

*DOS Research Toolkit Lecture*

# How to Plan Your Research Years and Find a Mentor(s) – for PGY 1-3

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# Overview

- Why do research?
  - Why do research during residency?
- What is the Physician Scientist Training Program (PSTP)?
- What's the timeline?
- How do I find a faculty mentor(s)?
- How do I get funded?
- What are important upcoming events?
- Where can I get more information?

# What's the value of research to patients and surgery?

- The medical profession is defined by curiosity, critical thinking, and humanitarianism
- Research leads to advancements in mechanisms of disease and the translation of these advancements to patients
- Research allows for rigorous evaluation of current practices and for quality improvement
- Surgery has always been a research-driven and evidence-based field
  - History is replete with surgeons who have transformed the practice of medicine

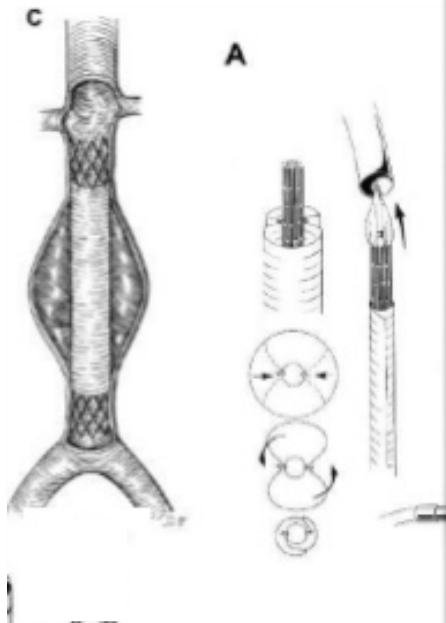
# Surgeon-scientists who have won Nobel Prizes

Surgeons	Country	Year	Accomplishments
Theodore Kocher	Switzerland	1909	Physiology, pathology, and surgery of the thyroid
Alexis Carrell	USA/France	1912	Vascular suture, transplantation of blood vessels and organs
Sir Frederick Banting	Canada	1923	Insulin
Werner Forssmann	Germany	1966	Heart catheterization
Charles Huggins	USA	1956	Hormonal treatment of prostate cancer
Joseph Murray	USA	1990	Organ transplantation

