Department of Emergency Medicine Research Program Overview: Annual Update

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Vice Chair for Research

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The scope of our research

- Laboratory Research
- Clinical Investigation
- Health Services/Population Science
- Community Oriented Research

Some examples of faculty in each domain – just as illustrations:

- David Jang
- Tony Davila
- Felipe Teran
- Ben Abella
- Nova Panebianco
- Zack Meisel
- Fran Shofer
- Kit Delgado
- Raina Merchant
- Gina South
- Ben Abella
Research activity: funding snapshot in context

Ranking of Emergency Medicine Departments: Federal funding, 2017 (most recent available)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Name</th>
<th>Emergency Medicine</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>UNIVERSITY OF MICHIGAN</td>
<td>$9,421,204</td>
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<tr>
<td>2</td>
<td>OREGON HEALTH &amp; SCIENCE UNIVERSITY</td>
<td>$4,993,674</td>
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<tr>
<td>3</td>
<td>ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI</td>
<td>$2,855,685</td>
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<tr>
<td>4</td>
<td>UNIVERSITY OF CALIFORNIA AT DAVIS</td>
<td>$2,628,155</td>
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<tr>
<td>5</td>
<td>UNIV OF MASSACHUSETTS MED SCH WORCESTER</td>
<td>$2,144,589</td>
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<tr>
<td>6</td>
<td>YALE UNIVERSITY</td>
<td>$1,982,230</td>
</tr>
<tr>
<td>7</td>
<td>INDIANA UNIV-PURDUE UNIV AT INDIANAPOLIS</td>
<td>$1,708,859</td>
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<tr>
<td>8</td>
<td>UNIVERSITY OF PITTSBURGH AT PITTSBURGH</td>
<td>$1,673,313</td>
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<tr>
<td>9</td>
<td>UNIVERSITY OF COLORADO DENVER</td>
<td>$1,344,298</td>
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<tr>
<td>10</td>
<td>OHIO STATE UNIVERSITY</td>
<td>$1,140,203</td>
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<tr>
<td>11</td>
<td>VANDERBILT UNIVERSITY</td>
<td>$1,132,331</td>
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<tr>
<td>12</td>
<td>THOMAS JEFFERSON UNIVERSITY</td>
<td>$1,127,989</td>
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<tr>
<td>13</td>
<td>NEW YORK UNIVERSITY SCHOOL OF MEDICINE</td>
<td>$1,074,926</td>
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<tr>
<td>14</td>
<td>UNIVERSITY OF PENNSYLVANIA</td>
<td>$971,918</td>
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<tr>
<td>15</td>
<td>UNIVERSITY OF WISCONSIN-MADISON</td>
<td>$921,736</td>
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Our Department is #14 in the nation for NIH funding among EM Departments
Tabulation does not include PCORI funding, of which we are major recipient
Domains of Research

Centers within the Department

- Center for Emergency Care Policy and Research
  - Zack Meisel
- Center for Resuscitation Science
  - Ben Abella

Penn entities with strong EM presence/collaboration

- Social Media & Health Innovation Lab
  - Raina Merchant
- Neurological Emergency Treatment Trials network
  - Jill Baren
- Leonard David Institute of Health Economics
- Center for Clinical Epidemiology and Biostatistics
Spans clinical and health services and population science

**Topics of interest:**
Patient narratives to guide health
Access and transitions of care
Drug and alcohol abuse
Intimate partner violence
Economics of emergency care access

**Examples of recent publications**

**Which transfers can we avoid: Multi-state analysis of factors associated with discharge home without procedure after ED to ED transfer for traumatic injury**
Laura N. Medford-Davis, MD MS^1, Daniel N. Holena, MD FACS^1, David Karp, MS^2, Michael J. Kallan, MS^1, M. Rit Delgado, MD MS^2

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**A Randomized Trial Testing the Effect of Narrative Vignettes Versus Guideline Summaries on Provider Response to a Professional Organization Clinical Policy for Safe Opioid Prescribing**
Zachary F. Meisel, MD, MSHP^1; Joshua R. Merlay, MD; Lauren Sinnenberg, BA; Austin S. Kilaru, MD; Anne Groessereiter, PhD; Francois K. Birgi, PhD; Francois S. Shofer, PhD; Karin V. Rhodes, MD, MA; Jeanmarie Perrone, MD

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*Corresponding Author. Email: zm@alpert.med.usc.edu, Twitter: @zacharymeisel.
Spans from laboratory to community oriented research

**Topics of interest:**
- Ischemia-reperfusion injury
- Post-arrest care and outcomes
- Disparities in CPR training
- Targeted temperature management

Examples of recent publications

**Association Between Elevated Mean Arterial Blood Pressure and Neurologic Outcome After Resuscitation From Cardiac Arrest: Results From a Multicenter Prospective Cohort Study**

