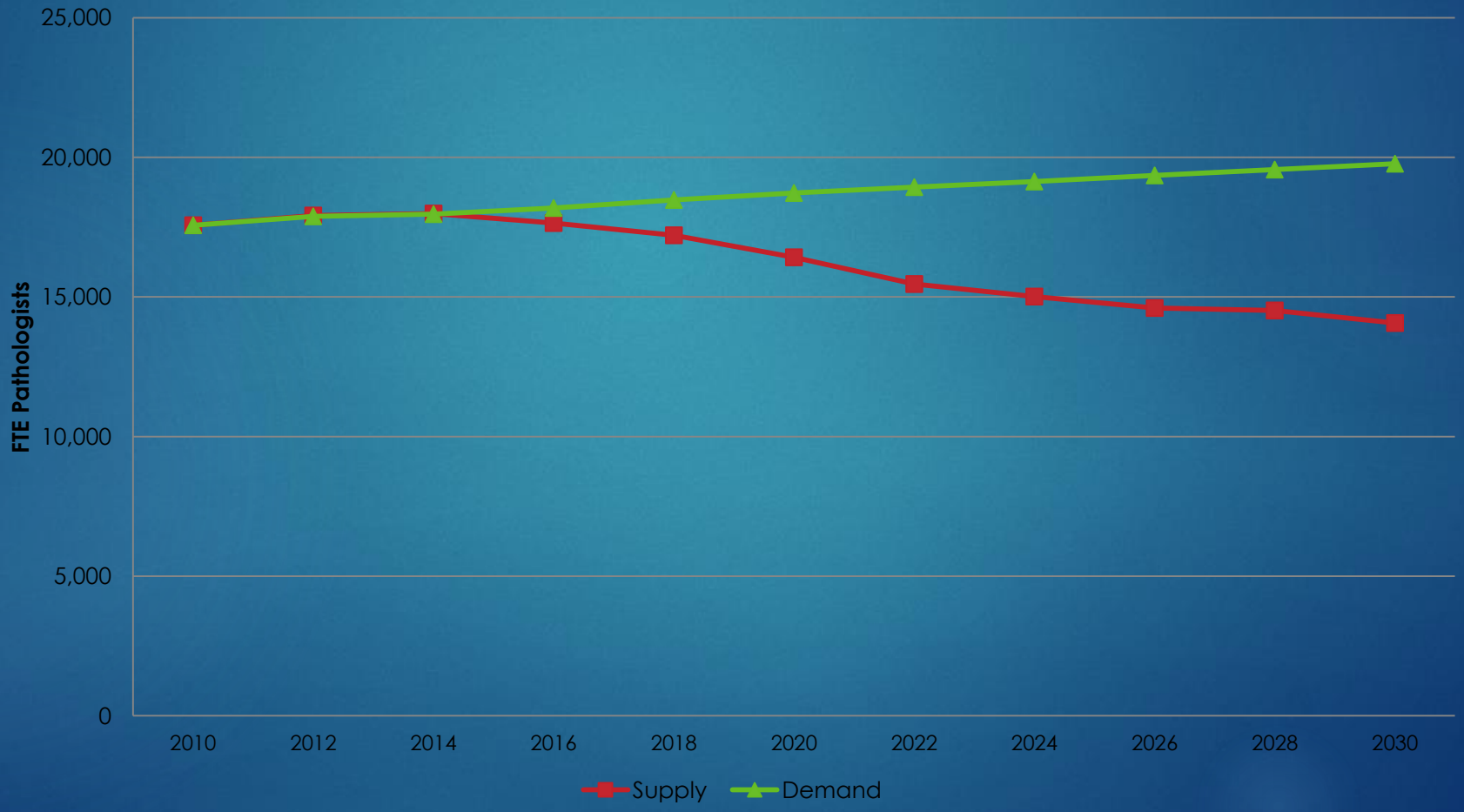
Results

- A cumulatively significant gap in pathologist supply



Results

Supply Gap, 2014-2030



Results

- Other factors have relatively limited impact
- Use of Pathologists' Assistants
  - Already in equilibrium
- New Technologies and Roles
  - Possibly in jeopardy…

CAP's Integrated Workforce Model

- Methods
- Results
- Implications

Implications for Today's Pathologists

- A substantial shortage of pathologists could:
- Impair patient access to needed care
- Prevent pathology from leading in emerging areas:
  - Informatics
  - Genomic Medicine
  - New delivery systems (i.e., coordinated care)
- Thereby leaving it to others to take on roles that fit best for pathology

Policy Implications

- Policy makers need to have current data to assess and address specific needs across specialties
- Pathology extenders are important—but not enough to meet future pathologist workforce needs
- GME funding should be increased—not cut—to address shortage areas

CAP Workforce GME Survey 2013

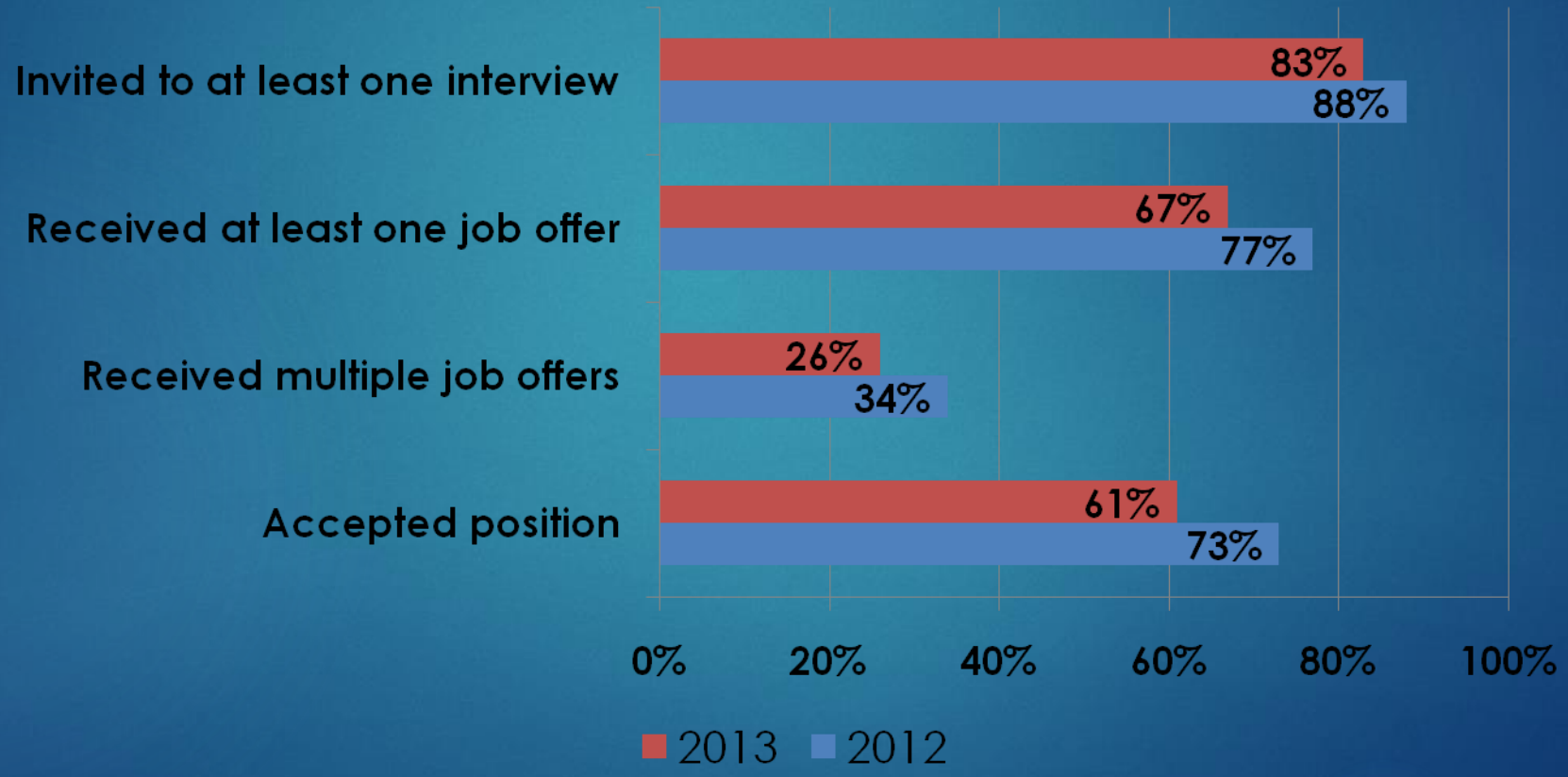
APC GMEC/CAP GMEC Workgroup
Job Market Survey Results – New in Practice

Survey Overview and Sample

- An APC/CAP working group conducted the survey to assess the current job market for newly trained pathologists.
- The survey was sent to **3,623 pathologists in practice ≤3 years.**
  - 651 pathologists opened the survey.
  - Respondents who had not actively searched for a job since July 1, 2012 were screened out (n=460).
- This results in 191 completed surveys.
  - **161 respondents indicated the position sought was their first position since residency/fellowship training**.
  - Results describe the job market for these first time job seekers.
- This sample represents **27%** of the estimated number of first time job seekers (n≈600) in the market.

Results Summary

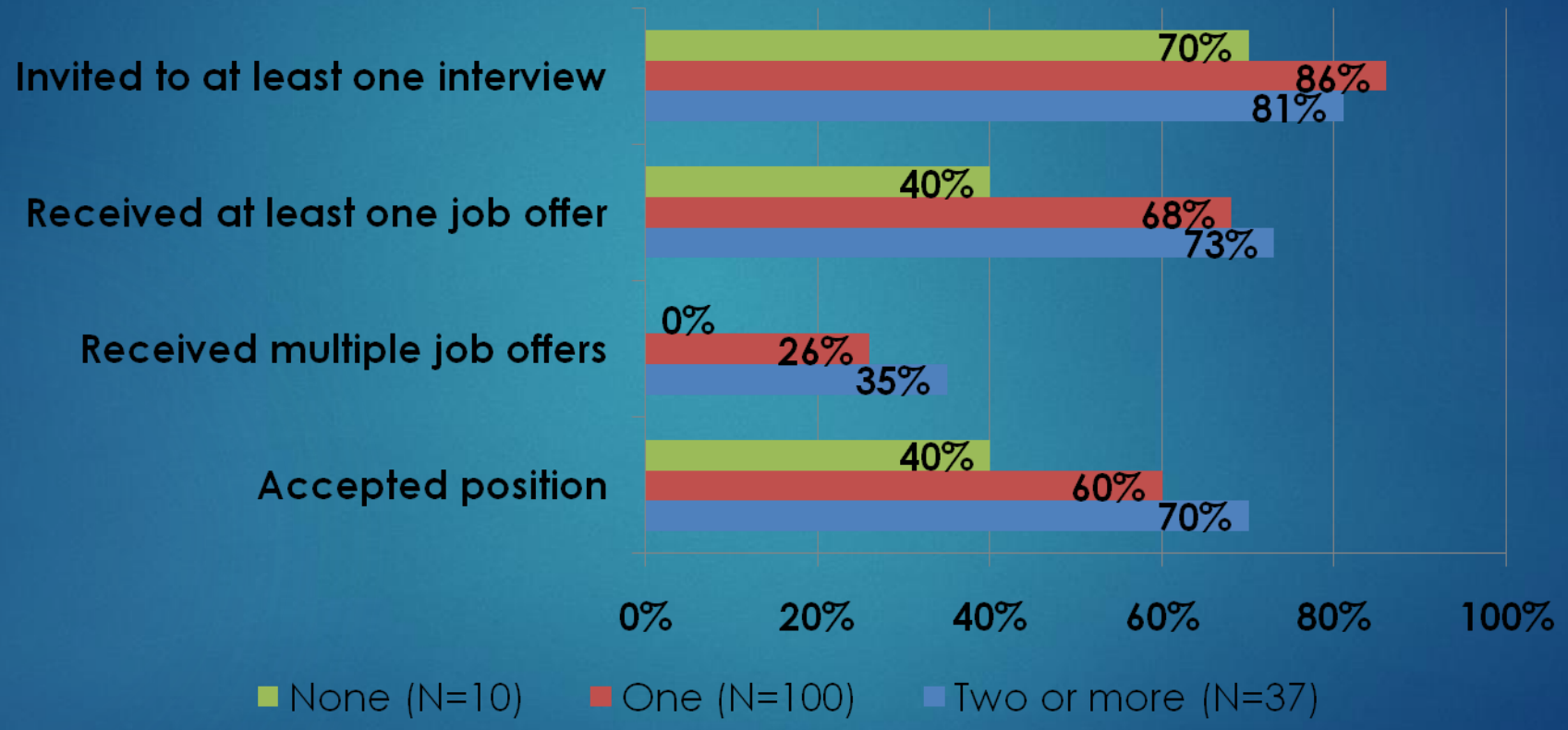
- **The job market for first time job seekers appears less favorable in 2013 compared to 2012.**



