



Medical Research Scholars Program *at the* National Institutes of Health

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Office of Clinical Research Training and Medical Education
NIH Clinical Center



National Institutes
of Health

Clinical Center

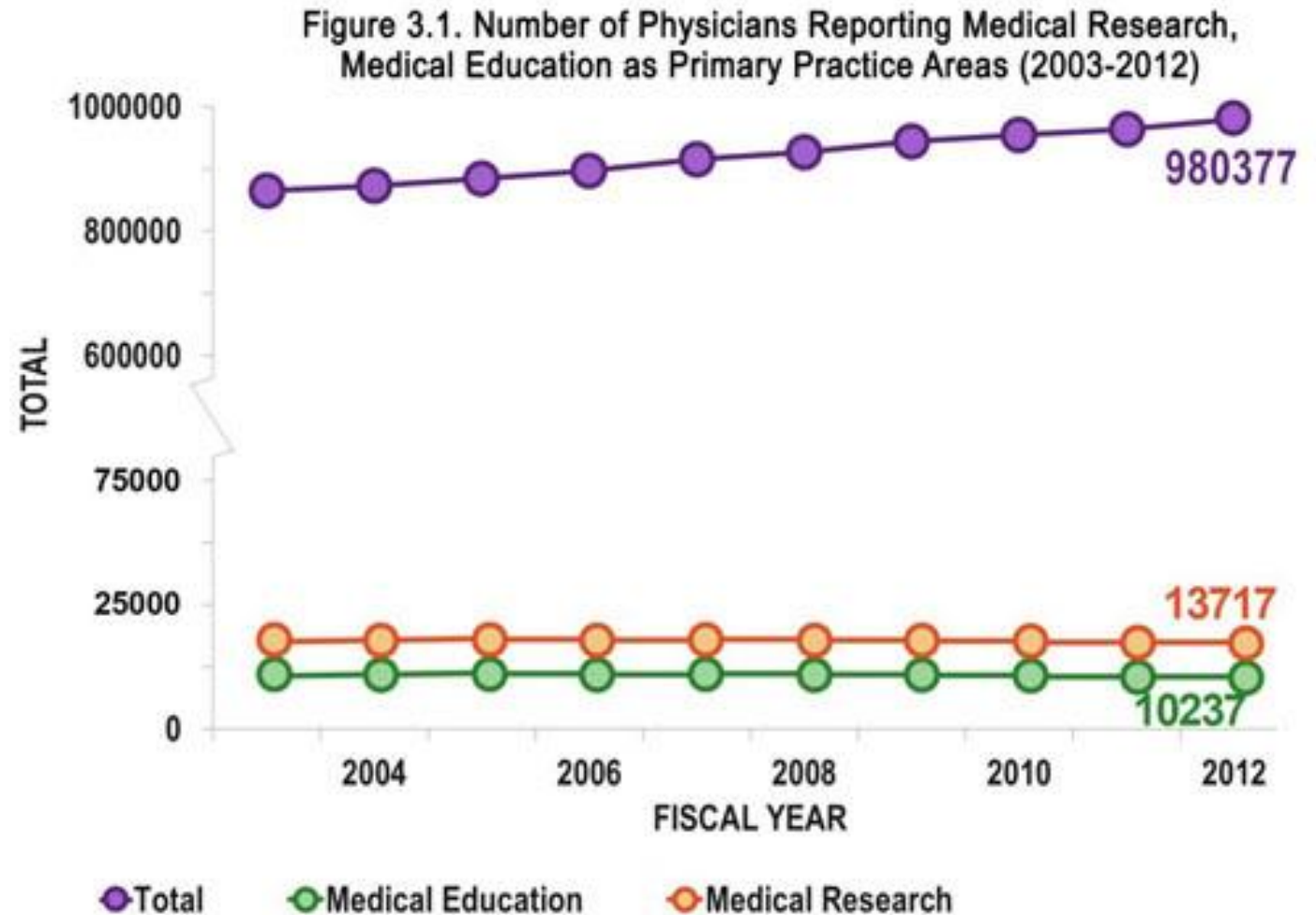
The challenge...and the opportunity



