

Research Achievements in 2023



Thank you for another amazing year of accomplishments! Together, we have done much to advance the departmental mission of "Creating the Future of Emergency Care" through research. Here are some highlights of what we have achieved together in 2023. Congratulations! Let's do it again! Bigger! Better!!!

Fred Korley MD, Ph.D., Professor & Associate Chair for Research

Research Awards

- **National:** **Dr. Patrick Carter** was elected to the National Academy of Medicine.
- **Dr. Keith Kocher** received the SAEM Mentor Award.
- **Dr. Fred Korley** was elected to the American Society of Clinical Investigators.
- **Dr. William Meurer** was elected as a Society of Clinical Trials Fellow.
- **Dr. Kayvan Najarian** received a three-year Fulbright Specialist Award.
- **Dr. Regina Royan** received three American Heart Association (AHA) Awards! The Early Career Investigator Award, the Go Red for Women Research Award, and the Hemorrhagic Stroke Research Award.
- **Dr. Kevin Ward** was elected to the National Academy of Innovators.
- **Departmental:** **Drs. Carrie Bailes and Asmaa Rimawi** won the 2023 EM Residency Research Development Grant competition. **Drs. Ashley Cohen, Shoshana Rudin, and Jordan Sell** were runners-up.

Grant Funding

In 2022, we received 16% (\$15,890,203) of the total amount of NIH funds awarded to Emergency Departments, up from 11% in 2021. This is the second-highest amount of NIH funding awarded to an emergency department. Drs. Carter and Barsan were the country's second and third-highest NIH-funded ED investigators.

Here are some notable new grant awards with emergency medicine PIs.

- **Dr. Thomas Sanderson's** Ph.D. students **Katlynn Emaus** and **Garrett Fogo** received pre-doctoral training awards (an F31 award from NINDS and an F99/K00 award from NIA, respectively).
- **Dr. Courtney Mangus** received a K08 career development award from AHRQ
- **Dr. Regina Royan** received an NIH student loan repayment award, which pays up to \$50,000 annually of a researcher's qualified educational debt in return for a commitment to engage in NIH mission-relevant research.
- **Drs. Joseph Wider, Thomas Sanderson, and Hakam Tiba** are the PIs of a new Defense University Research Instrumentation Program grant that will allow them to purchase high-end microscopy and neuromonitoring instruments for their porcine model TBI studies.

- **Dr. Colin Greineder** is a PI of two new R01 awards from the NHLBI and NIA.
- **Dr. Phillip Scott's** grant for the University of Michigan's Regional Coordinating Stroke Center from NINDS was renewed for another 5 years.
- **Dr. Silbergliet and Barsan's** grant for the Strategies to Innovate EmergENCy Care Clinical Trials Network (SIREN) Clinical Coordinating Center from NINDS and NHLBI was renewed for another 5 years.

A list of the **>100** active grant awards in the department can be found [here](#).

Our departmental success rate for **all grant** submissions (that is federal + non-profit + other) is >40%. Pretty good odds! It is all about the number of shots on goal. The dollar amounts shown are **direct costs** only. **Source:** M-Dash

	2019	2020	2021	2022	2023	2024 YTD
Submitted (\$)	\$15,289,652	\$17,989,327	\$29,445,265	\$12,315,491	\$17,926,922	\$18,447,663
Submitted (#)	53	59	83	57	67	54
Success (%)	19 (35.9)	25 (42.4)	32 (38.5)	28 (49.1)	29 (43.3)	4 (7.4)
Open	0	0	0	0	9	39

Here are our departmental success rates for **federal grant** submissions only. The dollar amounts shown are **direct costs** only. **Source:** M-Dash

	2019	2020	2021	2022	2023	2024 YTD
Submitted (\$)	\$13,472,367	\$16,008,476	\$12,277,916	\$9,238,480	\$16,927,255	\$15,378,537
Submitted (#)	32	36	59	40	54	35
Success (%)	12 (37.5)	13 (36.1)	19 (32.2)	17 (42.5)	25 (46.3)	3 (8.6)
Open	0	0	0	0	5	24

Investing in the research pipeline

The table below showcases the distribution of various types of active grants in our NIH portfolio over the last five years. Specifically, in 2019/2020, our portfolio included up to 6 active K awards. These awards were primarily career development awards held by Drs. Patrick Carter, Scott Van Epps, Colin Greineder, and Keith Kocher, and a K12 training grant led by Dr. Neumar (Drs. Cindy Hsu and Vinitha Jacob were the awardees). All the previous K awardees have achieved great success in their research careers. Our current K awardees are Dr. Mangus (AHRQ K08; see profile below) and Drs. Lauren Mamer and Negar Farzaneh (Institutional K12). We also have a promising group of new faculty members who we aim to cultivate into future recipients of NIH K awards.

	2019	2020	2021	2022	2023	2024 YTD
R01	5	5	3	5	5	5
U	3	4	3	3	2	2
K	5	6	2	2	4	3
Others	1	1	3	4	3	3

New Faculty with a primary focus on research

We are thrilled to welcome five exceptionally skilled researchers to our faculty this year. Recognizing the need for greater representation of women in tenure-track positions within our department, we are eager to support these new faculty members in their journey toward

achieving tenure in the forthcoming years. Congrats to Dr. Mahajan and the faculty on the hiring committee for another successful year of recruitment.