**Note: Calculations include only those first time job seekers who applied for at least one position.*

Results Summary continued

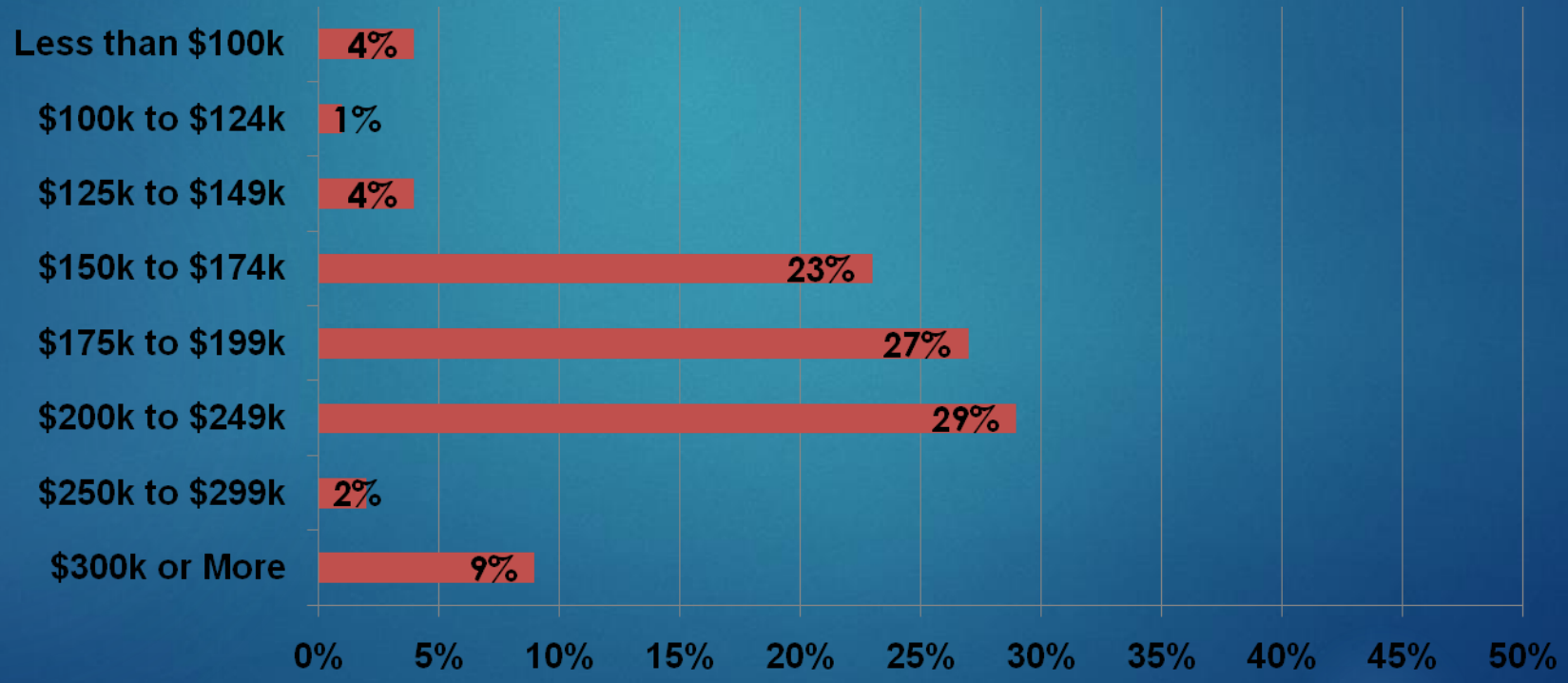
- **Fellowship training increased the likelihood of finding a position.**



**Note: Calculations include only those first time job seekers who applied for at least one position.*

Results Summary continued

- Most respondents were satisfied with the positions accepted.
  - 87% responding *Very Satisfied* or *Satisfied*.
- Starting salaries for positions accepted were variable.



Results Summary continued

- 92% indicated the position accepted was located in a preferred region
- 37% relocated to a different region
- 19% stayed at the same institution where they studied

In what region is (was) the position you accepted?	%
New England	8%
Mid-Atlantic	13%
East North Central	9%
West North Central	12%
South Atlantic	19%
East South Central	7%
West South Central	11%
Mountain	6%
Pacific	15%

Results Summary continued

- 81% of successful job seekers reported some degree of difficulty finding their position.
- Successful and unsuccessful job seekers cited "too few job available" as the primary challenge.

Overall, why do you believe it was difficult/you have been unable to find a position? (Select all that apply)	Accepted Position	Unable to Find Position
Too limited in my geographic preference	31%	16%
Too few jobs available	94%	83%
Started Applying Too Early	2%	12%
Started Applying Too Late	4%	3%
Mismatch between training and job requirements	10%	19%
Inadequate training/experience	10%	12%
Need Stronger Communication/Interpersonal Skills	0%	3%
Need Stronger Interviewing Skills	0%	3%
Not yet Board Certified	4%	10%

Pathology Program Director Survey 2013

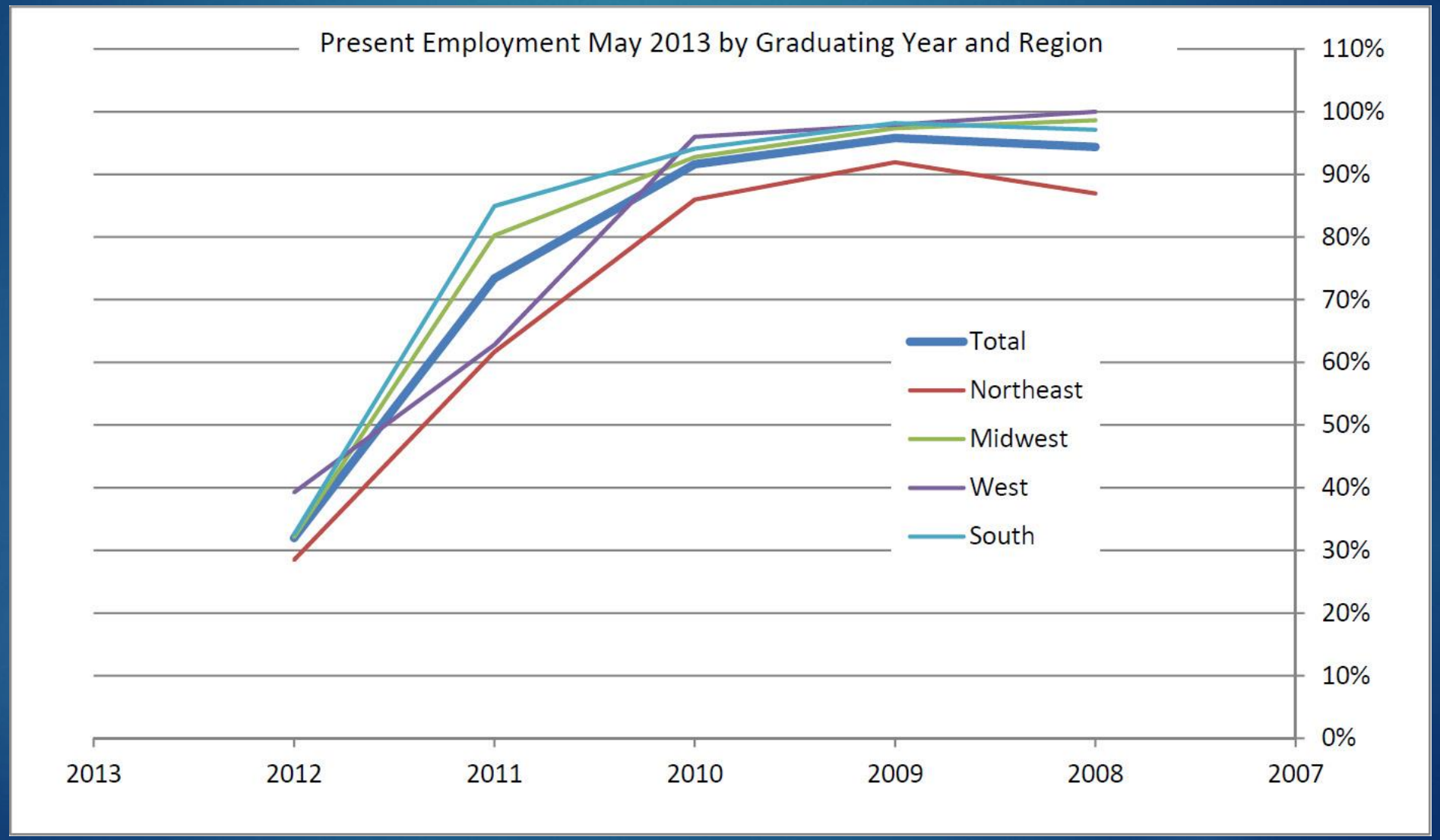
- Pathology Program Directors surveyed from April 8, 2013 to June 1, 2013
- For each graduating class from 2008 to 2012:
  - How many residents successfully completed training?
  - How many of these have ever had a **"real"** job (not a training position)?

Program Director Survey

- 87 complete responses comprising 1802 graduated residents
  - 59.2% response rate of programs with residents.
  - Responding programs comprise 63.2% of current residents.

PRODS Workforce Survey 2013

Hoffman, Powell, Naritoku, Black-Schaffer



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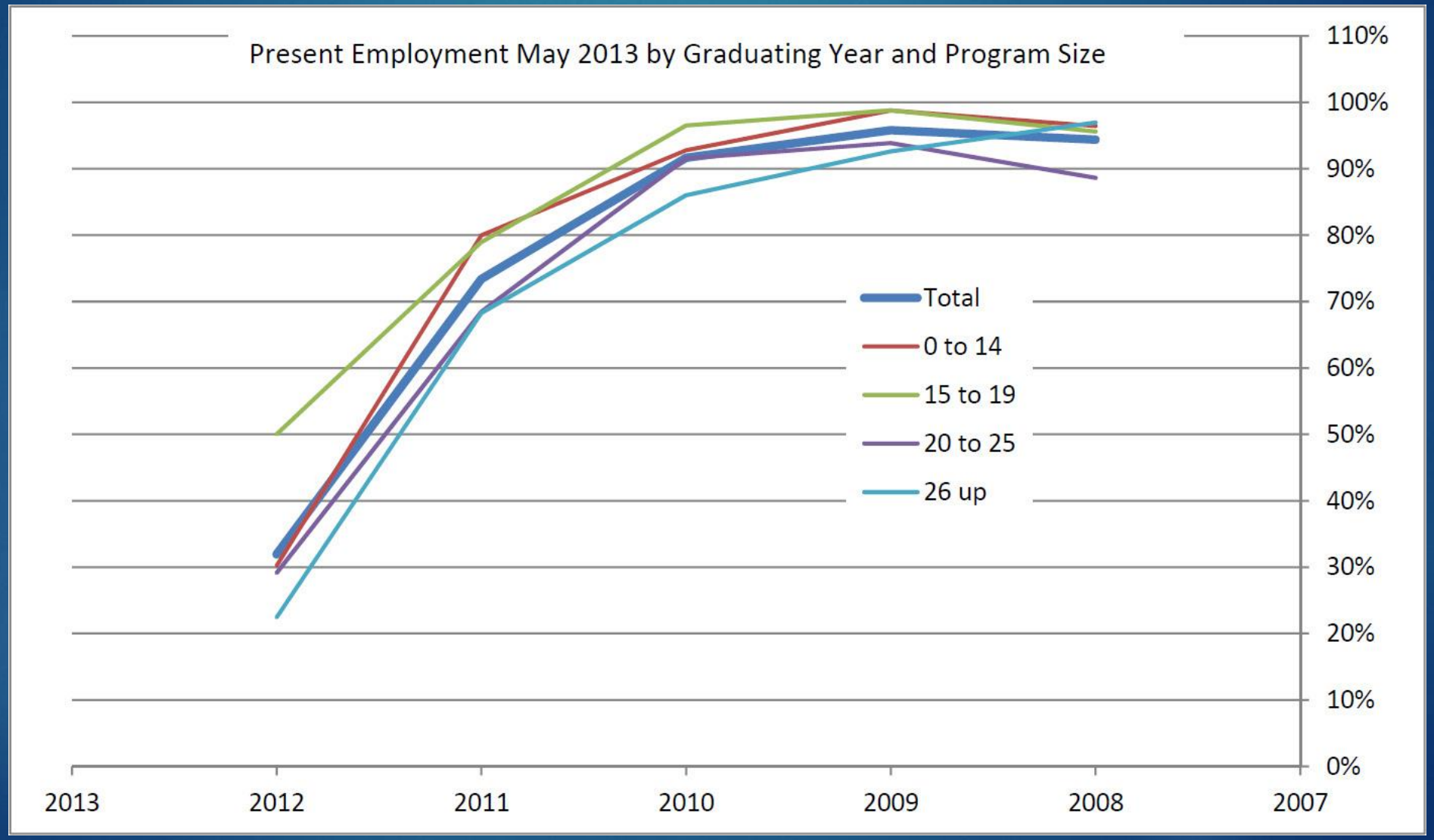


Residency Program Director Survey

- Conclusions:
  - Approximately 95% of trainees in a large sample obtained employment within five years of completing residency.
  - About half of those who would be employed are employed 18 months after completing residency.
  - Residents from different regions and in programs of different sizes do not vary significantly from the mean.