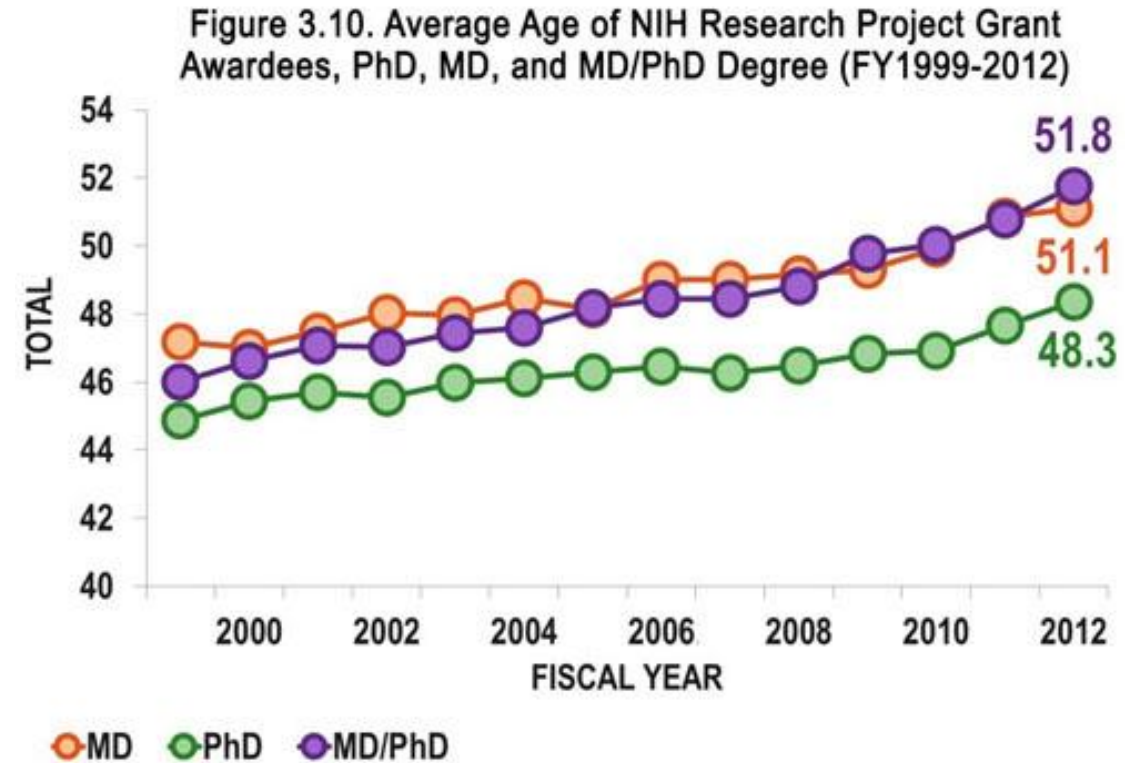
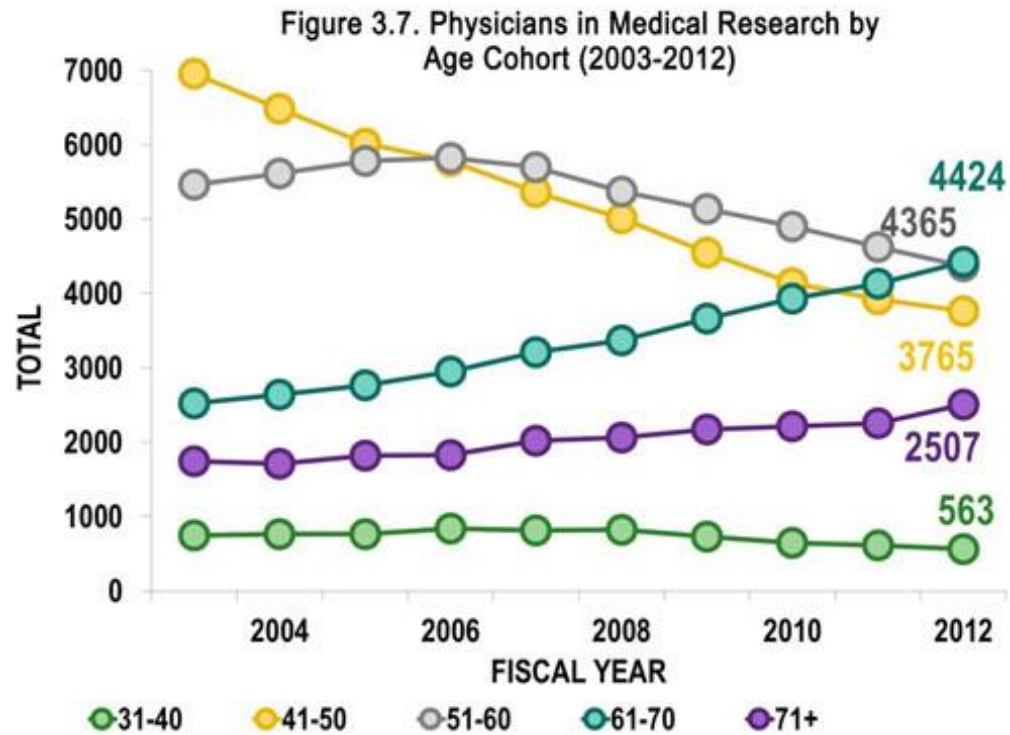
The National Institutes of Health Physician-Scientist
Workforce Working Group Report, 2014

The Physician-Scientist Workforce

While the number of physicians are increasing, the number of physicians engaged in medical research and medical education has remained flat.