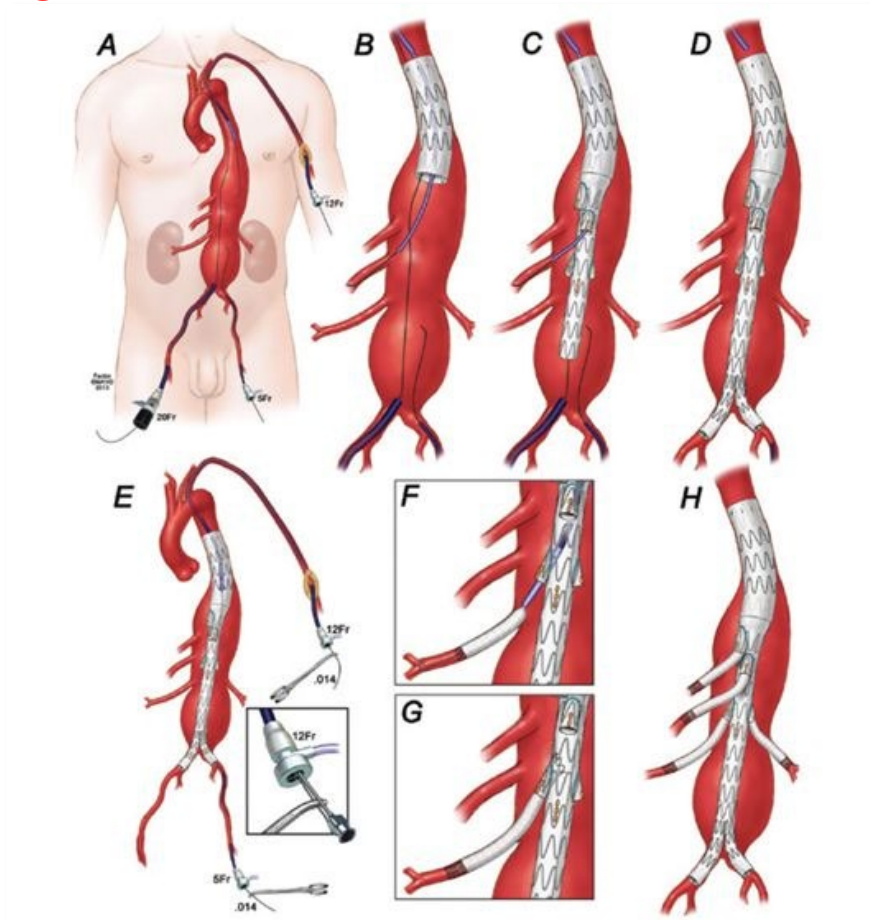
# Examples

- Cardiopulmonary

1991



TODAY



ts in surgery

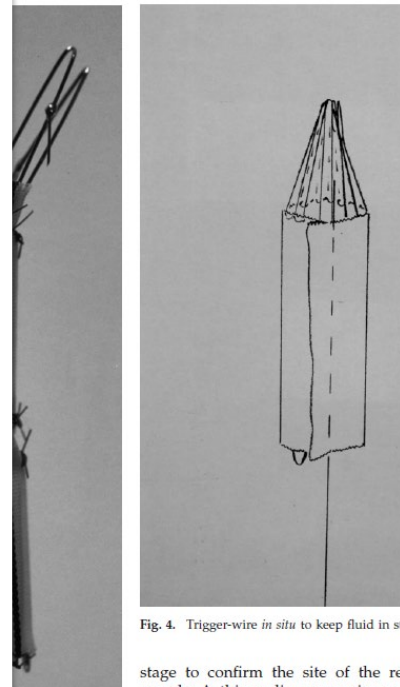


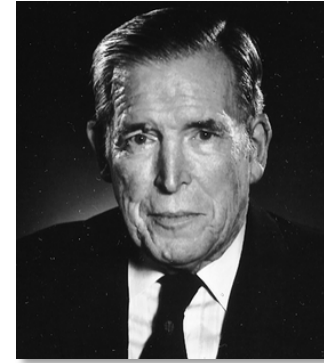
Fig. 4. Trigger-wire in situ to keep fluid in ste

stage to confirm the site of the ret

- TPN



Stanley Dudrick and “Stinky”  
**SURGICAL RESIDENT**



Jonathan Rhoads     Harry Vars  
(University of Pennsylvania)

## Other examples of recent research accomplishments in surgery

- Effect of hormones on cancer
- Minimally invasive surgery (first lap chole – 1985; first robotic-assisted aortic surgery - 2006)
- Fetal surgery
- Extracorporeal gas exchange
- Immune therapy for cancer

... and the list goes on and on!!

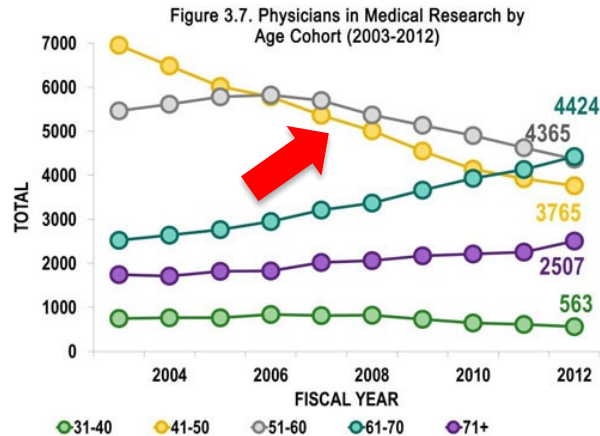
# Why do research during residency?

- Residency is a time to explore personal and professional interests
  - Intellectual curiosity
  - Explore potential career options within academia or a subspecialty
  - Complete a program requirement
  - Develop CV or other credentials
- Structured research training during residency enhances scholarly success and leads to a greater appreciation for evidence-based medicine
  - Absence of a research curriculum is a barrier to completion of research projects