CAP "Demand" Model 2014

IN PRESS – ARCHIVES OF PATHOLOGY AND LABORATORY MEDICINE

“What if”: Modeling demand

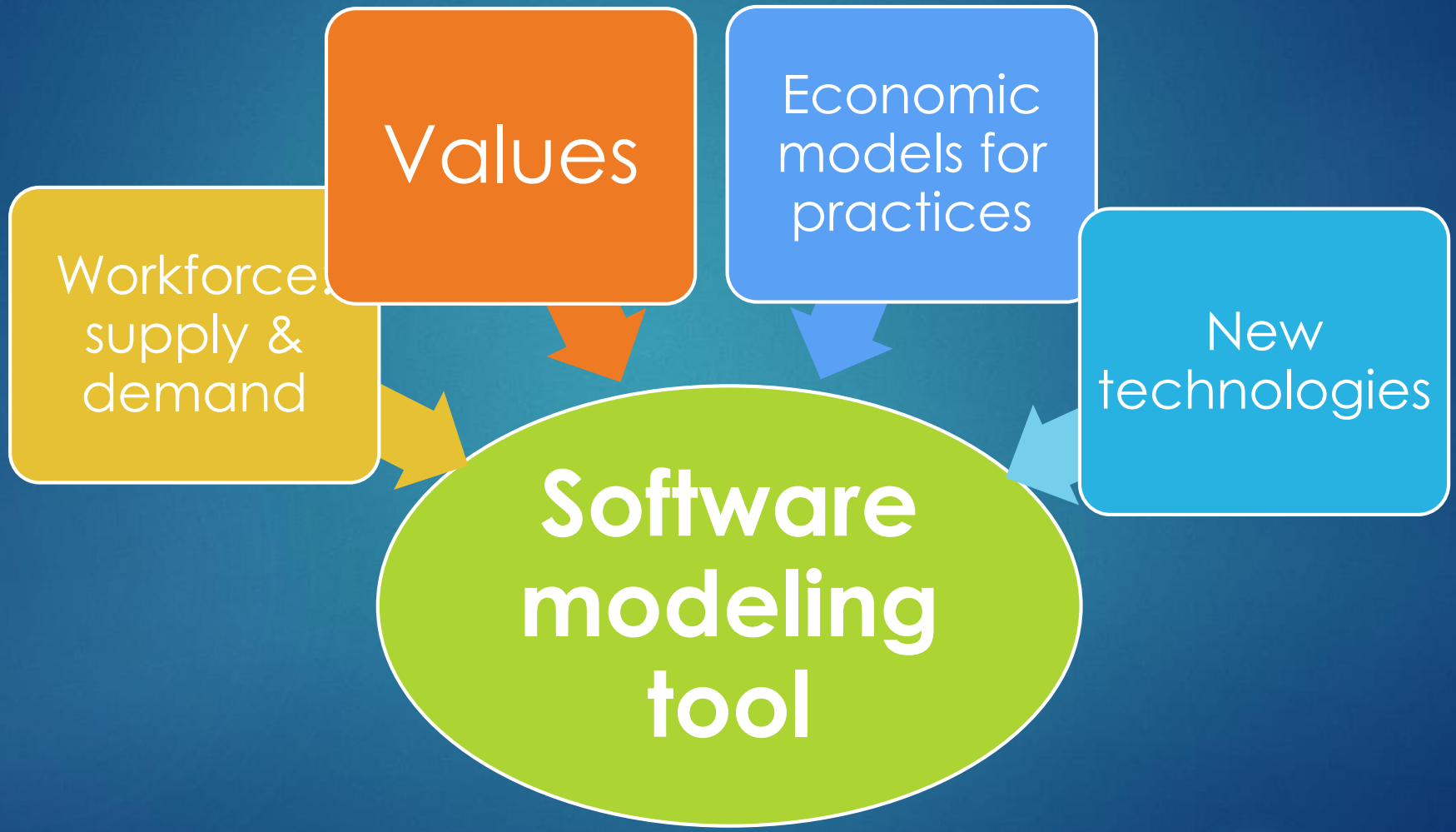
Stanley J Robboy, MD, FCAP
Immediate Past President – CAP
Vice Chair of Pathology - Duke

May 1, 2015

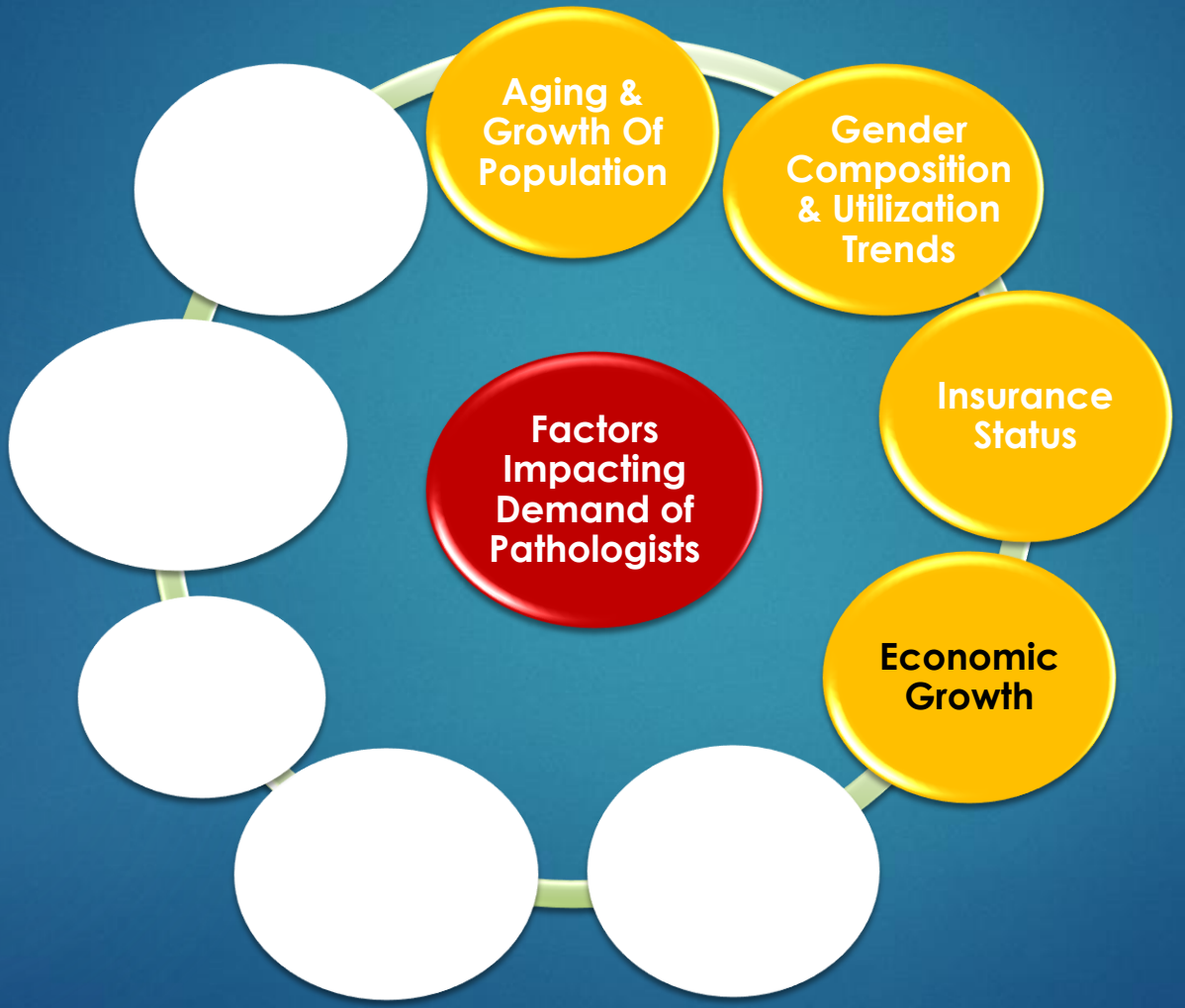
Goals & Purposes

- Develop software to model pathologists' future supply & demand.
  - Output in aggregate or detail.
  - Gap-analysis capability.
  - Test "what-if" scenarios.
  - Forecast Obamacare effect.
- Useful for specialties at national level.

Modeling Workforce Inputs



Modeling Demand



Societal

Medical Technol

Taxonomy

Services

ONE PATIENT AT A TIME

- Anatomic Pathology
  - Surgical Pathology
  - Cytopathology
  - Autopsy
- Laboratory Medicine (CP)
- Genomic Pathology
- Real Time Services
- Provider Consults

POPULATION SERVICES

- Lab Medical Direction
- Outcome Assessment/ Utilization Management
- Biorepository Management
- Public Health
- Clinical Informatics

PROFESSIONAL RESPONSIBILITIES

- Medical Administration
- Teaching
- Research
- Lifelong Learning
- Professional Societal Obligations
- Entrepreneurship (Practice Management)

Locations

HOSPITALS/MEDICAL CENTERS

- Academic (ACGME)
- Community (Urban/Suburban Rural)

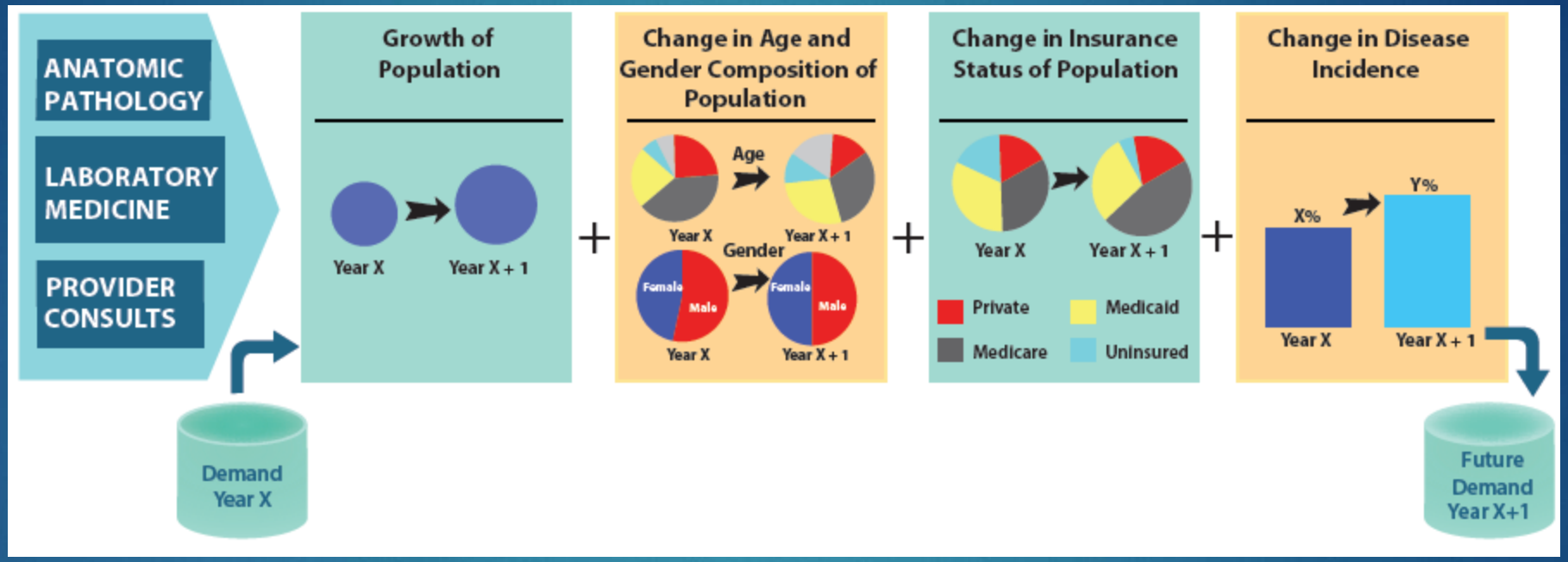
LABORATORIES

- Stand-alone Laboratory
- Forensic Laboratory
- Central Lab for Multiple Hospitals
- Physician Office Laboratory
- Dedicated Laboratory
- Research Laboratory