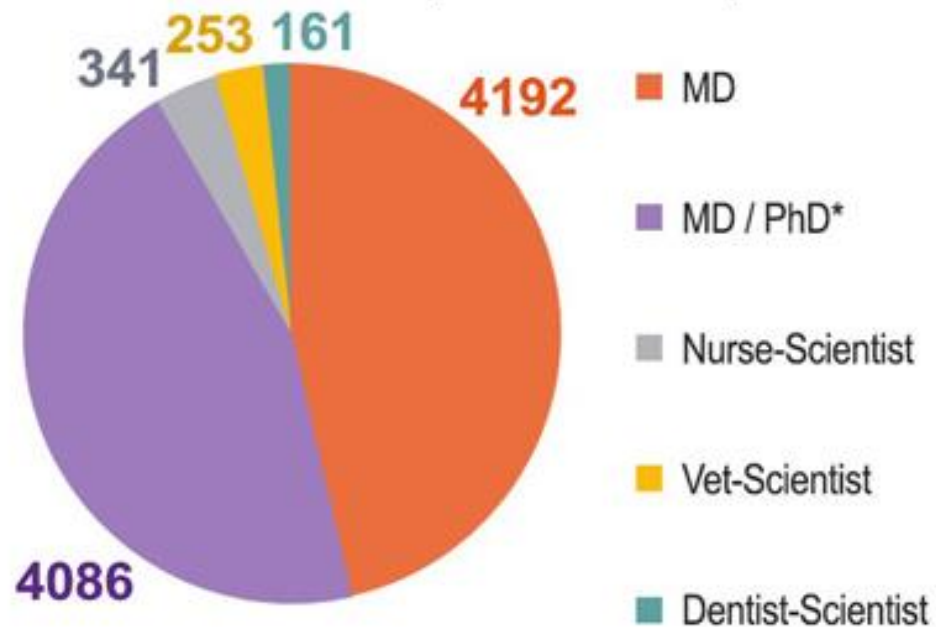
The Physician-Scientist Workforce



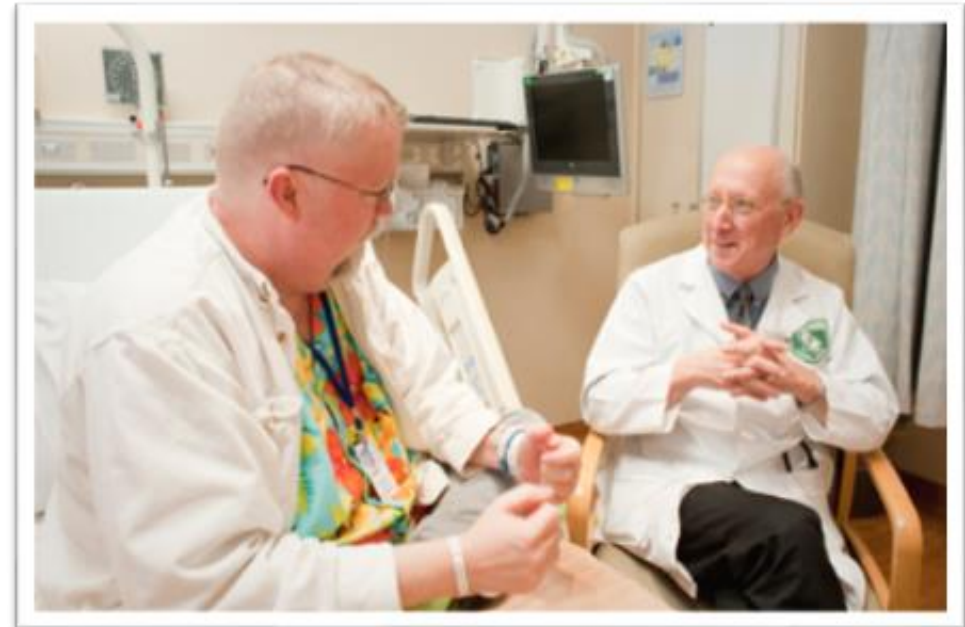
“...the cohort of physicians engaged in research getting older...”

The Physician-Scientist Workforce

Figure 2.1. NIH-funded Physician-Scientist Workforce (FY2008-2012)



“...the well trained physician scientist can thoroughly understand, interpret, and properly care for human subjects that involve an intervention. ...”





“NIH’s mission is to seek fundamental knowledge about the nature and behavior of living systems and the application of that knowledge to enhance health, lengthen life, and reduce illness and disability.”

