

DOS Research Toolkit Lecture

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

August 31, 2023

Karen J. Ho, MD

Director of Resident Research

Overview

- Why do research?
 - Why do research during residency?
- What is the **Physician Scientist Training Program (PSTP)**?
- What's the timeline?
- What is DOS Research Conference?
- How do I find a faculty mentor or mentoring team?
- How do I get funded?
- What other career development activities can I do during my research years?
- What are important upcoming events?
- Where can I get more information?
- Who are people I can reach out to for help?

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

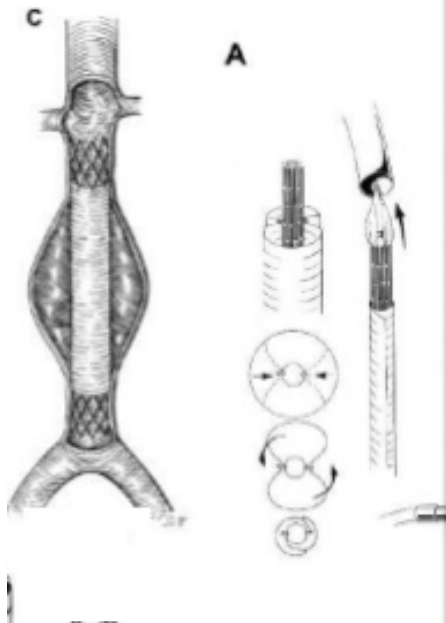
Surgeon-scientists who have won Nobel Prizes

