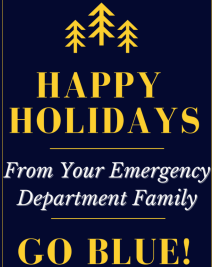




## Research Achievements in 2022



Congratulations! What a year! Together, we have done a lot 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 2022. We will present a more detailed report of our research accomplishments at the end of the academic year. Happy Holidays!

*Fred Korley MD, Ph.D., Associate Chair for Research*

## Research Highlights

- **National Awards:** Dr. Cindy Hsu received the SAEM Early Investigator Award. Dr. Kevin Ward received the Outstanding Contribution in Research Award from ACEP.
- **Departmental Awards:** Drs. Emily Ager, Connor O'Hare, and Max Raithel were the winners of the 2022 EM Residency Research Development Grant competition. The Massey TBI Grand Challenge awarded \$1,062,792 to fund 7 different projects. EM faculty and fellows supported include Drs. Florian Schmitzberger, Robert Silbergleit, Thomas Sanderson, Joseph Wider, Hakam Tiba, Kevin Ward, and Chris Fung. A list of funded projects can be found [here](#).
- **Philanthropy:** The department received a \$10 million gift to establish the **Max Harry Weil Institute for Critical Care Research** and Innovation directed by Dr. Kevin Ward. The Weil Institute received a \$400,000 gift from philanthropist Mark Kahn to establish the **Pediatric Critical Care Grand Challenge**.
- **New hires with a research focus:** See pictures below. Dr. Doug Weibe was hired to co-lead the Injury Prevention Center with Dr. Pat Carter. Dr. Christina Cutter was hired as a faculty member with a research focus on health system design and analysis, decision-making, and value-based care. New research fellows who joined the department this year are Alex Janke (Emergency care quality and value, IHPI), Lauren Mamer (StrokeNet), Florian Schmitzberger (Cardiac Arrest, MRISE), Laura Seewald (Injury Prevention),



## Grant Funding

In 2021, we received 11% of the total amount of NIH funds awarded to Emergency Departments. Four faculty members (Drs. William Meurer, Rebecca Cunningham, Patrick Carter, and Fred Korley) were among the top 50 NIH-funded investigators.

# \$25.7 million

In new grant awards in 2022

In 2022, Emergency Medicine Faculty received \$25.7 million as Principal Investigators of **NEW** grant awards! There were 20 different **NEW** awards from Federal (NIH, DoD, CDC, VA), Foundation (Laerdal, SAEM), and industry partners (AirStrip). This volume of research activity in a department of emergency medicine is unparalleled. Since I want to keep these highlights brief, I will not list all the awards. However, I will highlight a few awards to demonstrate the breadth and diversity of the type of research conducted in the department.

- **Dr. Patrick Carter** is the Contact PI of a **new T32 training program** award from NICHD that will train MD and/or Ph.D. scholars in conducting research on the prevention of firearm injuries among children and teens. This is only one of a handful of T32 training programs in emergency medicine in the country!
- **Dr. Sadar Ansari** received a \$4 million award from **AirStrip** to further the development of a PICTURE (Predicting ICU Transfer and Other Unforeseen Events) suite of machine learning algorithms that utilizes EHR data to predict ICU transfer or death as a proxy for patient deterioration.
- **Dr. Laura Hopson** received a grant from the Emergency Medicine Foundation to create a behavioral definition of a Master Adaptive Learner for Emergency Medicine.
- **Dr. Prashant Mahajan** received two NIH awards, one is to develop a biomarker signature for pediatric sepsis and the other is to develop a wearable body odor sensor for disease detection and monitoring in conjunction with **Dr. Kyle Gunnerson** and others.

A list of the **>150** active grant awards in the department can be found [here](#).

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## Publications

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In 2022, ED faculty members published a total of **314** papers. Collectively these publications represent significant leaps forward in strengthening the scientific basis for caring for patients with emergency medical conditions. Five of the highest-impact publications by named ED faculty authors, **based on the Altmetric score** are as follows:

- **Current Causes of Death in Children and Adolescents in the United States** in NEJM by Jason Goldstick, Rebecca Cunningham, and Patrick Carter
- **Analysis of "Stand Your Ground" Self-defense Laws and Statewide Rates of Homicides and Firearm Homicides** in JAMA Network Open by Douglas Wiebe
- **Post-COVID-19 Conditions Among Children 90 Days After SARS-CoV-2 Infection** in JAMA Network Open by Alex Rogers
- **Prognostic value of day-of-injury plasma GFAP and UCH-L1 concentrations for predicting functional recovery after traumatic brain injury in patients from the US TRACK-TBI cohort: an observational cohort study** in Lancet Neurology by Fred Korley and others.
- **Surfaces with instant and persistent antimicrobial efficacy against bacteria and SARS-CoV-2** in Matter by Scott VanEpps

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

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CREATING THE FUTURE  
OF EMERGENCY CARE

Creativity  
+  
Innovative  
Thought

CONGRATULATIONS  
TO ALL AUTHORS!

## Impact of research on our clinical mission

Ben Bassin and colleagues demonstrated that our ED-ICU model (EC3) provides improved quality of care while keeping costs constant. [JAMA Open Network](#)

## Patents, Licensed Products and Spinoff Companies

**Drs. Kevin Ward, and Fred Korley** in conjunction with Dr. Mark Burns in the School of Engineering received a patent for a microfluidic device for measuring blood-based biomarkers. United States Patent 11,389,799 B2, July 19, 2022

- **Ventilator-associated pneumonia prevention mouthpiece (Prevada Medical):** Kevin Ward and Scott VanEpps
- **Predicting ICU Transfer and other Unforeseen Events Predictive Analytic:** (AirStrip Inc): Kevin Ward, Rich Medlin
- **ARDS Predict (AirStrip):** Kevin Ward
- **Environment for Model Monitoring, Evaluation, and Timely Tuning (AirStrip Inc):** Sardar Ansari, Brandon Cummings, Phil Jacokes, Kevin Ward
- **Microgas Chromatography Device for Critical Care Diagnosis:** (Blu Biotech): Kevin Ward
- **Gastroesophageal Resuscitative Occlusion of the Aorta device:** (Precision Trauma): Kevin Ward
- **Intraperitoneal Hemorrhage Control Device (Precision Trauma):** Kevin Ward, Hakam Tiba

**Prevada Medical** was founded by **Drs. Kevin Ward and Scott Van Epps** to develop a novel and innovative medical device solution to reduce the inexcusably high rates of lung infections in the ICU.

## Learn more about research conducted by our different centers and networks



NIH SIREN  
Emergency  
Trials  
Network



## Important Upcoming Dates

**January 3rd, 2023:** SAEM abstract deadline

**January 12th, 2023:** Kahn Pediatric Critical Care Challenge 2-page proposal deadline

**March 9th, 2023:** Massey TBI Grand Challenge Kick-off Event

**May 3rd, 2023:** ACEP Research Forum abstracts due. Submission instructions will be available on February 1, 2023.

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