Three Core Clinical Center Missions

Performing top-tier science

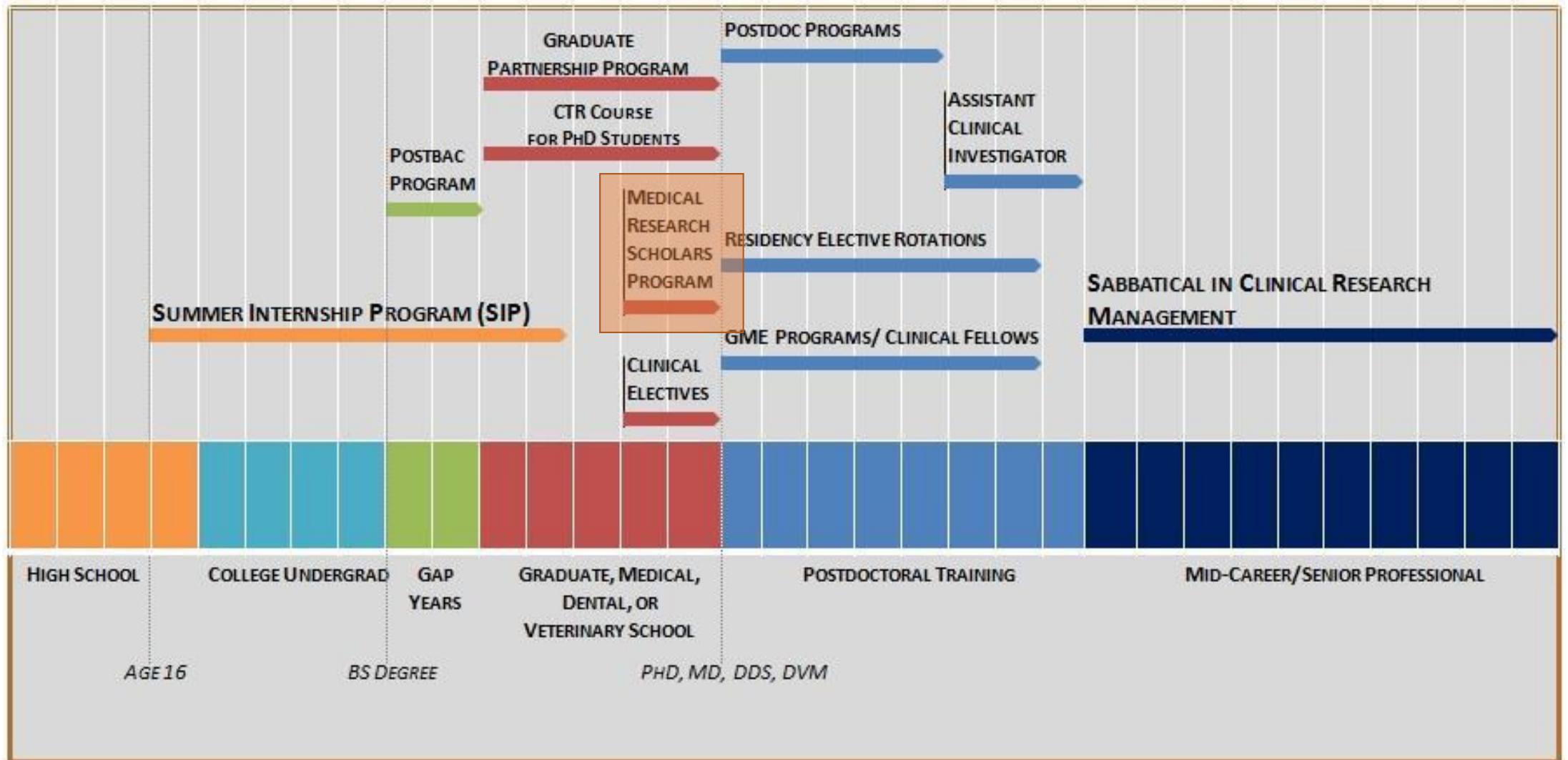


Providing patient care



**Training the next generation of clinician-
scientists**

Clinical Research Training Opportunities Portfolio



NIH Medical Research Scholars Program

*“Not a research program for medical students ...
but a career development program for students
heading toward careers in biomedical research
that is centered around a robust investigation
experience”*

NIH Medical Research Scholars Program

“To be the premier training program for future clinician-scientists that advances health by inspiring careers in biomedical research”

- A comprehensive, year-long residential research enrichment program for medical, dental, and veterinary students
- Scholars engage in a mentored basic, translational, or clinical research project in an area that matches their personal interests and career/research goals
- Located at the NIH Intramural Research Program in Bethesda, MD
- Co-sponsored by the NIH and private partners via contributions to the Foundation for the NIH



The Curriculum

Mentoring, advising and a curriculum...centered around a robust investigation experience.....

- **Process of Discovery**

Lectures on seminal basic and clinical research topics that highlight the continuum of discovery, including issues in bioethics, science policy and emerging technologies