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

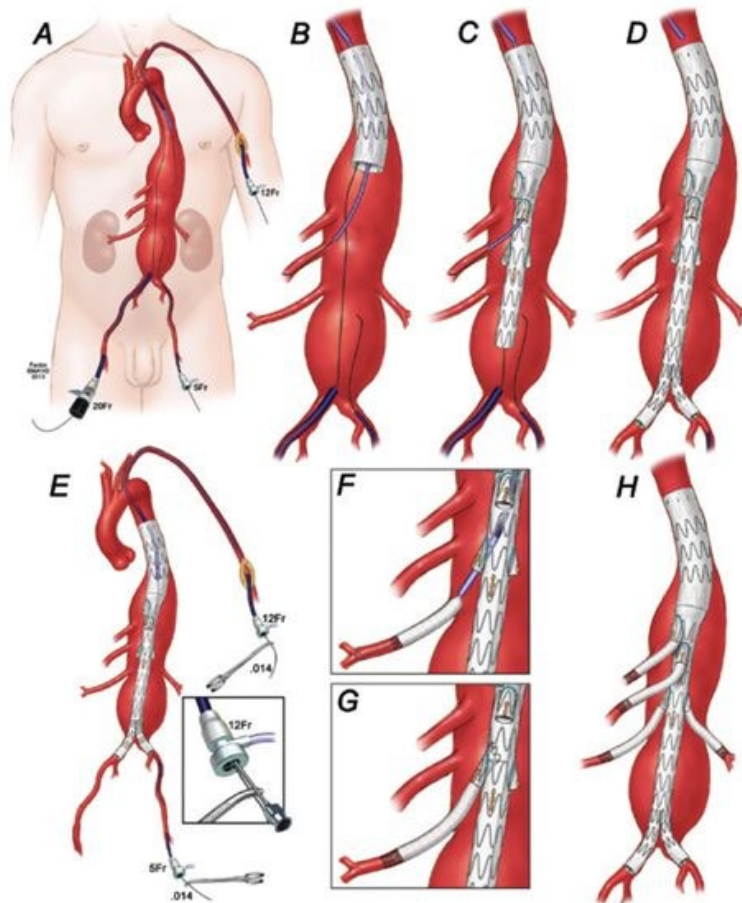
Examples

- Cardiopulmonary

1991



TODAY



ts in surgery

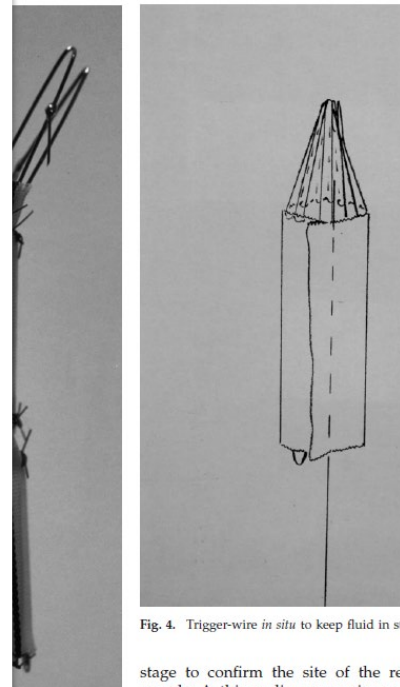


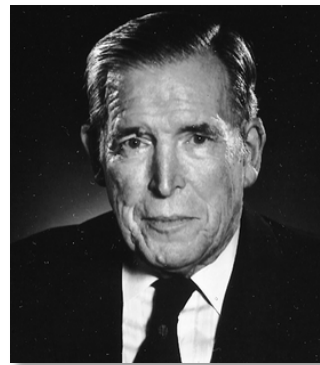
Fig. 4. Trigger-wire *in situ* to keep fluid in ste

stage to confirm the site of the ret

- TPN



Stanley Dudrick and “Stinky”
SURGICAL RESIDENT



Jonathan Rhoads



Harry Vars

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

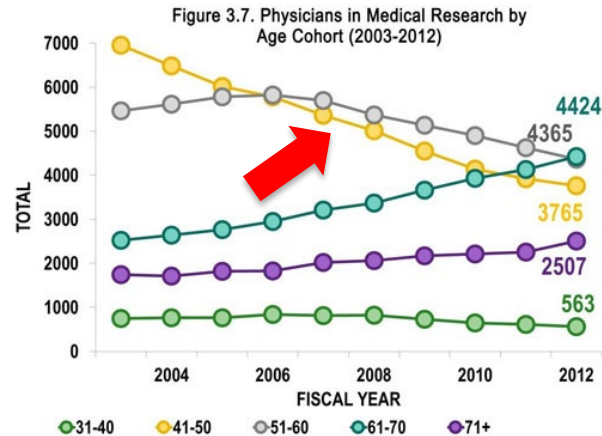
... and the list goes on and on!!

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

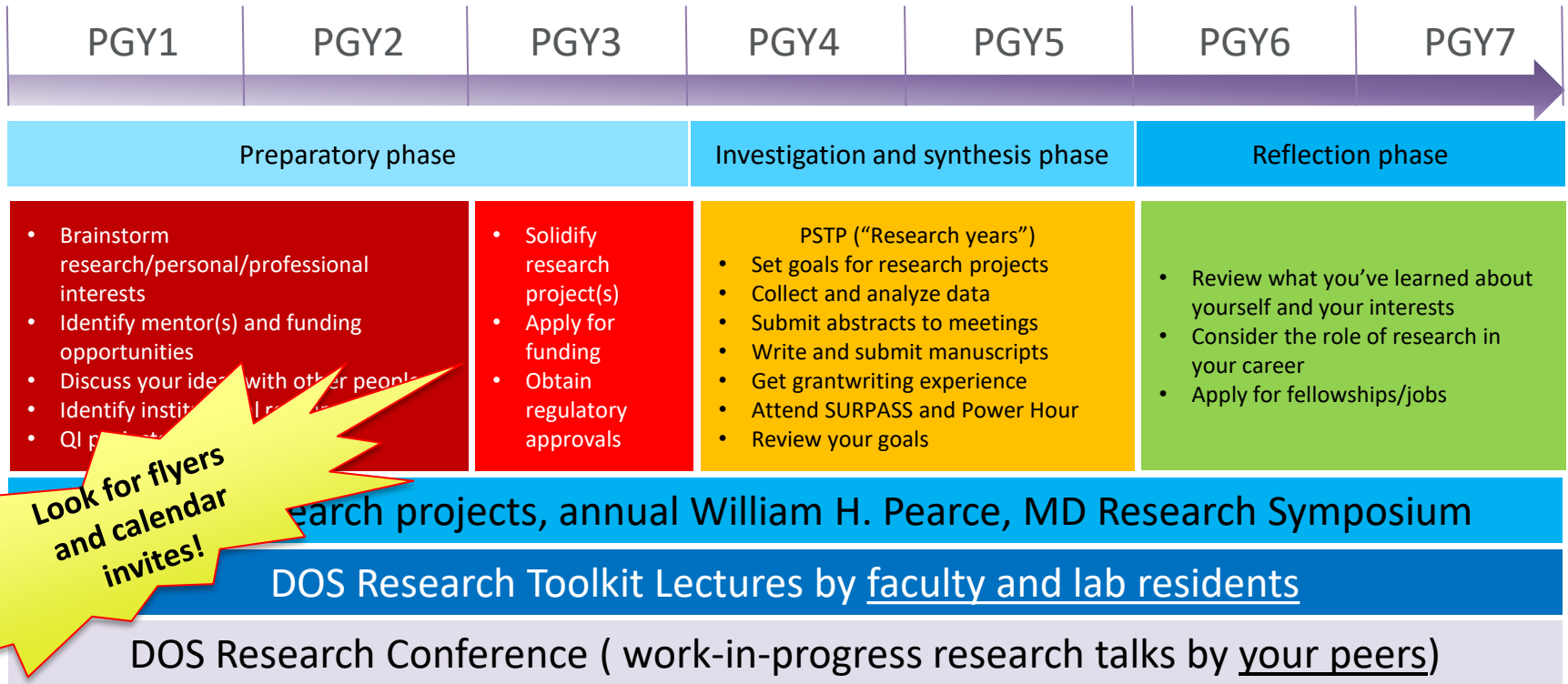
What is the Physician Scientist Training Program (PSTP)?