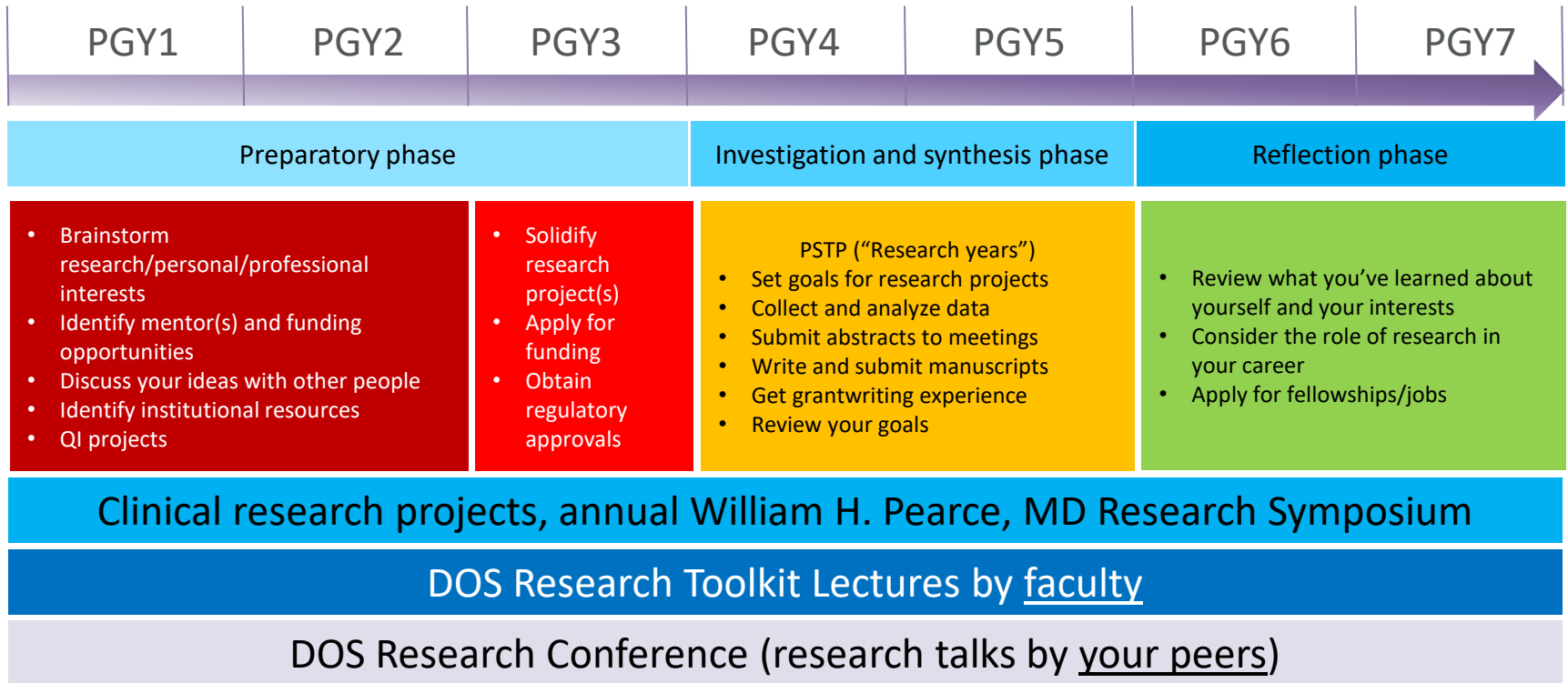
# What is the Physician Scientist Training Program (PSTP)?

- The Physician-Scientist Training Program (PSTP) experience is designed to facilitate the development of surgical residents into clinician-investigators
  - Name given to the pathway that combines research training with clinical training
  - For most surgery residents, this means 5 years of residency + 2 years of research



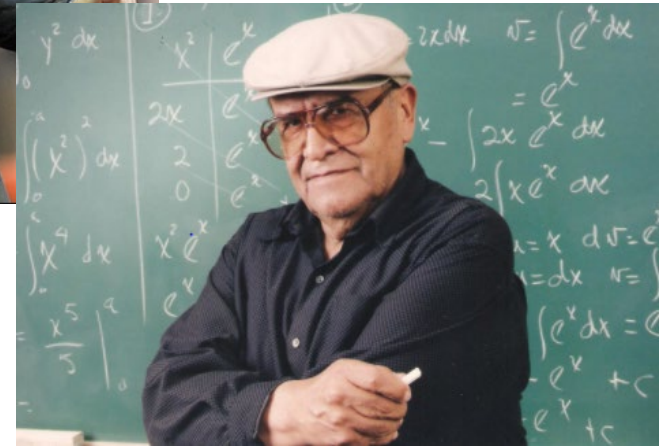
- According to the 2014 NIH Physician-Scientist Workforce Report, physician-scientists are becoming an endangered species!
- In the DOS, we hope that all PSTP scholars will emerge with the tools and training needed to engage in research at the highest levels
  - PSTP plans are highly individualized!