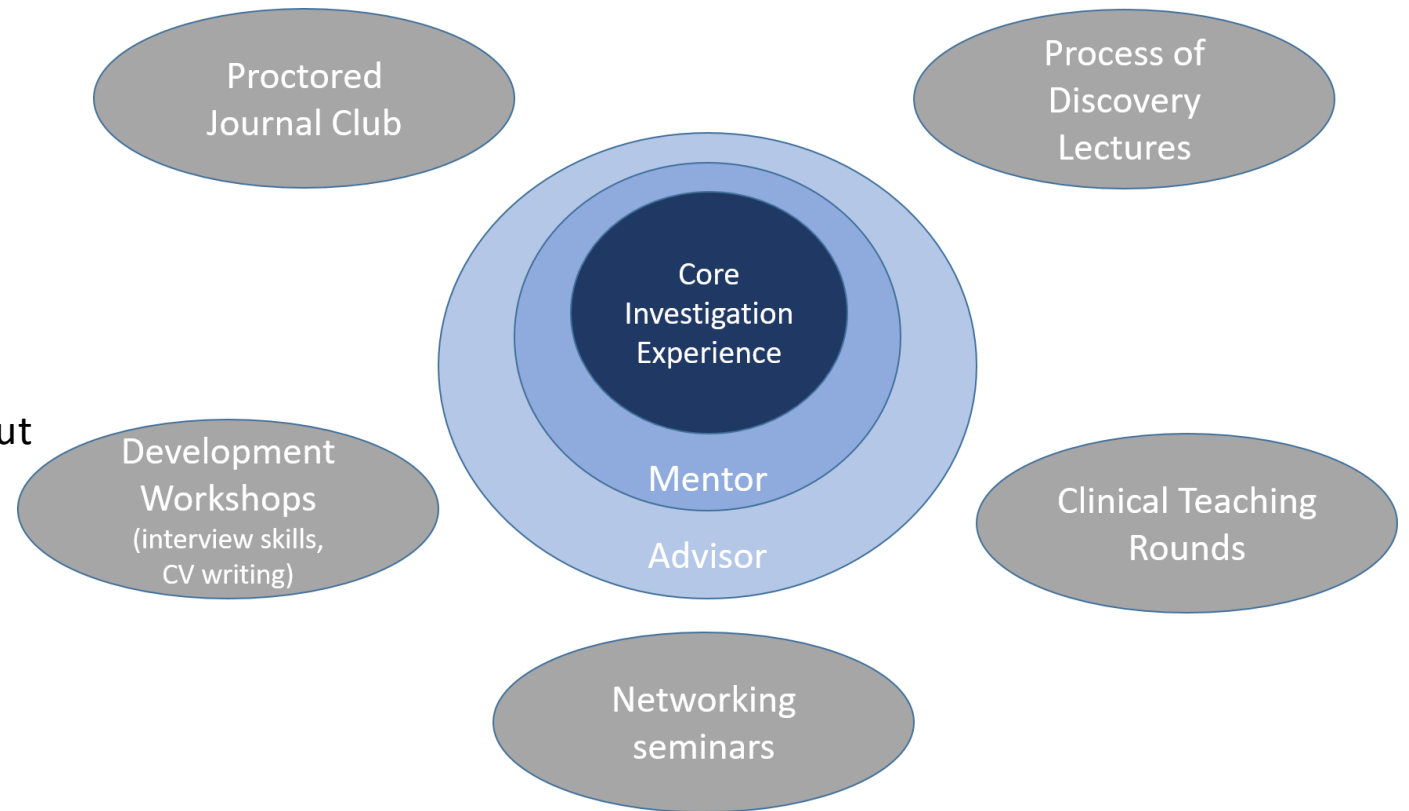
- **Clinical Teaching Rounds**

Select master teacher/investigators present their research in a case-centered forum with participating patients, discussing not just the science of medicine, but the art of clinical care

- **Proctored Journal Club**

- **Workshops** (CV writing, interview skills, Work-Life balance)

- **On-going Seminars** by world renowned researchers (Clinical Center Grand Rounds, Demystifying Medicine, Wednesday Afternoon Lecture Series)



Why choose MRSP...

- Mentorship within and across disciplines
 - Advising program
 - Independent research time
 - Unique curriculum
 - Team science and collaboration with peers
 - Professional and personal long-term networking with participants
 - Access to a wealth of resources for conducting research
-
- Immersive residential experience, sharing the excitement of new discovery with like-minded fellow scholars from multiple academic institutions

Opportunities...

- Technologies
 - Genetics, genomics, tissue engineering, state-of-the-art imaging modalities with processing and analysis
- On-campus courses with Foundation for Advanced Education in the Sciences, www.faes.org
- Statistical programming
- Publications, Travel, Public Speaking

Networking...meeting renowned scientists and academicians...

- Dr. Francis Collins, Director of the National Institutes of Health
- Dr. Vivek Murthy, US Surgeon General, 2014-2017
- Dr. Catherine DeAngelis, first woman editor of JAMA
- Dr. John Schiller, developer of HPV vaccine
- Dr. Steve Rosenberg, pioneer developer of adoptive immunotherapy
- Dr. James Bagian, physician, astronaut and patient safety expert

**Dr. Catherine DeAngelis, with
MRSP Scholars**



Living, working, and socializing with like-minded Scholars....