- 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?



Look for flyers and calendar invites!

What's on the schedule for Research Toolkit Lectures in AY 2023-2024?

Date	Title	Speaker
9/14/23	NIH Loan Repayment Program	Justin Ryder, PhD
9/28/23	Research Training Grants in DOS and beyond	Program Directors
11/9/23	How to Make Global Surgery Interests Part of Your Career	Monica Langer, MD
12/7/23	How to Engage with Your Mentor as a Lab Resident	Kate Ott, MD
1/25/24	How to Negotiate Your First Contract	Jesse Meyer
3/14/24	Writing for Peer Review	Lauren Janczewski, MD
4/11/24	How to Present Your Work	Brooke Golisch, MD
5/9/24	Grantwriting and Funding Opportunities for Residents	Shelbie Kirkendoll, MD and Karen Ho, MD

What if I miss a Toolkit Lecture?



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NEWS CENTER

Department of Surgery

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

Feinberg Home > Home > Education > Residency > Resident Research > Research Toolkit Lecture Series

Education

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

Research Toolkit Lecture Series

See below for upcoming and past Research Toolkit Lectures. Click on the links to view recordings of the talks and review copies of the slides.

Date	Title	Speaker	Slides	Recordings of Presentations
10/8/20	How to Pick a Mentor and Be a Good Mentee	Andrew Hoel, MD	Slides unavailable	No Recording
11/12/20	Strategic Career Planning	Hasan Alam, MD	Slides (PDF)	Recording
1/14/21	How to Write an Abstract	Steven Schwulst, MD	Slides (PDF)	Recording

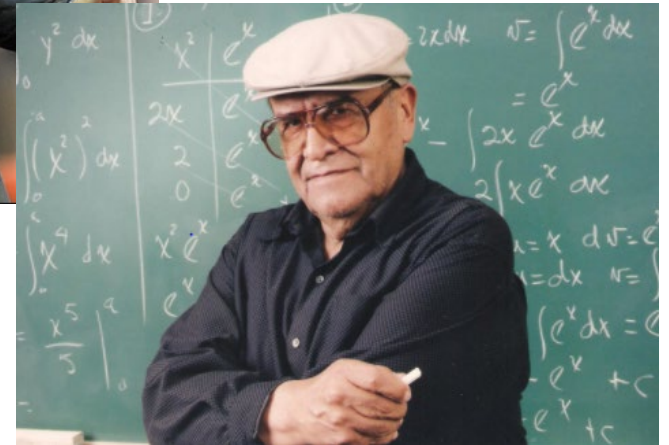
How do I find a faculty mentor(s)?