OTHERS

- Blood Center
- Ambulatory Surgical Centers
- Not Tied to a Specific Location

Calculations

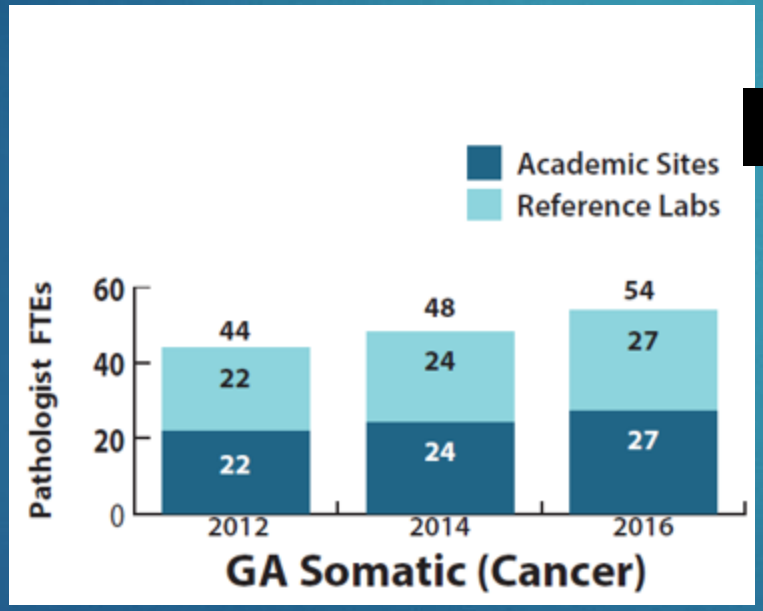


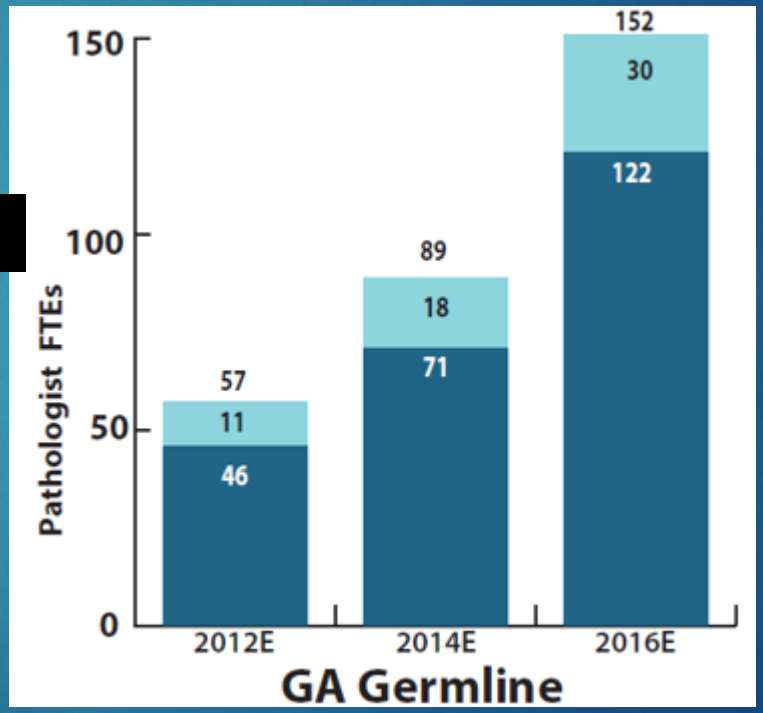
Genomic pathology (molecular oncology)

In 2008, 1.25M primary ca's; 0.65M recur
By 2016, 10% all undergo genome analysis

Testing	Large panel	Exome	Full/NGS
2011	**100%**	**0%**	**0%**
2016	**90%**	**5%**	**5%**
Pathologist time			
2011	**50 hr**	**100 hr**	**NA**
2016	**0.5hr**	**2 hr**	**2 hr**

Genomic pathology – FTE demands





The Challenge

"In 10 years, your job probably won't exist" US Dept Labor, in Washington Post 1/5/15

Skills needed	One Patient	Popu-lation	Profes-sional
Communication skills	* *	*	* *
Handy w large data sets	*	* *	*
Manage higher cognitive load	* *	*	*
New multidisciplinary approach & collaborative tools	* *	*	*

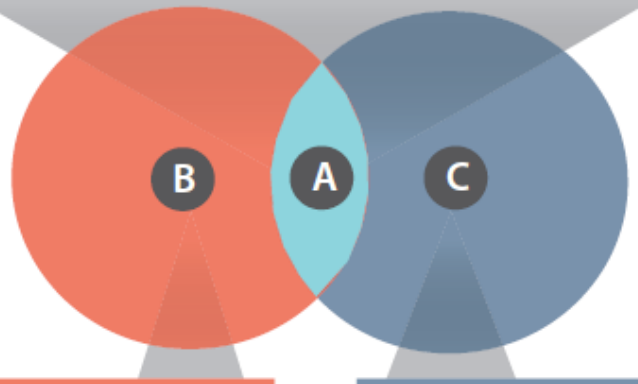
Future

- Add more clinical value outside lab, improve downstream outcomes, generate additional clinical savings.
- Improve and ensure patient safety

New & enhanced endeavors

A ALL ENVIRONMENTS

Service Name	FTEs in 2016
In vivo microscopy	30 (status quo) 50 (interpret) 400 (intervene)
Genomic consult	200-300



B COORDINATED CARE ENVIRONMENT

Service Name	FTEs in 2016
Acute care consultation	600-1000
Institutional informaticist	700-900
Mid/post diagnostic consult	375-500

C NON-COORDINATED CARE ENVIRONMENT

Service Name	FTEs in 2016
Ongoing wellness management	75
Institutional insourcing	120

American Board of Pathology Maintenance of Certification Survey 2014

MOC Survey Administration

- Following 2014 submission of required 2 year data, invitation to do a survey on training and preparation for current position (certification between 2006 and 2012)
  - Those in practice more than 10 years were screened out
- Areas in which too much or too little training were identified
- Responses from those having subspecialty training were eliminated from consideration of amount of training in those areas
- Survey completed by 625 individuals, 1.6% who completed demographics identified as neuropathologists
- Overall, individuals are satisfied that they have received adequate training to perform their duties
- Results preliminary
- Specifics of the few individuals who identified as NP follow

MOC Survey – Neuropathology Specifics

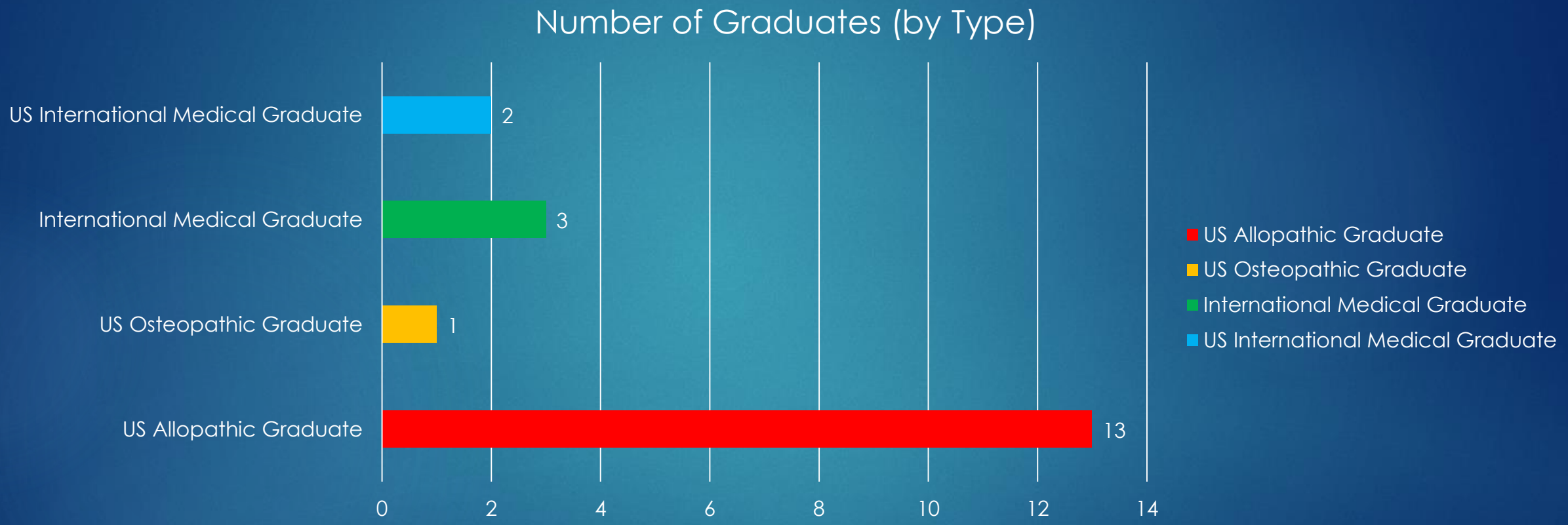
- **12 of the respondents (2%) completed a NP fellowship.**
  - 4 of the 12 completed a second fellowship in surgical pathology.
  - We do not know which fellowship was completed first.
- In terms of their current practice:
  - 9 indicated it is predominantly AP
  - 2 practice sub-specialty only, and indicated the following as their subspecialties:
    - 1 NP, Medical Renal Pathology, and Other (Transplant Pathology)
    - 1 NP and Other (Transplant Pathology)
  - 1 did not answer this question

MOC Survey - Future

- Hope to "tweak" survey
- Readminister in 2015 to different group of those in practice less than 10 years
- Third (and possibly fourth) administration in 2016 and 2017 to add additional data points

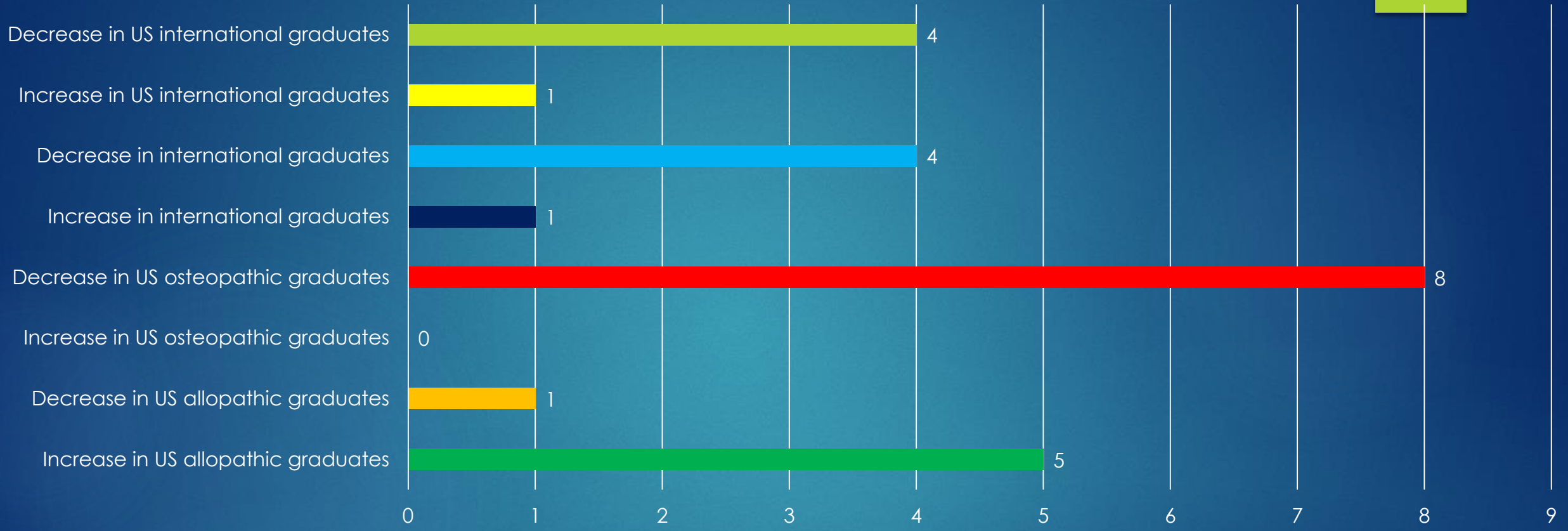
NP Program Director Survey 2015

Q1: Category of Graduate applying (by medical school type)?