Anesthesiology	Transcriptional and Molecular Analyses of Spinal Pain Circuits
Cardiology	Effect of Anti-Interleukin-17 Monoclonal Antibody Therapy on Coronary Plaque Characteristics in Psoriasis
Dental Medicine	Localized Fibrin Accumulation in the Oral Gingiva Leads to Severe Periodontal Bone Loss
Dermatology	Assessing the Therapeutic Utility of CEACAM1 Blockade in a CRISPR-Cas9-Based Mouse Melanoma Model
Genetics (REI)	Investigating PRDM9, a Rapidly Evolving Regulator of Genetic Recombination
Infectious Diseases	Phylogenetic Analyses of Early HIV Epidemic in Washington, DC
Interventional Radiology	An Image-Based Evaluation of IVC Filter Implant Healing in a Swine Model: Implications for Performance and Retrievability
Neuro-psychiatry	7q11.23 Copy Number Variation Impacts White Matter Microstructure as Measured by Multicomponent Driven Equilibrium Single Pulse Observation of T1 and T2 (mcDESPOT)
Neurosurgery	Combination of PP2A Inhibition & PD-1 Blockade Synergistically Induces Regression of Murine Intracranial Glioblastoma
Oncology	Targeting CD200 as an Immune Checkpoint in Merkel Cell Carcinoma
Oncology	Immunotherapy Utilizing the Combination of NK and ADCC Mediating Agents with PARP Inhibition
Ophthalmology	Deep Learning and its Applications to the Age-Related Eye Disease Studies: An Imaging and Text-Mining Approach
Pediatric Neurology	PIEZO2 Deficiency Syndrome: Clinical Manifestations and In Vitro Cellular Modelling
Pediatric Oncology	A Therapeutic Strategy for Targeting N-Myc Driven Neuroblastoma using Epigenetic Small Molecule Inhibitors in Combination with Topoisomerase Inhibitors
Population Health/Disparities	Secondhand Smoke vs. Secondhand Vapor: Prevalence and Associated Characteristics Among Youth in Florida
Population Health/Disparities	Relationship Between Neighborhood Socioeconomic Deprivation and Telomere Length: NHANES 1999-2002
Urology	Multiparametric Magnetic Resonance Image-Guided Robotic Radical Prostatectomy After Neoadjuvant Enzalutamide and Androgen Deprivation Therapy

What do Scholars investigate?

Finding a research mentor: The first critical decision

- A committed research mentor is the key element to a successful research experience
- After Scholars are accepted, they are given access to lists of pre-approved mentors.
- With hundreds to select from, Scholars are also receive advice and guidance from the MRSP Academic Director and their MRSP Advisor.
- Accepted Scholars are encouraged to research mentors in advance using the NIH Intramural Database

The screenshot shows the NIH Intramural Database (NIDB) search interface. At the top, the NIH logo and 'NIH Intramural Database NIDB' are displayed. Below this is a search bar titled 'Search NIH Intramural Research Reports'. The search bar contains a dropdown menu for the year '2017', a button labeled 'Select Institute or Center -->', a dropdown menu for 'Institute or Center', and a text input field for 'search words'. Below the search bar is a section titled 'All Annual Reports by an Institute or Center (by single year)'. This section includes a button for 'Request List of Reports', a red asterisk indicating a required field, a text input field for 'The sum of 9 - three = 0', and a button labeled 'List all for an NIH Institute or Center'. Below this is another section titled 'Retrieve a SINGLE Intramural Research Report, using the project's Z-number'. This section has three input fields: 'Code' with a dropdown menu showing 'AA', 'Project #' with an empty text box, and 'Year' with a dropdown menu showing '2017'. A note states 'ALL three elements are required'. To the right of these fields is a 'Retrieve' button. Below the input fields, there is a section titled 'Request must be in the following format:' with three lines of text: 'Code = The Institute's two letter report code (select from the list)', 'Project # = The individual Report's project number (e.g., 012345)', and 'Year = Select to obtain the Report for the project in that fiscal year'. At the bottom of the page, there is a note: 'Only those reports approved at the Scientific Director level will be available for viewing.'

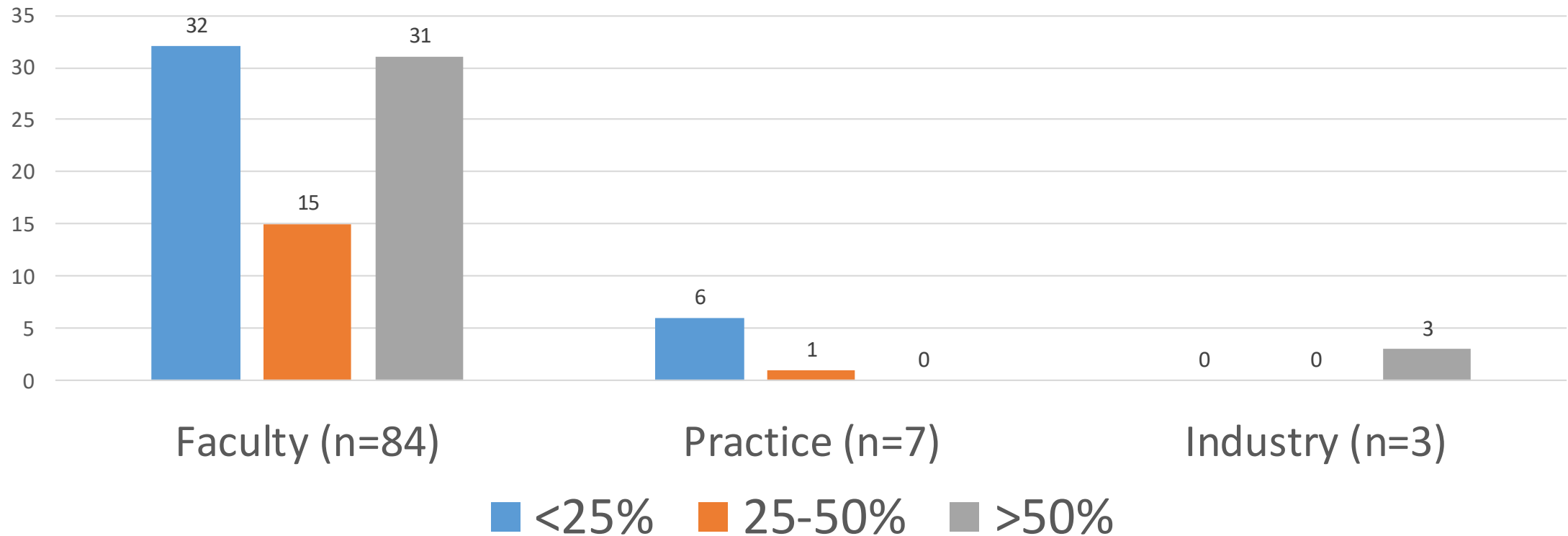
Outcomes: most Scholars go on to participate in research during residency....