- 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
- Define research project, review data
- Help refine manuscripts, grant applications, talks
- Sponsor/support/nominate for applications, awards, career development activities
- Help develop timelines
- Support networking and collaboration

Conceptual

- 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:

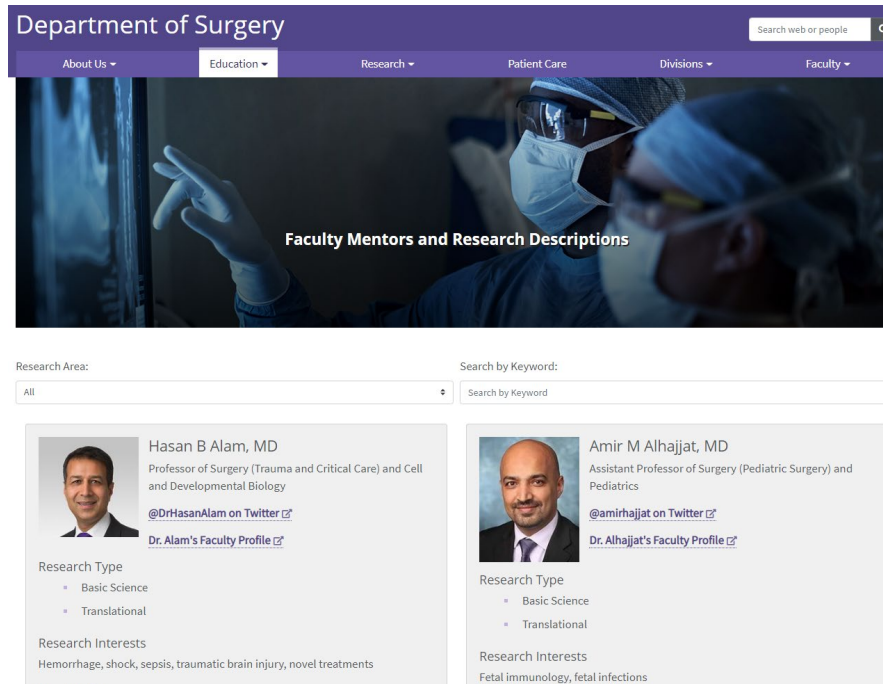


- Actively seek out mentors you suspect will be receptive to your values, ideas and goals; mentor also needs to have time, expertise, and funding
 - Talk to senior residents, fellows, and peers
 - Set up a meeting to discuss your personal, research, and career interests
- If you don't "click" with someone, keep looking!
- Professional society resources (ACS, AAS)
- Think broadly – you can have > 1 mentor and/or have a mentor outside DOS = mentoring TEAM!



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. 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 surgeons in an operating room with the text "Faculty Mentors and Research Descriptions" overlaid. Below the image, there are two search filters: "Research Area:" with a dropdown menu set to "All", and "Search by Keyword:" with a text input field. The main content area displays two faculty profiles side-by-side. The first profile is for Hasan B Alam, MD, a Professor of Surgery (Trauma and Critical Care) and Cell and Developmental Biology. His research type includes Basic Science and Translational, and his research interests include Hemorrhage, shock, sepsis, traumatic brain injury, and novel treatments. The second profile is for Amir M Alhajjat, MD, an Assistant Professor of Surgery (Pediatric Surgery) and Pediatrics. His research type includes Basic Science and Translational, and his research interests include Fetal immunology and fetal infections. Both profiles include a headshot, a Twitter link, and a link to their faculty profile.

Department of Surgery

Search web or people

About Us Education Research Patient Care Divisions Faculty

Faculty Mentors and Research Descriptions

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

- Basic Science
- Translational

Research Interests

Hemorrhage, shock, sepsis, traumatic brain injury, novel treatments

Amir M Alhajjat, MD
Assistant Professor of Surgery (Pediatric Surgery) and Pediatrics
[@amirhajjat on Twitter](#)
[Dr. Alhajjat's Faculty Profile](#)

Research Type

- Basic Science
- Translational

Research Interests

Fetal immunology, fetal infections

Northwestern Scholars

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

The screenshot shows the homepage of Northwestern Scholars. At the top, a purple header contains the text "Northwestern University | NORTHWESTERN SCHOLARS". Below this is a large image of a campus path with a semi-transparent dark overlay. The overlay contains the text "Welcome to Northwestern Scholars", a search bar with a magnifying glass icon, and the text "Advanced search" below the search bar. At the bottom of the image area, there is a link: "For System Status and Known Issues, click here".