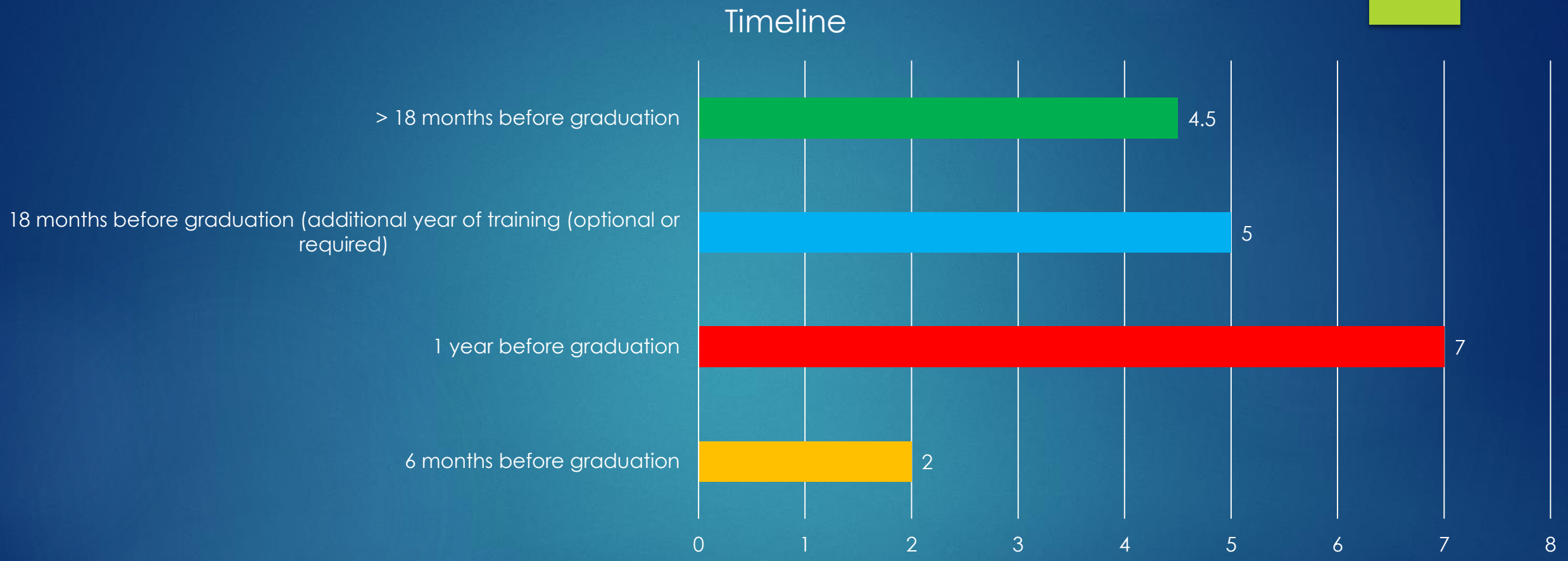
US International Medical Graduate	2	11%
International Medical Graduate	3	16%
US Osteopathic Graduate	1	5%
US Allopathic Graduate	13	68%

Q2: Have you observed a trend in any particular category in those applying?



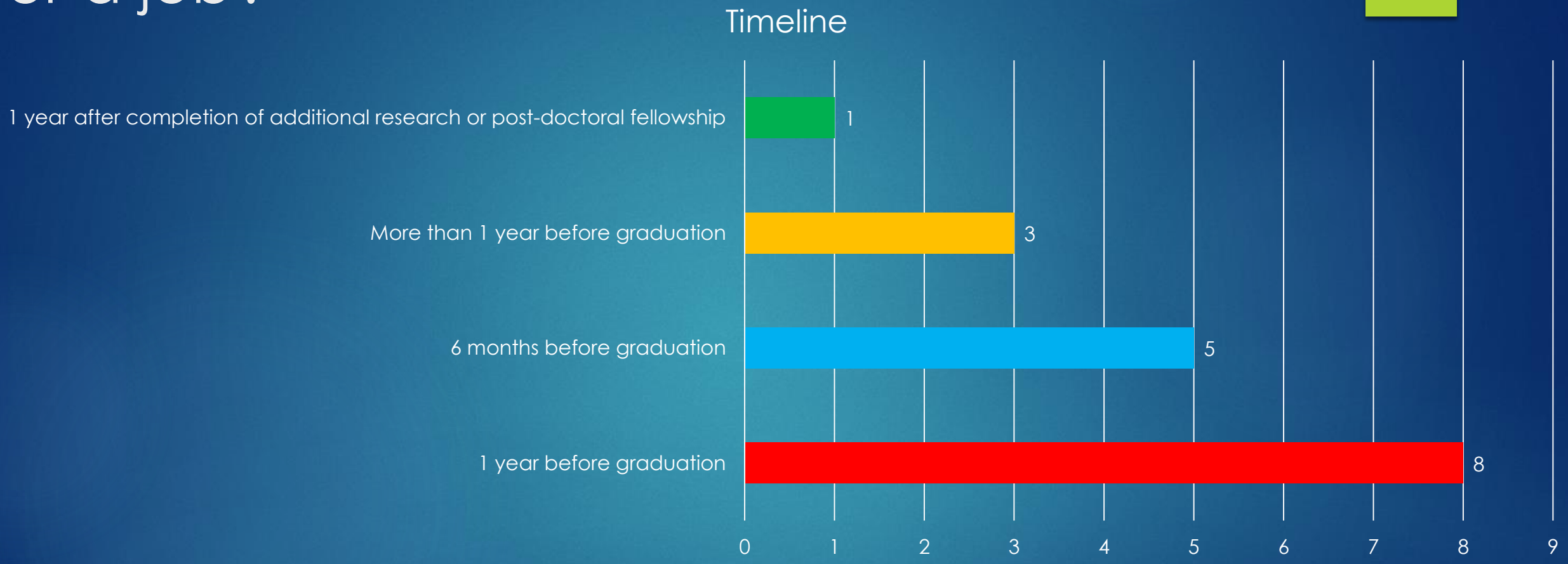
Decrease in US international graduates	4	25%
Increase in US international graduates	1	6.25%
Decrease in International graduates	4	25%
Increase in International graduates	1	6.25%
Decrease in osteopathic graduates	8	50%
Decrease in US allopathic graduates	1	6.25%
Increase in US allopathic graduates	5	31.25%

Q3: When do you recommend your graduates begin the search for a job?



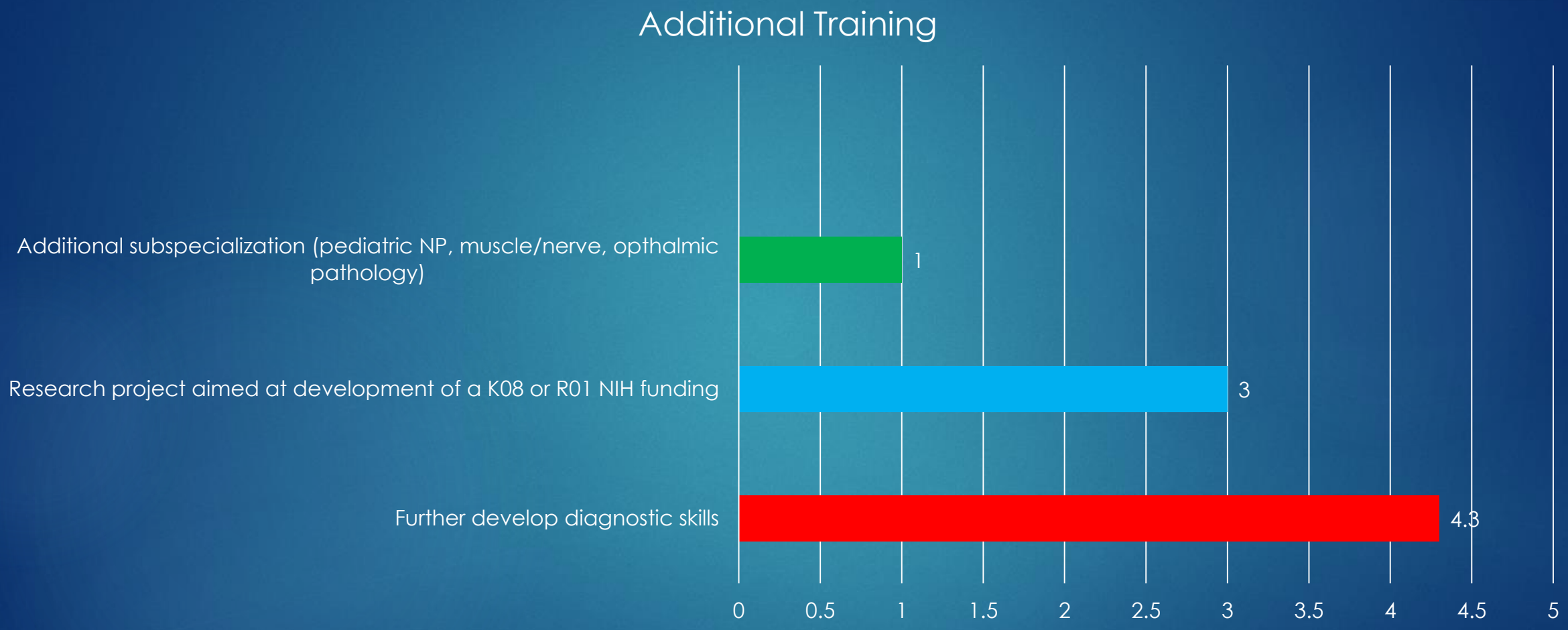
6 months before graduation	2	11%
1 year before graduation	7	39%
Fellows in a program with a second year (required or optional)		
18 months before graduation	5	28%
> 18 months before graduation	4	22%

Q4: When do your fellows ACTUALLY begin the search for a job?



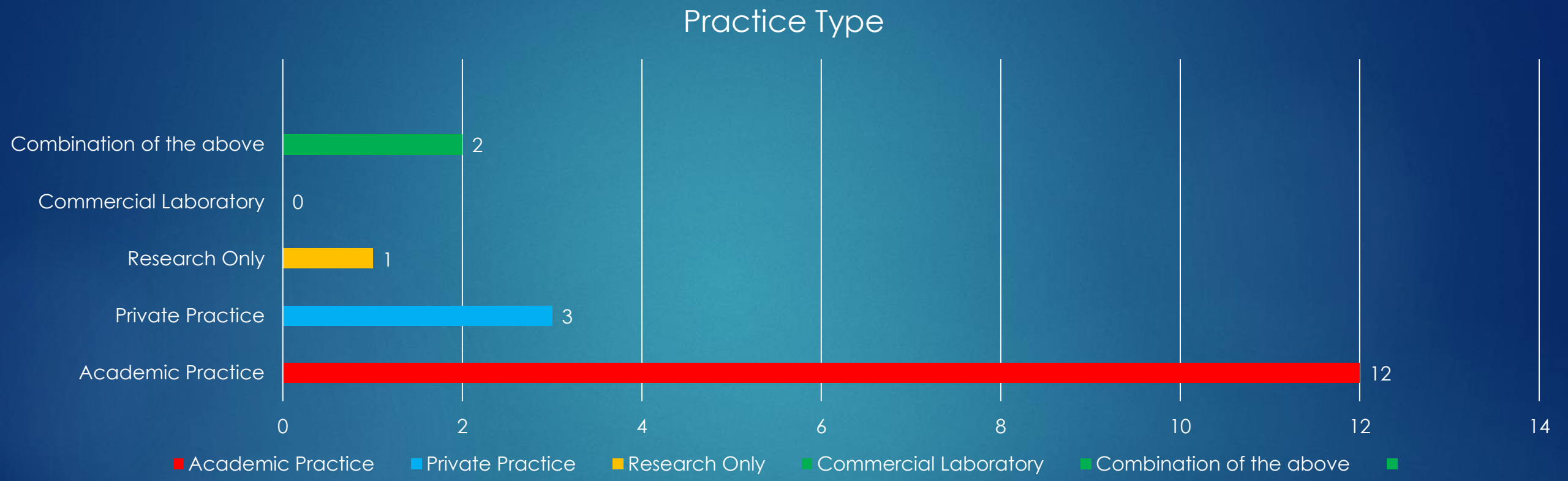
1 year before graduation	8	47%
6 months before graduation	5	29.5%
More than 1 year before graduation	3	17.5%
1 year after completion of additional research or postdoc	1	6%

Q5:If your fellow did an additional post-doctoral fellowship, what was the purpose?



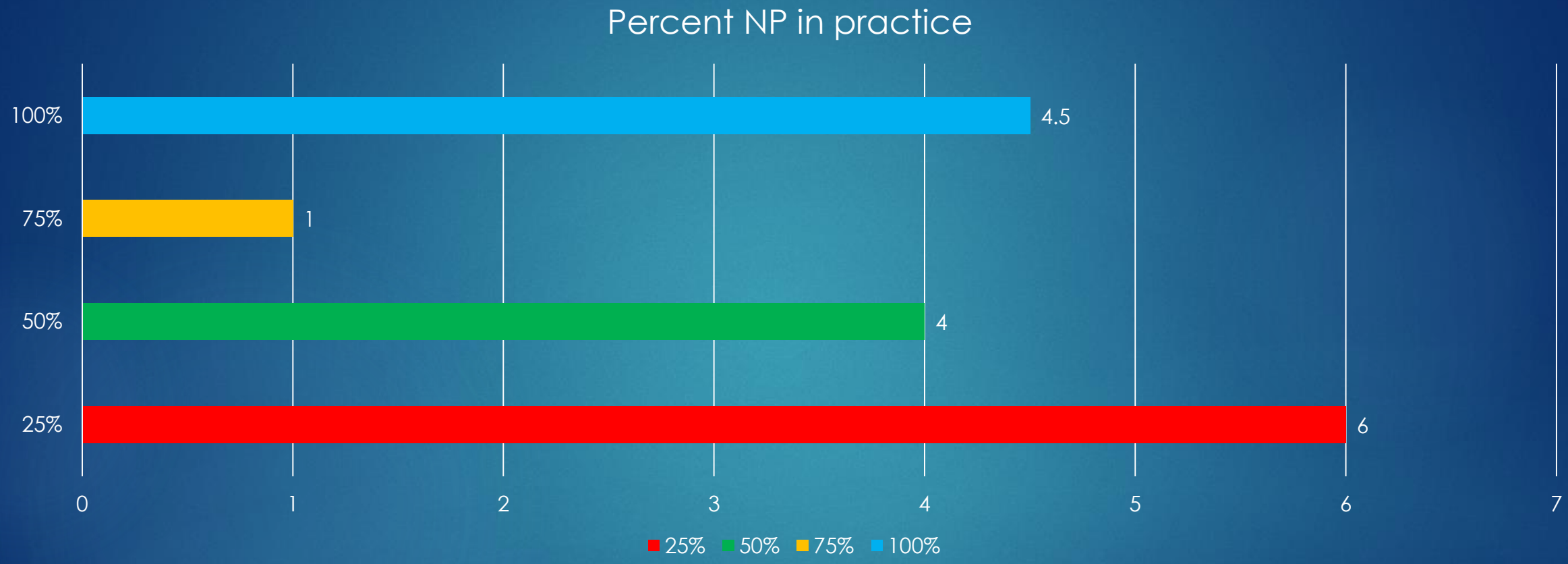
Further develop diagnostic skills	6	60%
Research project aimed at development of K08 or R01 funding	3	30%
Additional subspecialization (non-boarded)	1	10%

Q6: what type of practice has your graduate selected?