# What's the timeline?



# How do I find a faculty mentor(s)?

- Who or what is a mentor?
  - Not a coach
  - Not a teacher



**A mentor is someone who helps you develop your interests and realize your potential**

- Mentorship roles are dynamic over time
  - Consider the medical student versus the mid-career surgeon

# What can/should a mentor do?

## Tactical

- Recommend funding opportunities, journals for submission
- Provide funding
- Review data, manuscripts
- Sponsor/support/nominate for applications, awards, career development activities
- Help develop timelines
- Support networking and collaboration

## Conceptual (Holistic)

- Help clarify career and research interests
- Aid in goal setting
- Identify strengths to develop
- Identify weaknesses and areas for improvement
- Challenge you. . .

# How do you find a good mentor?

Start with introspection:

- Know yourself (at least a little bit)
- Know your goals (at least a few of them)

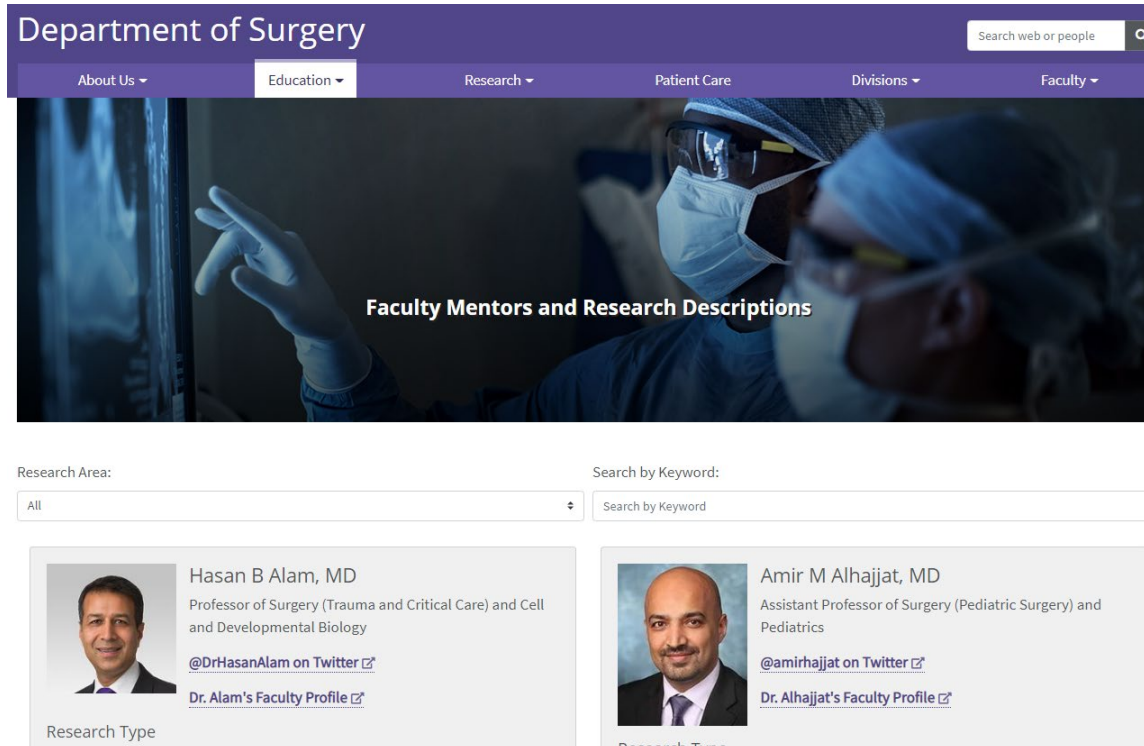
Do your homework:



- Actively seek out mentors you suspect will be receptive to your values, ideas and goals; mentor also needs to have time, expertise, and funding
- Talk to senior residents, fellows, and peers
- Set up a meeting to discuss your personal, research, and career interests
- If you don't "click" with someone, keep looking!
- ACS Young Fellows Association Mentor Program:
  - <https://www.facs.org/member-services/yfa/mentor>
- Professional society resources
- Think broadly – you can have > 1 mentor and/or have a mentor outside DOS!