Northwestern University | NORTHWESTERN SCHOLARS

Welcome to Northwestern Scholars

Advanced search

For System Status and Known Issues, click here

Category	Count
Experts	5091
Organizations	348
Research Output	286566
Grants	27284
Core Facilities	55
Research Data	10413

Past and current lab resident research projects

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

The screenshot shows the Northwestern Medicine Department of Surgery website. The header includes the Northwestern Medicine logo and navigation links for News Center and Faculty Profiles. The main navigation bar has tabs for About Us, Education, Research, Patient Care, Divisions, and Faculty. The Education tab is active, and the 'Resident Research' sub-tab is selected in the left sidebar. The main content area is titled 'Resident Research Projects' and contains two profiles: Jonathan Bricker, a General Surgery Resident (2023-Present), and Calvin Chao, an Integrated Vascular Surgery Resident (2022-Present). Each profile includes a photo, name, title, mentors, and a brief description of their research.

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NEWS CENTER | FACULTY PROFILES

Department of Surgery

Search web or people

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

[Feinberg Home](#) > [Home](#) > [Education](#) > [Residency](#) > [Resident Research](#) > [Projects](#)

Education

Education Overview

NU Surgical Education Center

Medical Students

Residency ▾

- Residency Overview
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- Resident Research ▾
 - Resident Research Overview
 - Projects**
 - Surgical Conferences
 - Calendar
 - Training Opportunities
 - Physician-Scientist Training Program
 - Resources
 - Research Toolkit Lecture Series

Resident Research Projects

Browse below to learn about the investigations recently conducted by our residents. For information on residents' quality improvement projects as part of their research fellowships, [visit the Northwestern Quality Improvement, Research & Education in Surgery page](#).

Current Research Projects



Jonathan Bricker
General Surgery Resident
2023 - Present

Mentors: Levi Hargrove, PhD, Robert Gallano, MD

Dr. Bricker's research is focused on understanding

the central neurologic mechanisms of phantom limb pain (PLP) following limb amputation and targeted muscle reinnervation. He is working at the Shirley Ryan Ability Lab in the Center for Bionic Medicine under Dr. Levi Hargrove where his primary project will focus on fMRI imaging of limb amputation patients with phantom limb pain. Additionally, he will be involved with several outcome based clinical projects involving breast reconstruction, wound healing and microsurgery under the direction



Calvin Chao
Integrated Vascular Surgery Resident
2022-Present

Mentors: Bin Jiang, PhD, Karen Ho, MD, Mark Eskandari, MD

Dr. Chao's research is focused on the development and delivery of biotechnologies for the treatment of vascular disease. Specifically, he is interested in elucidating the pathogenesis of aortic aneurysms and the implementation of novel regenerative therapies. Additional areas of study include the neointimal hyperplastic response after vascular injury and intravascular biomaterial design. He works predominantly in the Jiang Lab, a collaborate effort between the Department of Biomedical Engineering and

“SURGE-N” Newsletter has quarterly resident research news

<https://www.surgery.northwestern.edu/education/residency/resident-research/SURGE-N%20Newsletters.html>



The screenshot shows the Northwestern University Department of Surgery website. The header includes the Northwestern Medicine logo and the Department of Surgery name. A navigation menu is visible with options like 'About Us', 'Education', 'Research', 'Patient Care', and 'Divisions'. The main content area features the title 'Surgery Research Growth and Engagement Newsletter (SURGE-N)' and a large graphic with the text 'SURGE N'. Below the graphic, there is a paragraph explaining the newsletter's purpose and a list of links to past newsletters from 2021 to 2023.

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NEWS CENTER

Department of Surgery

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

Feinberg Home > Home > Education > Residency > Resident Research > "SURGE-N" Research Newsletters

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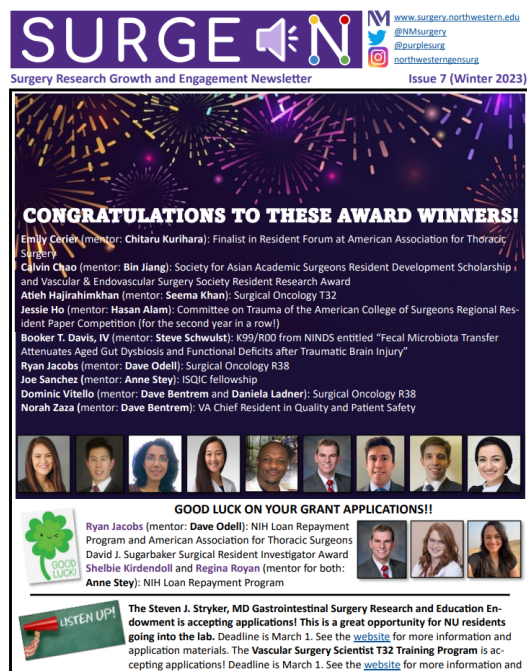
Research Toolkit Lecture Series

Surgery Research Growth and Engagement Newsletter (SURGE-N)



This newsletter promotes and celebrates Department of Surgery trainee research activities and accomplishments. If you have news that you want to share (your own or your peers), please send it to **Karen J. Ho, MD**.