Residency	No. of residents	Research in residency	% doing research
Anesthesiology	2	1	50%
Dermatology	14	4	29%
Emergency Medicine	6	3	50%
Internal Medicine	34	25	74%
IM/Pediatrics	2	2	100%
Neurology	5	5	100%
Obstetrics/Gynecology	1	1	100%
Ophthalmology	7	5	71%
Pediatrics	17	15	88%
Psychiatry	3	3	100%
Radiation Oncology	3	3	100%
Radiology	12	5	42%
Surgery (including Dentistry)	20	11	55%

From: Ognibene FP, Gallin JI, Baum BJ, Wyatt RG, Gottesman MM. Outcomes From the NIH Clinical Research Training Program: A Mentored Research Experience to Enhance Career Development of Clinician-Scientists. Acad Med. 2016 Dec;91:1684.

...as well as research after residency and fellowship

Research Time Allotted



MRSP Class profile, '20-'21

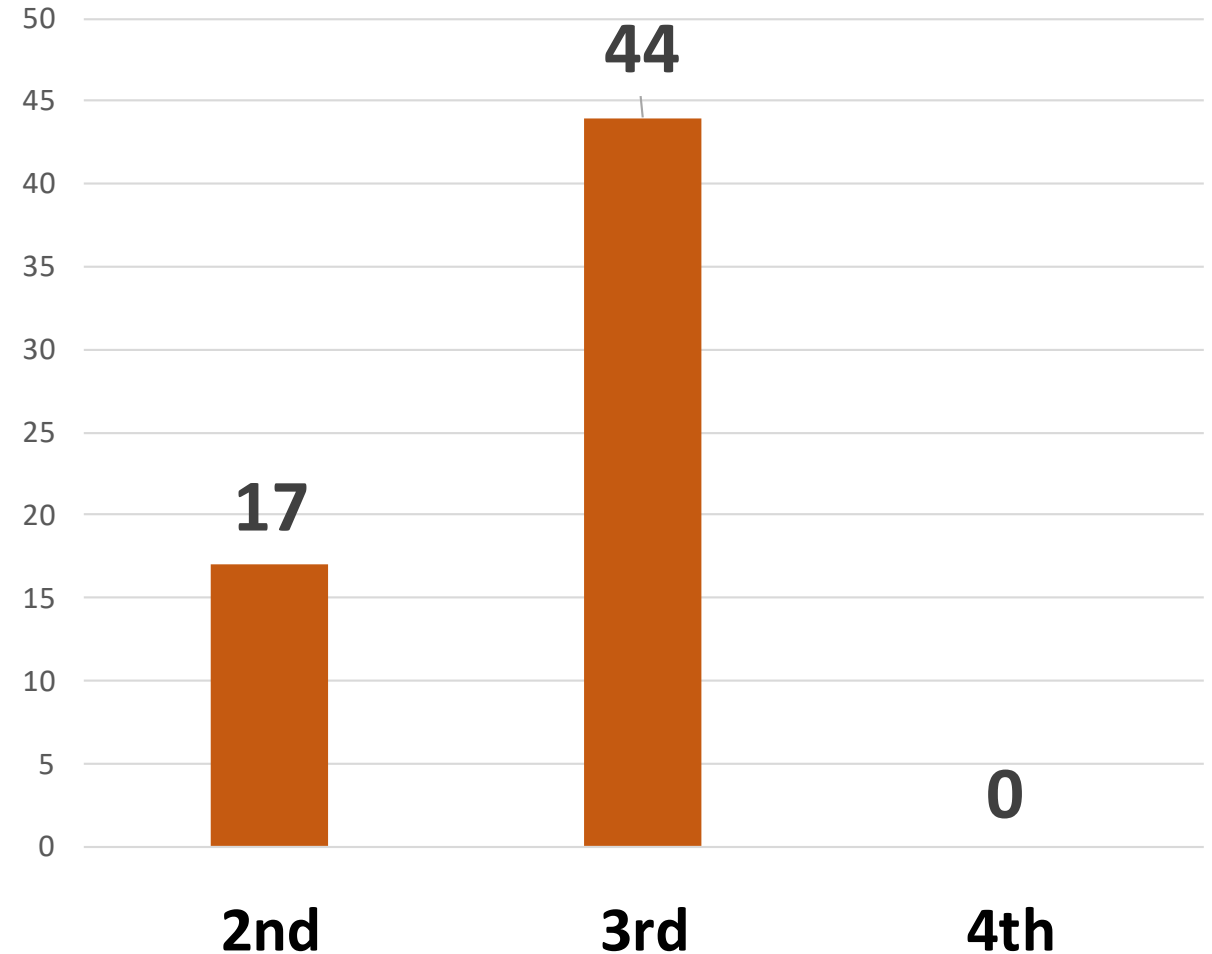
Class size

- 51 Scholars

Gender

- 31 women (60%)
- 20 men (40%)