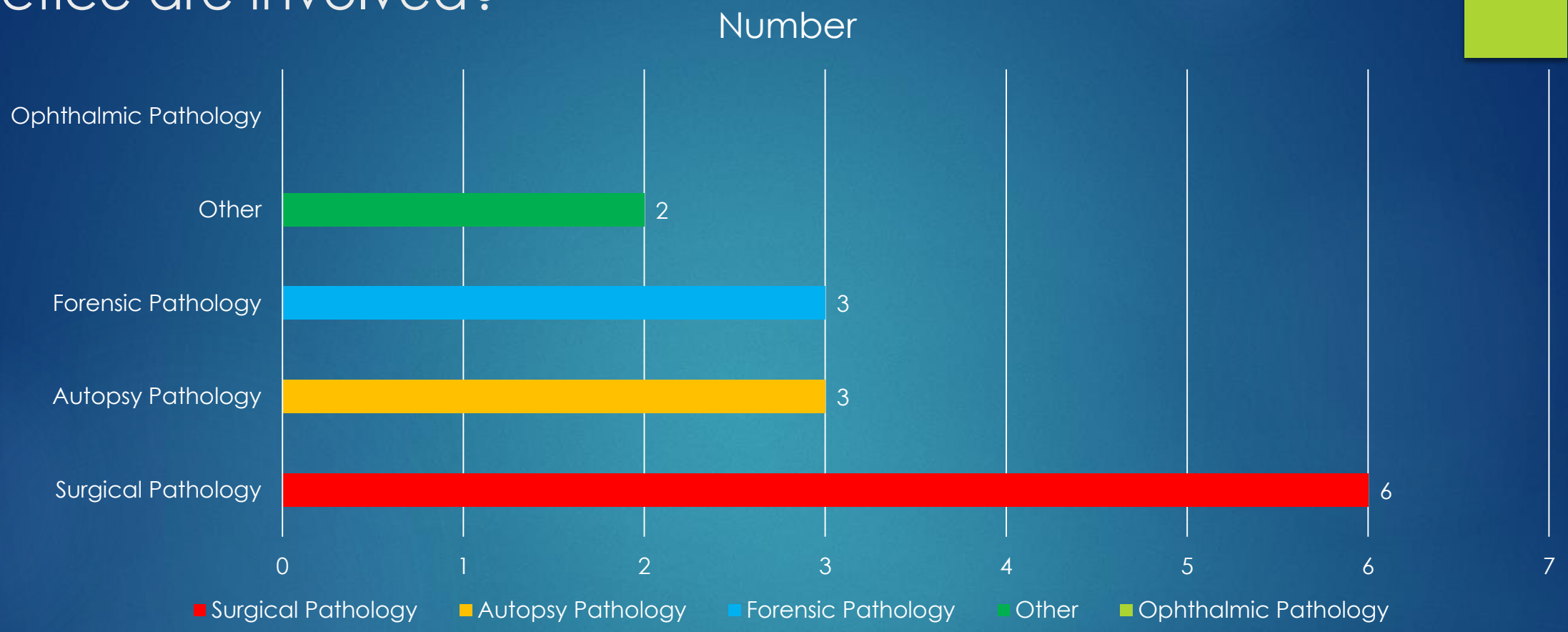
Academic Practice	12	67%
Private Practice	3	17%
Research only	1	5%
Combination	2	11%

Q7: If academic, what percentage of their work is exclusively Neuropathology?



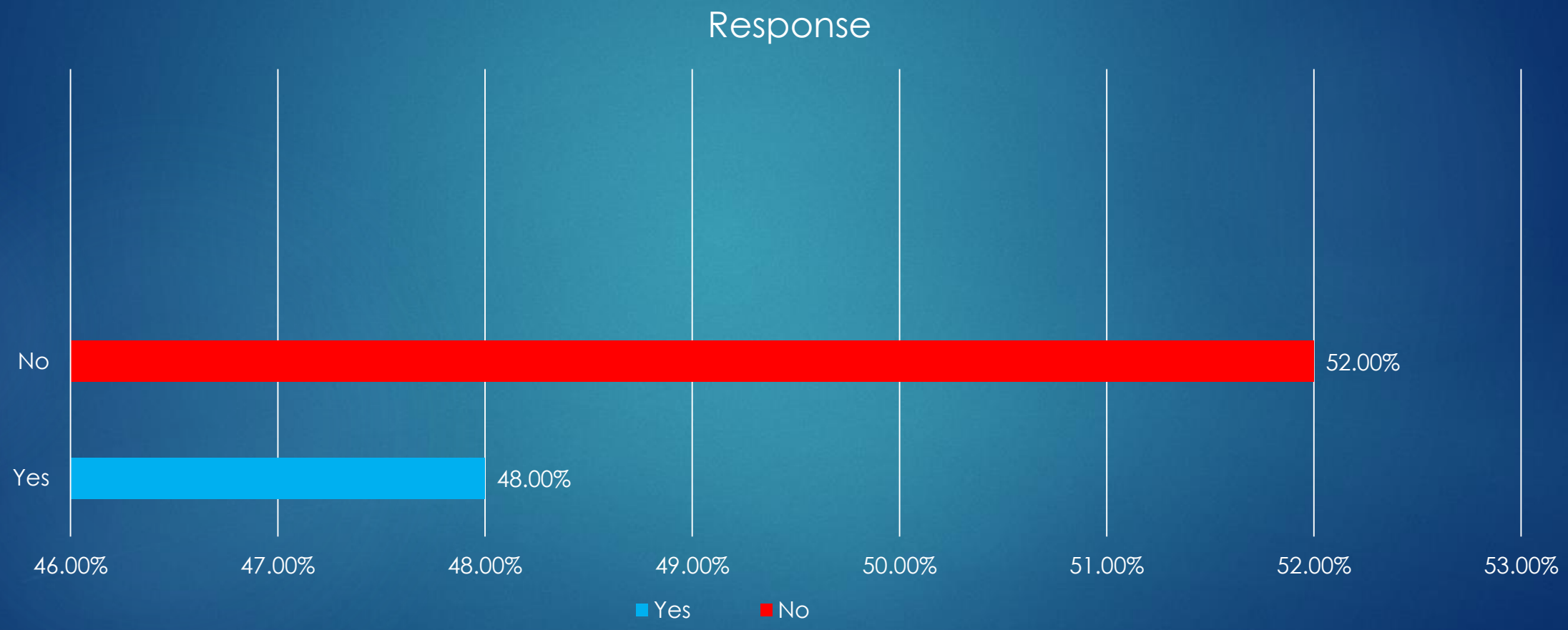
25% of practice	6	43%
50% of practice	4	29%
75% of practice	1	7%
100% of practice in NP	3	21%

Q8: If less than 100% Neuropathology, what other areas of practice are involved?

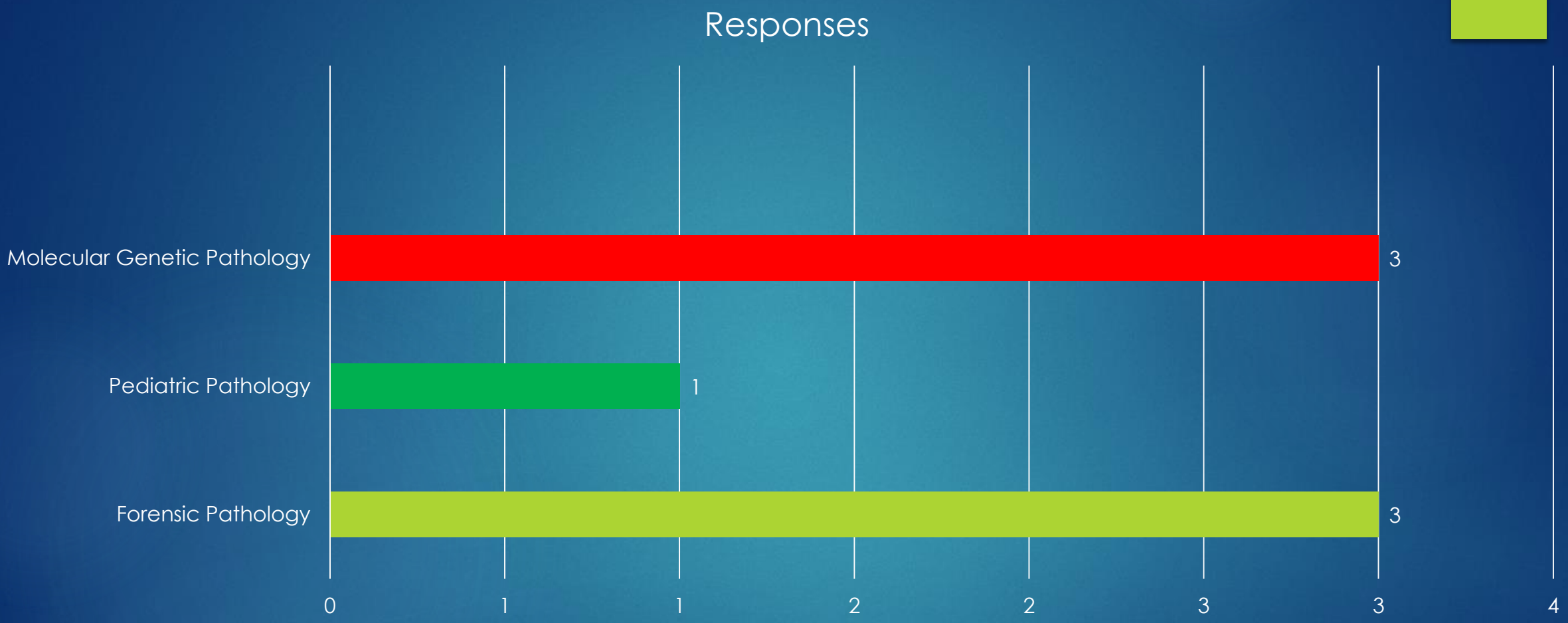


Surgical Pathology	6	43%
Autopsy Pathology	3	21.5%
Forensic Pathology	3	21.5%
Other (please specify)	2	14%

Q9: Have your graduates selected a second fellowship?

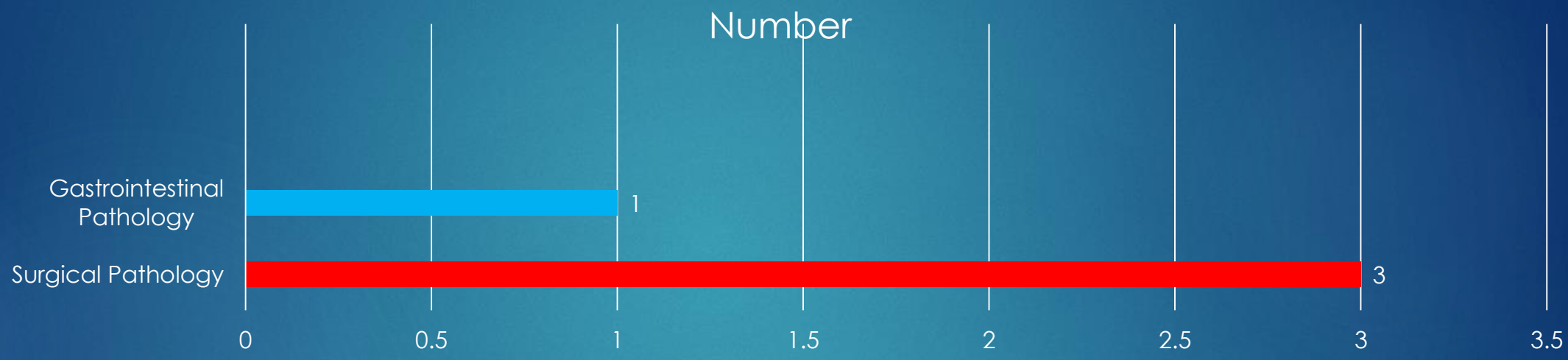


Q10: If yes, which one?