- [Summer 2023 Newsletter \(PDF\)](#)
- [Winter 2023 Newsletter \(PDF\)](#)
- [Fall 2022 Newsletter \(PDF\)](#)
- [Spring 2022 Newsletter \(PDF\)](#)
- [Winter 2022 Newsletter \(PDF\)](#)
- [Fall 2021 Newsletter \(PDF\)](#)



The screenshot shows the cover of the SURGE-N newsletter, Issue 7 (Winter 2023). The cover features a colorful, abstract background with purple and blue tones. The title 'SURGE N' is prominently displayed at the top. Below the title, there is a section titled 'CONGRATULATIONS TO THESE AWARD WINNERS!' followed by a list of award winners and their mentors. At the bottom, there is a section titled 'GOOD LUCK ON YOUR GRANT APPLICATIONS!!' with a list of grant opportunities and their mentors. The cover also includes social media links for the newsletter.

SURGE N

Surgery Research Growth and Engagement Newsletter

Issue 7 (Winter 2023)

www.surgery.northwestern.edu
@NMSurgery
@purple surg
northwesternsurg

CONGRATULATIONS TO THESE AWARD WINNERS!

Emily Carlek (mentor: Chitaru Kurihara): Finalist in Resident Forum at American Association for Thoracic Surgery

Calvin Chao (mentor: Bin Jiang): Society for Asian Academic Surgeons Resident Development Scholarship and Vascular & Endovascular Surgery Society Resident Research Award

Atieh Hajrahimkhan (mentor: Seema Khan): Surgical Oncology T32

Jessie Ho (mentor: Hasan Alam): Committee on Trauma of the American College of Surgeons Regional Resident Paper Competition (for the second year in a row!)


Booker T. Davis, IV (mentor: Steve Schwulst): K99/R00 from NINDS entitled "Fecal Microbiota Transfer Attenuates Aged Gut Dysbiosis and Functional Deficits after Traumatic Brain Injury"

Ryan Jacobs (mentor: Dave Odell): Surgical Oncology R38

Joe Sanchez (mentor: Anne Stey): ISQIC fellowship

Dominic Vitello (mentor: Dave Bentrem and Daniela Ladner): Surgical Oncology R38

Norah Zaza (mentor: Dave Bentrem): VA Chief Resident in Quality and Patient Safety



GOOD LUCK ON YOUR GRANT APPLICATIONS!!

GOOD LUCK!

Ryan Jacobs (mentor: Dave Odell): NIH Loan Repayment Program and American Association for Thoracic Surgeons

David J. Sugarbaker Surgical Resident Investigator Award

Shelbie Kirdendoll and Regina Royan (mentor for both: Anne Stey): NIH Loan Repayment Program

LISTEN UP!

The Steven J. Stryker, MD Gastrointestinal Surgery Research and Education Endowment is accepting applications! This is a great opportunity for NU residents going into the lab. Deadline is March 1. See the [website](#) for more information and application materials. The Vascular Surgery Scientist T32 Training Program is accepting applications! Deadline is March 1. See the [website](#) for more information and

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:
 1. NIH institutional research training grants
 - DOS: Transplant, Surgical Oncology, Vascular
 - DOM
 2. Individual postdoctoral research fellowships (e.g., AAS, SUS, ACS, NIH F32)
 3. Intramural (e.g., Stryker endowment)
 4. Mentor
- You need to plan ahead and pay attention to deadlines!