# DOS faculty research descriptions

<https://www.surgery.northwestern.edu/education/residency/resident-research/faculty-mentors-and-research-descriptions.html>



The screenshot displays the Department of Surgery website. At the top, there is a purple navigation bar with the text "Department of Surgery" on the left and a search box on the right containing the text "Search web or people". Below the navigation bar are several menu items: "About Us", "Education", "Research", "Patient Care", "Divisions", and "Faculty". The main content area features a large image of a surgeon in a blue scrub suit, mask, and cap, pointing at a screen. Overlaid on this image is the text "Faculty Mentors and Research Descriptions". Below the image, there are two search filters: "Research Area:" with a dropdown menu currently set to "All", and "Search by Keyword:" with a text input field containing "Search by Keyword". At the bottom, two faculty profiles are visible. The first profile is for Hasan B Alam, MD, Professor of Surgery (Trauma and Critical Care) and Cell and Developmental Biology, with links to his Twitter (@DrHasanAlam) and Faculty Profile. The second profile is for Amir M Alhajjat, MD, Assistant Professor of Surgery (Pediatric Surgery) and Pediatrics, with links to his Twitter (@amirhajjat) and Faculty Profile.

Research Area:

All



Search by Keyword:

Search by Keyword



**Hasan B Alam, MD**

Professor of Surgery (Trauma and Critical Care) and Cell and Developmental Biology

[@DrHasanAlam on Twitter](#)

[Dr. Alam's Faculty Profile](#)

Research Type



**Amir M Alhajjat, MD**

Assistant Professor of Surgery (Pediatric Surgery) and Pediatrics

[@amirhajjat on Twitter](#)

[Dr. Alhajjat's Faculty Profile](#)

Research Type

# Northwestern Scholars

<https://www.scholars.northwestern.edu/>

Northwestern University | NORTHWESTERN SCHOLARS

Welcome to Northwestern Scholars



[Advanced search](#)

Northwestern researchers are contributing to the Coronavirus (COVID-19) pandemic response in multiple fields and disciplines.

Explore all our related research and expertise



Experts



Organizations



Research Output



Grants



Core Facilities

**Northwestern Scholars** is a searchable database of research expertise across all disciplines at Northwestern University. Explore the profiles and research output (publications, visual works, performances, [patents](#), etc.), citations, altmetrics, and [grants](#) of thousands of scholars. Learn about core research facilities at Northwestern. Discover the research expertise of Northwestern's wide-ranging schools, departments, institutes, centers, and graduate programs, and view collaboration networks among researchers within Northwestern and with external scholars.

Northwestern Scholars is managed by the **Research Analytics** unit within the **Office for Research** at Northwestern University.

## FSM websites

- Departments

<https://www.feinberg.northwestern.edu/depts/index.html>

- Institutes & Centers

<https://www.feinberg.northwestern.edu/centers/index.html>



# How do I get funded?

- Broad categories:
  - NIH T32 institutional research training grants
    - Transplant, Surgical Oncology, Vascular
    - DOM
  - Individual postdoctoral research fellowships (e.g., ACS, NIH F32)
  - Intramural (e.g., Stryker endowment)
  - Mentor
- You need to plan ahead and pay attention to deadlines!



For example: NIH F32 application cycles are 3 times/year

Application deadline	Earliest start date for funding
April 8	September <u>of following year</u>
August 8	April <u>of following year</u>
December 8	July <u>of following year</u>

Start funding by July 1, 2023  
Submit grant by December 2022  
Start writing by August 2022  
Identify project and Aims by July 2022  
Identify mentor and discuss funding by January 2022

PGY 3

PGY 2

# List of funding opportunities + links

<https://www.surgery.northwestern.edu/education/residency/resident-research/funding-opportunities.html>