Forensic Pathology	3	42.86%
Molecular Genetic Pathology	3	42.86%
Pediatric Pathology	1	14.28%

Q11: If not ACGME accredited, which of the following were selected?

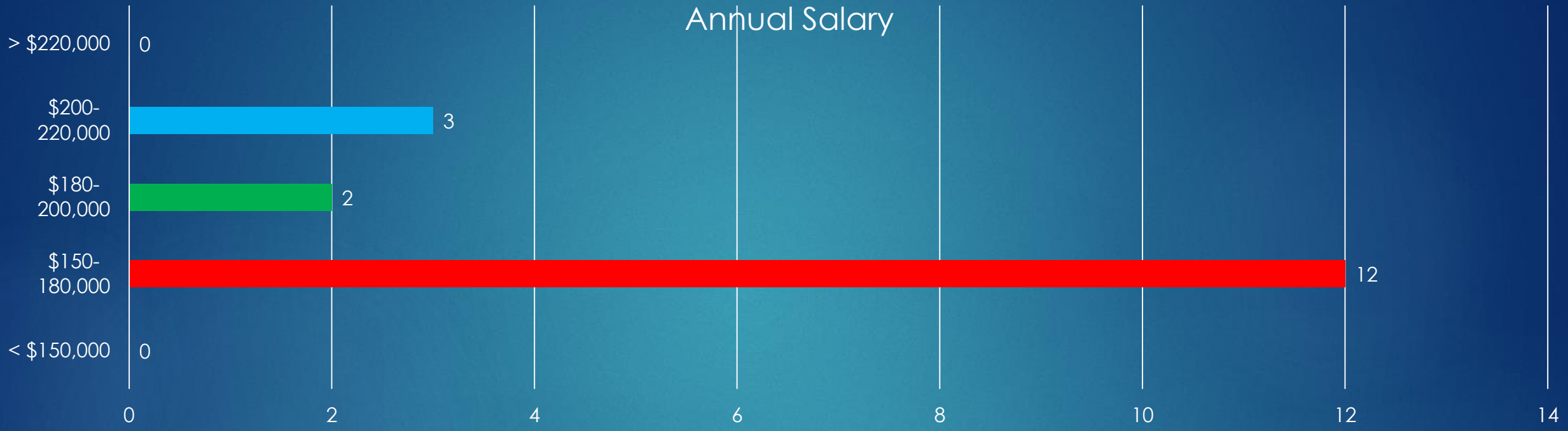


Surgical Pathology	3	75%
Gastrointestinal Pathology	1	25%
Other	0	0%

Q12: If the graduate selected a second fellowship, why?

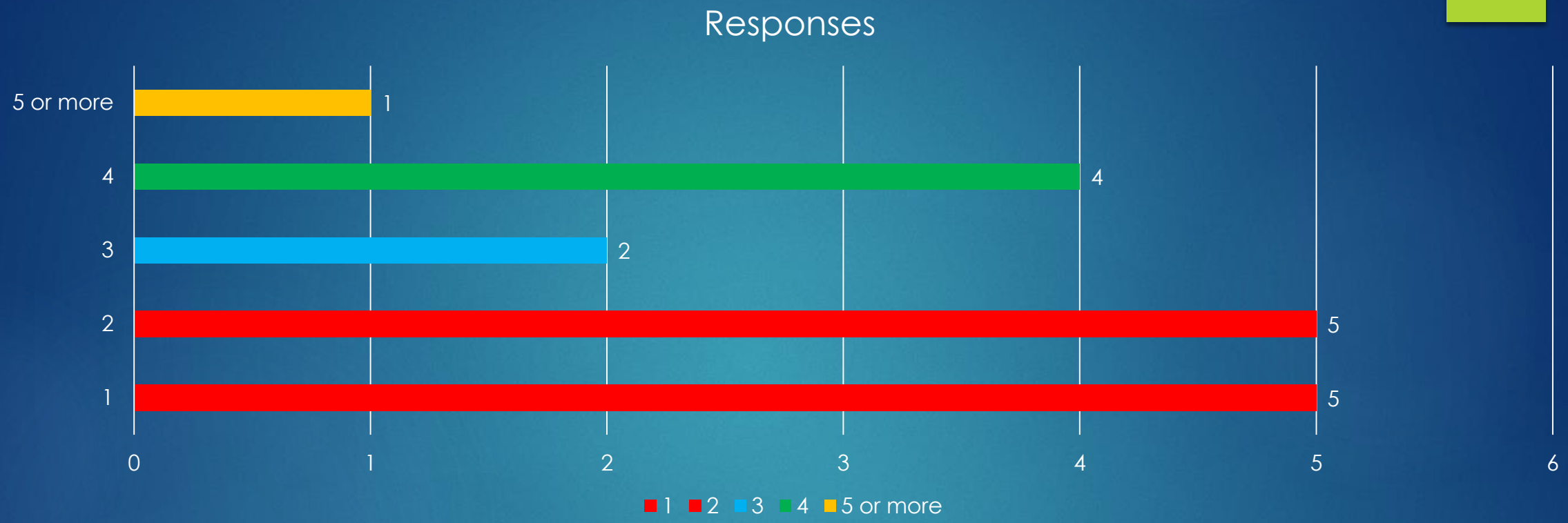
Market Demands	4	45%
Interest	4	45%
Other	1	10%

Q13: What are the annual salary expectations of graduates completing your program?



$150-180,000	12	63%
$180-200,000	2	11%
$200-220,000	3	16%
>$220,000	0	

Q14: How many positions did your trainee apply for?

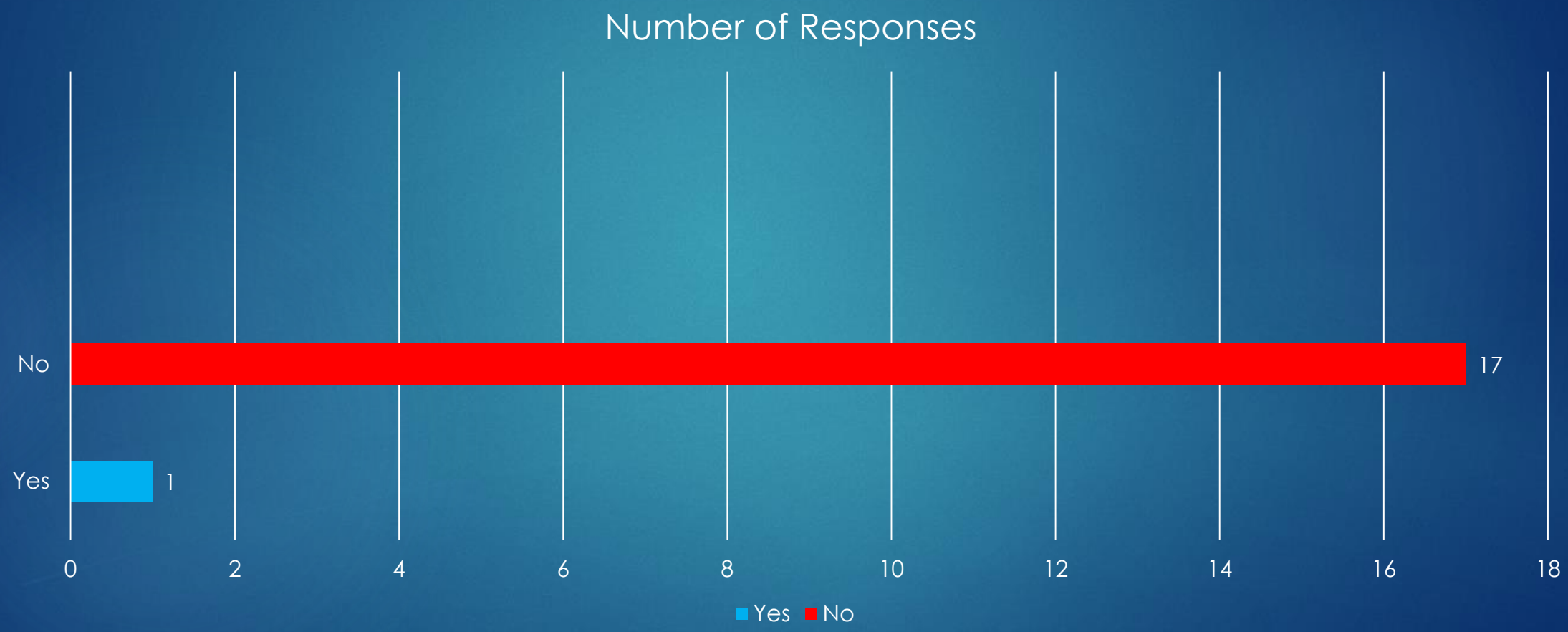


Positions	Number of Responses	Percentage
1	5	29.5%
2	5	29.5%
3	2	11.5%
4	4	23.5%
5 or more	1	6%

Q15: How many offers did your trainee receive?

Number of Offers		Responses	Percentage
1	8	44.5%	
2	9	50%	
3	1	5.5%	
4			
5 or more			

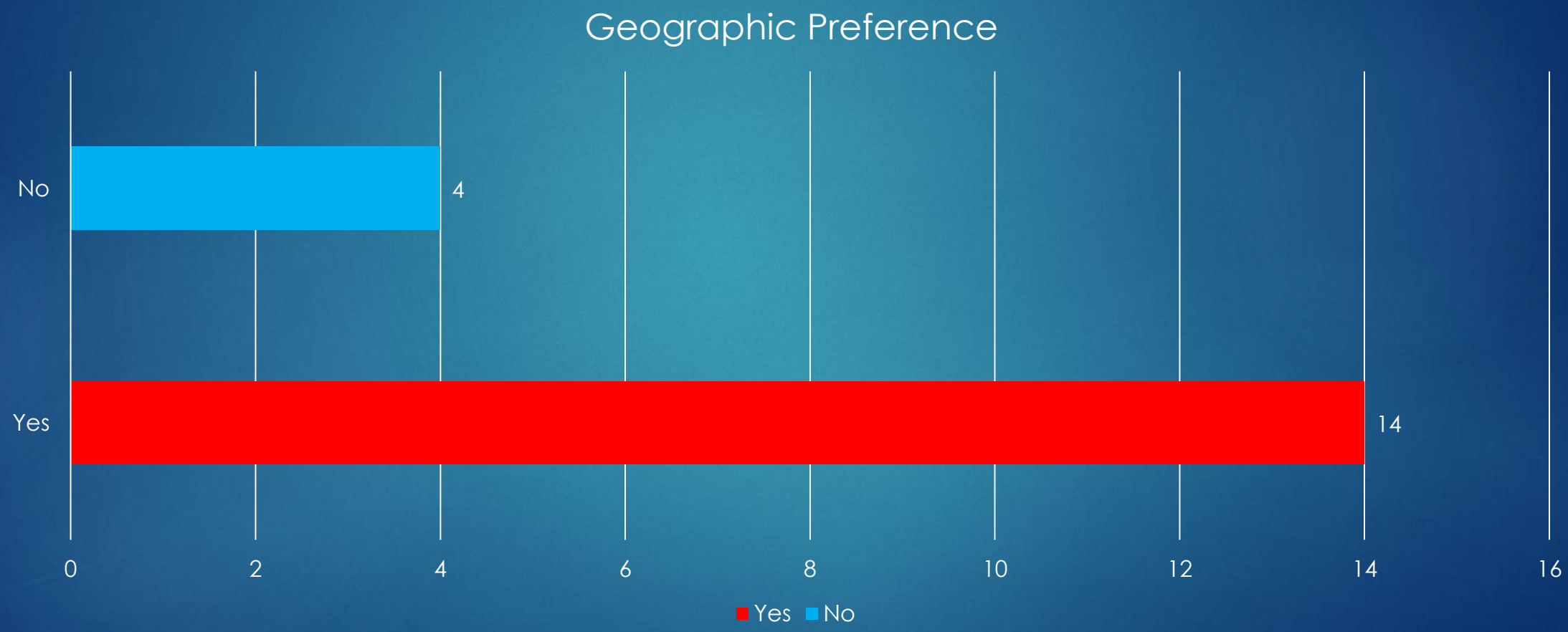
Q16: Did your trainee entertain both full and part-time offers?