PGY 2
PGY 3

Start funding by July 1, 2024
Submit grant by December 2023
Start writing by August 2023
Identify project and Aims by July 2023
Identify mentor and discuss funding roadmap by January 2023



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>

List of training and funding opportunities + links

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

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Department of Surgery

Search web or

About Us Education Research Patient Care Divisions Faculty

Feinberg Home > Home > Education > Residents > Resident Research > Funding Opportunities

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Surgical Conferences

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Funding and Training Opportunities for Residents & Students

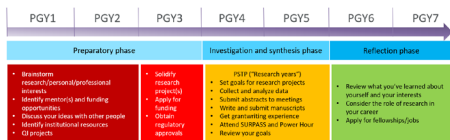
For Residents

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- 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

Mentor timeline



	PGY1			PGY2			PGY3		
	Fall/Winter	Spring	Summer	Fall/Winter	Spring	Summer	Fall/Winter	Spring	Summer
Mtgs with me	1:1	1:1		1:1	1:1		1:1	1:1	
You	Explore mentor options		Develop short list of mentors	Solidify mentor(s), think about funding an projects	Develop research projects with mentor	Apply for funding!		Start the onboarding process	"Shovel ready" for research years!

Other career development during research years

- Master's degrees
 - MS in HSOR
 - Methodology Certificate
 - MS in Clinical Investigation
- NU Center for Leadership 1:1 leadership coaching program
- McGaw Medical Education Clinical Scholars Program
- ASE Surgical Education Research Fellowship Program
- ACS Resident as Teachers and Leaders
- ACS Leadership and Advocacy Summit

... and many more!

What are important upcoming events?

- **Training Grant Directors will talk about their programs**
 - Thursday, 9/28, 9-10 AM
 - Surg Onc T32 and R38 – Dr. Seema Khan
 - NQUIRES – Dr. Julie Johnson
 - ACS programs – Dr. Anne Stey
 - Vascular T32 – me
 - Transplant T32 – Dr. Daniela Ladner
 - Pediatric Obesity – Dr. Justin Ryder
 - VA Chief Resident in Quality and Safety – Dr. Dave Bentrem
- **Resident research blitz**
 - October, date TBA
 - Faculty and lab residents will talk to PGY1s and 2s about research in small groups
- **Fall 1:1 meetings with me**
 - Check your email next week to sign up on the Google sheet!

Where can I get more information?

- DOS Resident Research website has links to all of the above

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

AND:

- Surgical conferences calendar + abstract deadlines
- Link to Edelstone-Bendix Day and William H. Pearce, MD Research Symposium
- Other resources, **including the NEW travel reimbursement policy and Smartsheet**



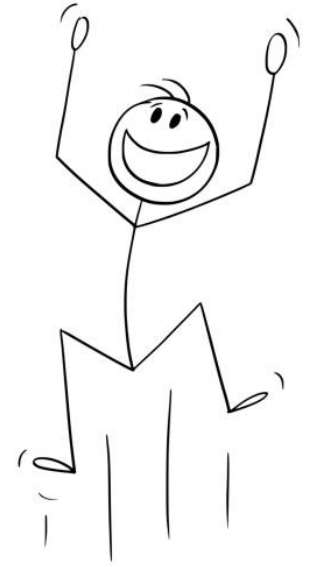
Be sure to use all your PSTP travel money!



What if I can't get funded?

No resident who has wanted to do research and tried to get funded but was unsuccessful has been excluded from research!

This is a valuable learning process....
You will get help!

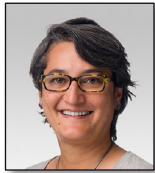


People who can help you

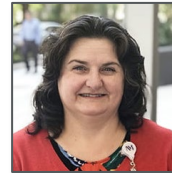


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Page or call me (617-501-7232) any time!



Daniela Ladner, MD MPH
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Lynnette Dangerfield
Admin Asst
I-Dangerfield@northwestern.edu

DO NOT IGNORE HER EMAILS!



Melanie Mkrdichian
Director of Research Operations
mblaszak@nm.org

*Help with grant submissions, onboarding,
DOS research event planning, awards administration*



Rhiannon Weathers
Program Asst
Rhiannon.weathers@nm.org

DOS Research Conference emails, website updates

Recap

- Why do research?
 - Why do research during residency?
- **Physician Scientist Training Program (PSTP)**
- Research timelines – overview and mentor
- DOS Research Conference and Research Toolkit Lectures
- How to find a faculty mentor or mentoring team
- Possible sources of research funding and why you need to plan ahead
- Examples of other career development activities you can do during your research years
- DOS Resident Research website is a rich source of information
- Important upcoming events
- People who are here to help you



Thank you
QUESTIONS?