Class Year Distribution



Represented Schools

Brown University
Cleveland Clinic Lerner College of Medicine
Creighton University
Columbia University
Drexel University
East Carolina University
Eastern Virginia Medical School
George Washington University
Howard University
Indiana University
Thomas Jefferson University
Lake Erie College of Osteopathic Medicine
Mayo Clinic School of Medicine, Arizona
Medical College of Georgia at Augusta
Michigan State University
Northeast Ohio Medical University
Northwestern University
Rutgers New Jersey & RWJ Medical Schools
Ohio University College of Osteopathic Medicine
Stony Brook University

SUNY at Buffalo School of Dental Medicine
SUNY Downstate College of Medicine
Temple University
University of Alabama
University of California, Los Angeles
University of California, San Diego
University of Cincinnati
University of Connecticut University of
Illinois College of Veterinary Medicine
University of Kansas
University of Miami Miller School of Medicine
University of Michigan
University of Missouri - Kansas City
University of North Carolina
University of Pennsylvania
University of Puerto Rico
University of Rochester University of Toledo
University of Utah
Virginia Commonwealth University
Wayne State University
Yale University

NIH MRSP Scholar Benefit Package

- 12-month stipend (~\$39,500)
- Relocation expenses to and from Bethesda
- Residential furnished housing on NIH campus
- Domestic conference travel allowance
- Health insurance
- Personal education fund for scientific courses and textbooks

2021-2022 NIH Medical Research Scholars Program Timetable

October 1 st	Application website opens (https://clinicalcenter.nih.gov/training/mrsp)
November 12 th	MRSP informational webinar (1:00 pm, EST)
January 8th	Application deadline (5pm, EST)
Mid February	Notification of interview
March 1 st	MRSP interviews onsite at the NIH campus
Mid March	Notification of selection
Mid March	Uniform acceptance deadline (MRSP, ASH)
July	Scholars arrive at NIH to begin their year (several arrival dates offered to accommodate the home school schedules)

Recommendations for a competitive application

- **Clear interest in research**
 - Your interest and potential are the most important criteria
- **Strong and detailed letters of recommendation**
 - From faculty who know you well
 - If your research accomplishments are modest, then have your recommenders address this positively and strongly
- **Focused cover letter/personal statement**
 - Excellent writing is essential. Grammar matters!
 - Use this as your opportunity to describe your motivations to pursue biomedical research as your career path.
- **Start application early**

Clinical Center's Training Website

Department of Health and Human Services  National Institutes of Health



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Training the Next Generation

The NIH Clinical Center offers an extensive range of clinical research training to help prepare the next generation of clinician-scientists. The innovative curriculum includes courses in pharmacology, principles and practice of clinical research and bioethics.



Office of Clinical Research Training and Medical Education (OCRTME)

- **For Students**
 - Summer Internships
 - Clinical and Translational Research Course for Ph.D. Students
 - Medical Research Scholars Program
 - Clinical Electives
- **For Residents/Fellows**
 - Graduate Medical Education
 - Elective Rotations
 - NIH-Duke Master's
 - Clinical Fellows Corner
 - Loan Repayment Program
- **For Mid-Career Professionals**
 - Sabbatical in Clinical Research Management
- **Other Training Opportunities**
 - Continuing Medical Education
 - Courses in Clinical Research
 - Other NIH Training/Educational Resources
 - News and Events
 - Contact Us

Department Fellowships and Other Opportunities (Specific Areas of Clinical Research)

- Bioethics Fellowship Opportunities
- Critical Care Medicine - Fellowship Opportunities for

Tweets by @CCMedEd

 NIH CC MedEd Retweeted

 **NCI Cancer Training** @NCI_Training

Are you a 4th year graduate student? Apply to NCI's Graduate Student Recruiting Program at go.usa.gov/cfgpH

18 Mar

 NIH CC MedEd Retweeted

 **NCI Cancer Training** @NCI_Training

NCI's new EXPOSE program application deadline is today at midnight! Learn how to apply here go.usa.gov/csDKF

30 Mar

 **NIH CC MedEd** @CCMedEd

<http://clinicalcenter.nih.gov/training/index.html>

For More Information

- Medical Research Training Program
<https://clinicalcenter.nih.gov/training/mrsp>
- Clinical Center Office of Clinical Research Training and Medical Education
<http://www.cc.nih.gov/training/index.html>
- NIH Clinical Center
<http://www.cc.nih.gov>
- National Institutes of Health
<http://www.nih.gov>
- For more information contact us: MRSP@mail.nih.gov