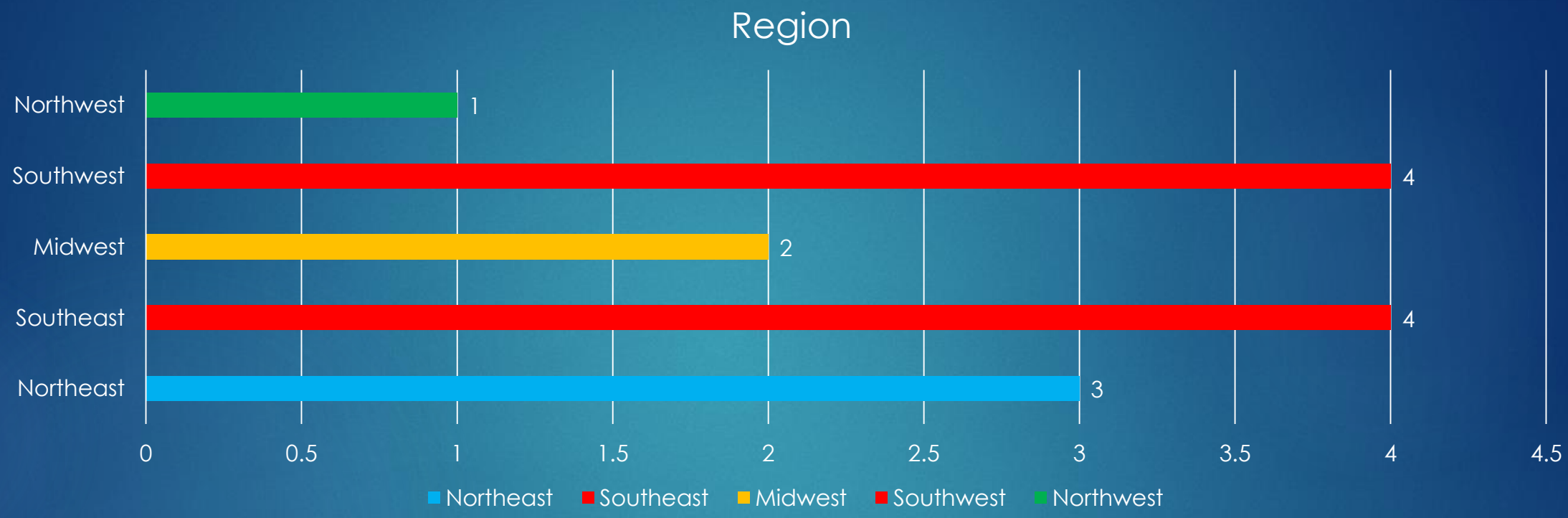
Q17: If yes, which position did they accept?

All accepted full-time positions

Q18: Did the trainee have a geographic preference?

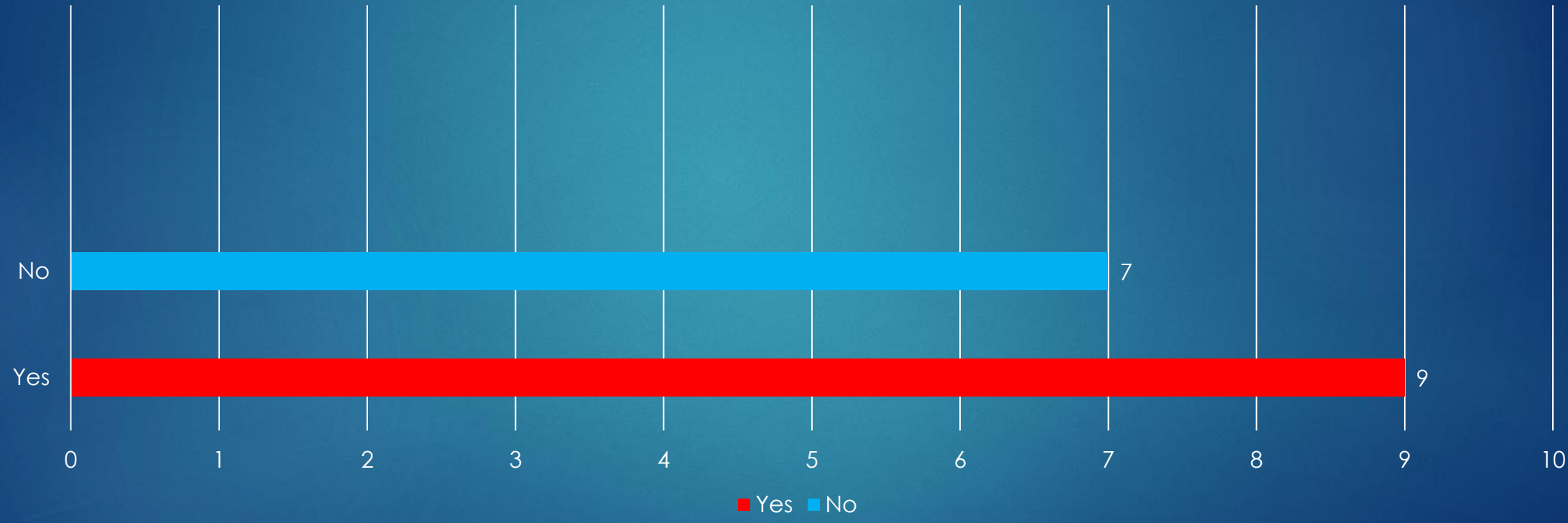


Q19: If yes, which area?



Region	Number of Responses	Percentage
Northwest	1	7%
Southwest	4	28.5%
Midwest	2	14%
Southeast	4	28.5%
Northeast	3	22%

Q20: If the San Francisco Matching Program were available, would your program be interested?

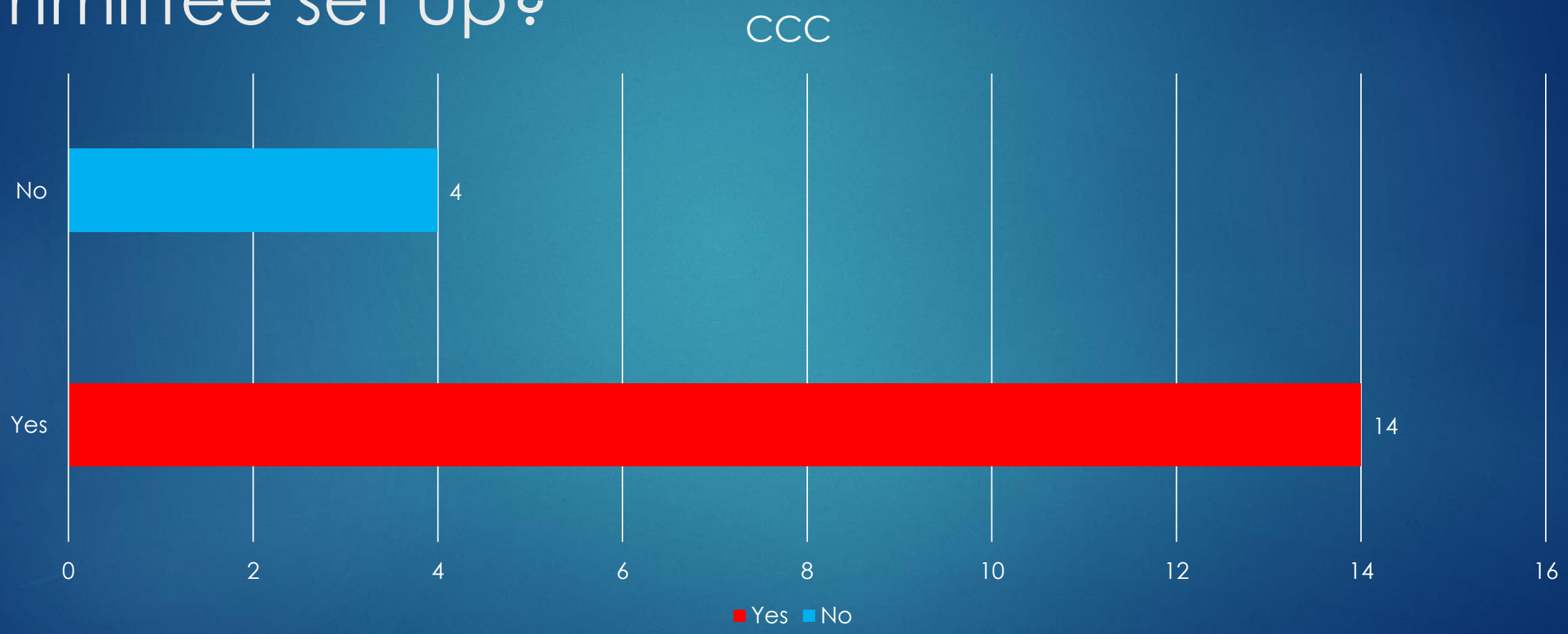


Yes 56%
No 44%

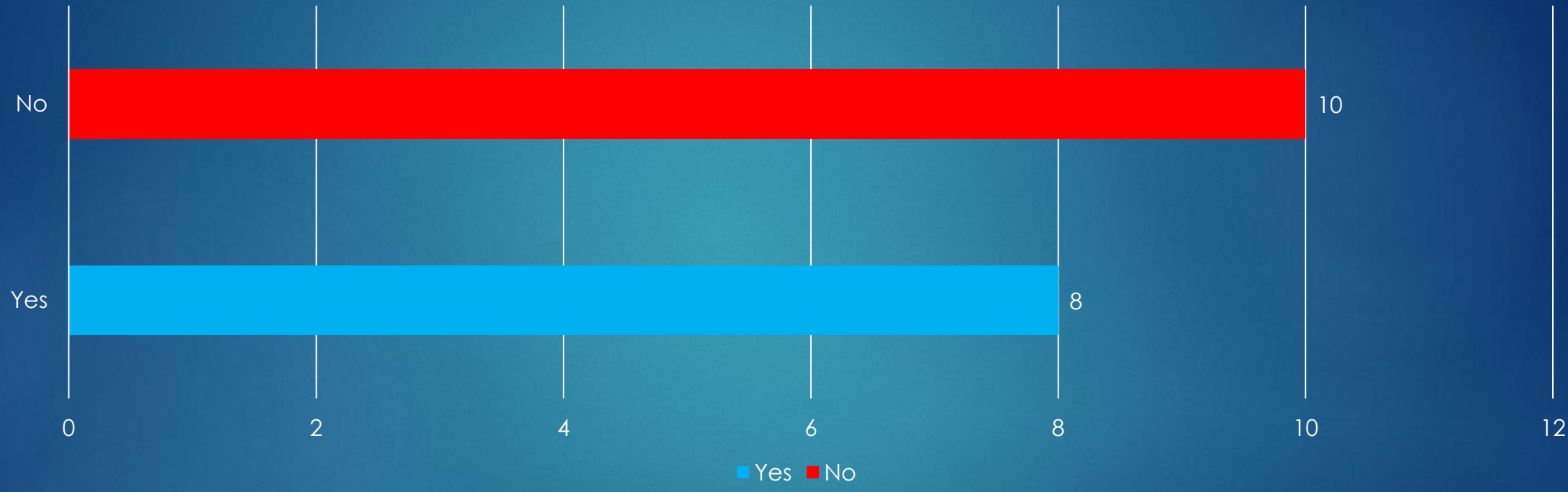
Q21: If no, why not?

- Most of the responses (only 5) were not interested based on small numbers of potential candidates

Q22:ACGME Milestones become effective July 1, 2015. Do you have a clinical competency committee set up?

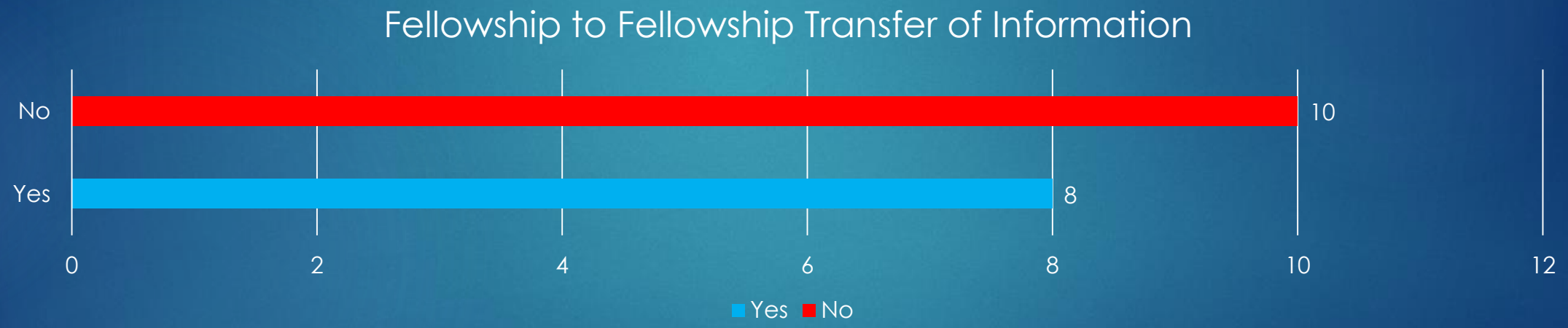


Q23: Are you concerned about receiving information on residency and/or previous fellowship Milestone data?



Yes	45%
No	55%

Q24: Are you concerned about passing on such data on your trainee from your fellowship program to another?



Yes	45%
No	55%