The screenshot shows the Department of Surgery website. The top navigation bar includes 'About Us', 'Education', 'Research', 'Patient Care', 'Divisions', and 'Faculty'. The 'Education' menu is expanded, showing a list of options: 'Education Overview', 'NU Surgical Education Center', 'Medical Students', 'Residents' (with a dropdown arrow), 'Residents Overview', 'General Surgery', 'Plastic Surgery', 'Thoracic Surgery', 'Vascular Surgery', 'Resident Research' (with a dropdown arrow), 'Resident Research Overview', 'Projects', 'Surgical Conferences Calendar', and 'Funding Opportunities' (with a right-pointing arrow). Under 'Funding Opportunities', there are three items: 'Physician-Scientist Training Program', 'Resources', and 'Research Toolkit Lecture Series'. The main content area features a large banner image of a woman in a white lab coat smiling at a computer monitor, with the text 'Funding and Training Opportunities for Residents & Students' overlaid. Below the banner are two columns of content. The left column is titled 'For Residents' and lists two opportunities: 'Steven J. Stryker, M.D., Gastrointestinal Surgery Research and Education Endowment - Please contact Melanie Mkrdichian (mblaszak@nm.org) for more information' and 'Association of Academic Surgeons (AAS) / AAS Foundation Trainee Research'. The right column is titled 'For Students' and lists three opportunities: 'American Heart Association Predoctoral Fellowship', 'American Heart Association Student Scholarships in Cardiovascular Disease and Stroke', and 'American Society of Transplant Surgeons'.

Department of Surgery

About Us ▾ Education ▾ Research ▾ Patient Care Divisions ▾ Faculty ▾

[Feinberg Home](#) > [Home](#) > [Education](#) > [Residents](#) > [Resident Research](#) > [Funding Opportunities](#)

## Education

- Education Overview
- NU Surgical Education Center
- Medical Students
- Residents ▾
  - Residents Overview
  - General Surgery
  - Plastic Surgery
  - Thoracic Surgery
  - Vascular Surgery
- Resident Research ▾
  - Resident Research Overview
  - Projects
  - Surgical Conferences Calendar
  - **Funding Opportunities**
    - Physician-Scientist Training Program
    - Resources
    - Research Toolkit Lecture Series

**Funding and Training Opportunities for Residents & Students**

### For Residents

- Steven J. Stryker, M.D., Gastrointestinal Surgery Research and Education Endowment - Please contact Melanie Mkrdichian (mblaszak@nm.org) for more information
- Association of Academic Surgeons (AAS) / AAS Foundation Trainee Research

### For Students

- American Heart Association Predoctoral Fellowship
- American Heart Association Student Scholarships in Cardiovascular Disease and Stroke
- American Society of Transplant Surgeons

# What are important upcoming events?

- Thursday, 10/14, 9:15-10:15 AM
  - T32/R38 Training Grant Directors will talk about their programs
    - Surg Onc – Dr. Ryan Merkow and Dr. Karl Bilimoria
    - Vascular – Dr. Mark Eskandari
    - Transplant – Dr. Daniela Ladner
    - VA QI – Dr. Bentrem
- Thursday, 10/14, 5:45-8 PM
  - Resident recruitment dinner – by ZOOM
  - Faculty and lab residents will talk to PGY1s and 2s about research in small groups
- Please sign up for 1:1 meetings with me (let me know if you need a different time slot:

[https://docs.google.com/document/d/11W69c1WcVgPfODGrp\\_Tcm9TsfWKa\\_ItYtDsNXkK4Vgg/edit?usp=sharing](https://docs.google.com/document/d/11W69c1WcVgPfODGrp_Tcm9TsfWKa_ItYtDsNXkK4Vgg/edit?usp=sharing)

# Where can I get more information?

- DOS Resident Research website

<https://www.surgery.northwestern.edu/education/residency/resident-research/index.html>

- Current and former PSTP research scholars and projects
- Faculty mentors
- Funding opportunities
- Surgical conferences calendar + abstract deadlines
- Recordings and slides of Research Toolkit Lectures
- SURGE-N Newsletters **SURGE**  **N** 
- Link to Edelstone-Bendix Day and William H. Pearce, MD Research Symposium
- Other resources



# Names to know

Karen J. Ho, MD  
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*DO NOT IGNORE HER EMAILS!*



Melanie Mkrdichian  
Director of Research Operations  
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*Help with grant submissions, onboarding,  
DOS research event planning, awards administration*



Samantha Cooperstein  
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Samantha.cooperstein@nm.org

*Help with onboarding*



Thank you

**QUESTIONS?**