Lauren Mamer MD, PhD Regina Royan MD, MPH Mariama Runcie MD Laura Seewald MD Negar Farzaneh PhD

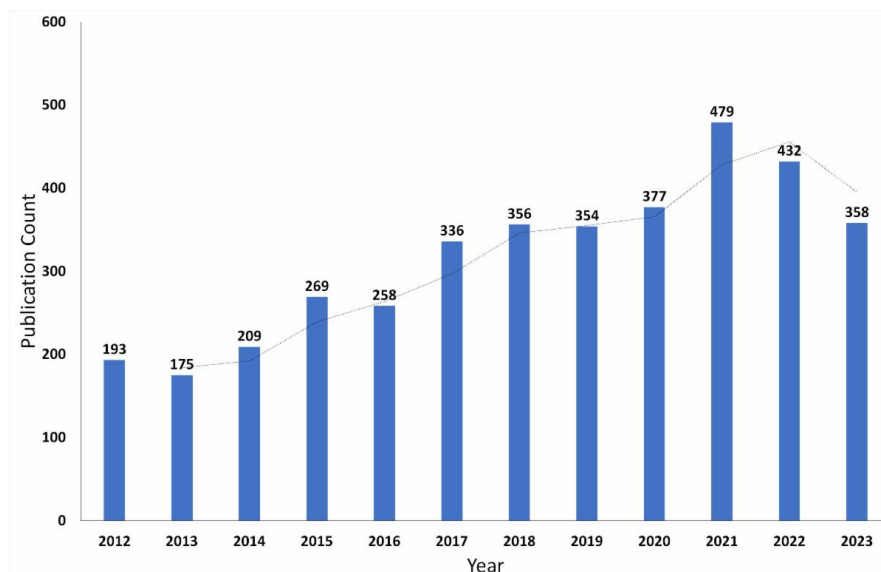
Publications

In 2023, we produced an impressive tally of 358 peer-reviewed journal articles. While there's a modest decrease from the heightened publication rate observed during the pandemic, it's notable that this figure is nearly twice as high as it was a decade ago. For more details, please take a look at the graph below.

Fun facts about our publications

- The top 5 journals where our work is frequently published are Stroke, Annals of Emergency Medicine, JAMA Network Open, Resuscitation, and Western Journal of Emergency Medicine.
- **Dr. Regina Royan** published papers in three JAMA series journals (JAMA, JAMA Surgery, and JAMA Network Open) in one year!
- **Drs. Connor O'Hare, Kelsey Grace, William Schaeffer, Jim Cranford, Keith Kocher, and Colin Greineder** published a JAMA Network Open paper that answered the question, "Are concerning CT findings seen in low-risk (by PESI) PE patients associated with poor outcomes?" Congratulations to Dr. Greineder for leading a team that included residents and guiding a resident to publish a first-author JAMA series publication.
- **Dr. Suzanne Dooley-Hash** co-authored an international consensus paper on patient-centered outcomes in eating disorders in Lancet Psychiatry.
- **Drs. Negar Farzaneh, Sadar Ansari, and Kevin Ward** published an NPJ (Nature Partner Journal) Digital Medicine paper on deploying AI to complement physician diagnosis of ARDS.

A list of all publications can be found [here](#).



Patents, Licensed Products and Spinoff Companies

Dr. Vinitha Jacob and her team filed a patent for a patient for a set of compounds and methods for treating sepsis.

Drs. Kevin Ward and **Richard Medlin** and their collaborators received a patent for an AI algorithm that predicts intensive care transfers and other unforeseen events.

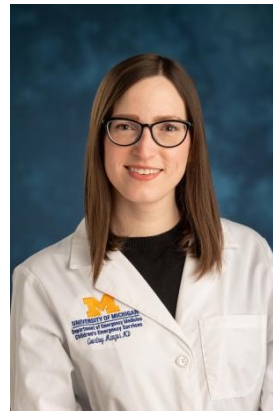
Drs. Fred Korley and **Kevin Ward**, in collaboration with colleagues in the College of Engineering, received a second patent for an inclined channel microfluidic device for measuring biomarkers.

Dr. Kevin Ward and the Weil Institute spun two new companies off from work. They are:

- **RUA Diagnostics:** A company commercializing point-of-care gas chromatography technology for diagnosis and trajectory monitoring of ARDS, Sepsis, PE, TBI, etc.
 - **ElectriSensi:** A company developing and commercializing new noncontact cardiovascular and respiratory sensor technology.
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Meet one of our superstar researchers, Dr. Mangus

Dr. Courtney Mangus is a Clinical Assistant Professor in our department. She works clinical shifts at PES and Hurley. She joined our faculty in 2019 after completing both her pediatric residency and pediatric emergency medicine fellowship at The Johns Hopkins Hospital in Baltimore, Maryland. Dr. Mangus's primary research focus is on developing an intervention for shared decision-making regarding CT imaging in children with abdominal pain who have a low risk of appendicitis. This initiative is particularly relevant in community ED settings, where the frequent presentation of children with abdominal pain contrasts with the limited ability to conclusively rule out appendicitis using ultrasound, often due to the unavailability of skilled sonographers or the ED providers' limited technical expertise. This gap in diagnostic capability leads to numerous unnecessary CT scans. Dr. Mangus's approach involves using a clinical prediction tool, the pediatric appendicitis risk calculator (pARC), combined with shared decision-making strategies. The goal is to enhance resource use, foster greater involvement of patients and parents in the decision-making process, and decrease the number of avoidable CT scans, all without increasing the risk of missing a diagnosis of appendicitis. Her interest in this area is rooted in her experiences in community EDs in both Baltimore and Flint. She remains committed to enhancing the safety and quality of emergency pediatric care.



Learn more about research conducted by our different centers and networks



NIH SIREN
Emergency
Trials
Network



Important Upcoming Dates

January 18th, 2024: Kahn Pediatric Critical Care Challenge Kickoff Event

March 12th, 2024: Massey TBI Grand Challenge Kickoff Event

April 10th, 2024: Annual Barsan Research Forum (**Guest Speakers:** John Vozenilek MD, a medical simulation research expert, and Jonathan Handler MD, an AI in Medicine)

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