Brian W. Roberts, MD, MSc; J. Hope Kilgannon, MD; Benton R. Hunter, MD; Michael A. Puskarich, MD; Lisa Shea, BA; Michael Donnino, MD; Christopher Jones, MD; Brian M. Fuller, MD, MSci; Jeffrey A. Kline, MD; Alan E. Jones, MD; Nathan L. Shapiro, MD, MPH; Benjamin S. Abella, MD, MPhil; Stephen Trzeciak, MD, MPH

2018

**Cardiopulmonary Resuscitation Training Disparities in the United States**

Audrey L. Blewer, MPH; Said A. Ibrahim, MD, MPH, MBA; Marion Leany, MPH, MSN, RN; David Dutwin, PhD; Bryan McNally, MD, MPH; Monique L. Anderson, MD; Laurie J. Morrison, MD, MS; Tom P. Auferheide, MD; Mohamud Daya, MD, MS; Ahamed H. Idris, MD; Clifton W. Callaway, MD, PhD; Peter J. Kudenchuk, MD; Gary M. Vlase, MD; Benjamin S. Abella, MD, MPhil

2017
Visit https://www.med.upenn.edu/resuscitation/
Clinical and community oriented research projects

**Topics of interest:**
Crowdsourcing for health information (e.g. AEDs)
Social media as diagnostic of health status
Health app development
Data mining of social networks

**Examples of recent publications**

**Original Research**

**Public sentiment and discourse about Zika virus on Instagram**


Penn Medicine Center for Digital Health, University of Pennsylvania, Philadelphia, PA 19104, USA

2017

**Neighborhood-Level Disparities in Resuscitation and the Potential of Connected Health**

Raina M. Merchant, MD, MSHP; Peter W. Groeneveld, MD, MS

2017
Large national NIH consortium
Penn is a “hub site”

**Topics of interest:**
Management of status epilepticus
Traumatic brain injury treatment
Stroke clinical trials

Examples of recent publications

**Intensive Blood-Pressure Lowering in Patients with Acute Cerebral Hemorrhage**

Adnan I. Qureshi, M.D., Yuko Y. Palesch, Ph.D., William G. Barsan, M.D.,
Daniel F. Hanley, M.D., Chung Y. Hsu, M.D., Renee L. Martin, Ph.D.,
Claudia S. Moy, Ph.D., Robert Silbergleit, M.D., Thorsten Steiner, M.D.,
Jose I. Suarez, M.D., Kazunori Toyoda, M.D., Ph.D., Yongjun Wang, M.D.,
Haruko Yamamoto, M.D., Ph.D., and Byung-Woo Yoon, M.D., Ph.D.,
for the ATACH-2 Trial Investigators and the Neurological Emergency Treatment Trials Network*
Mitochondrial bioenergetics and dynamics in Emergency Medicine (MitoEM)

Translational approach studying mitochondrial dysfunction in acute care illnesses

**Topics of interest:**
- Clinical application of measuring mitochondrial function in human blood cells as a surrogate of clinical disease
- Focused in application with acute care illnesses that includes sepsis, dive injuries and poisoning
- Development of novel mitochondrial-directed therapy that modulate both mitochondrial bioenergetic and dynamic function

David Jang (DJ), MD, MSc.
Assistant Professor – Division of Medical Toxicology & ResCCU

Examples of recent publications
Research program activities

- Annual Research Day symposium
- Research in Progress seminar series
- Academic Associates program
- Journal Club series
- SAEM annual meeting activities
Annual Research Day symposium – March 14, 2018

One day symposium each Spring

Oral presentations and posters from ED family (faculty, residents, nurses, medical students)

Guest keynote speaker from national Emergency medicine domain

Wonderful opportunity to showcase Our work and share within the Department and the Penn SOM community

Planning underway for our next Research Day, March 20, 2019!
Annual Research Day symposium – March 20, 2019

Research Day activities this year to include:

Resident “SHARK TANK” – research proposal competition with $1000 funding as prize

Guest speaker breakfast with residents – mentorship discussions, career advice, networking

Oral and poster science presentations from faculty, nurses, residents, fellows

Prior Keynote Speakers

2017
Federico Vaca, MD MPH
Vice Chair of EM
Yale SOM (New Haven)

2018
Jesse Pines MD MBA
Director, EM Policy Research
GW SOM (D.C.)

2019 Keynote Speaker

Corita Grudzen, MD
Vice Chair for Research Emergency Medicine
New York University
Research in Progress (RIP) seminar series

Wednesdays at noon – lunch provided

Informal presentations on research at any stage: prepping for proposals, early data, prepping for manuscript submissions

Great chance to get advice and feedback

Speakers from EM but also guest speakers with relevant collaborations:

Some of our guest speakers:
- Josh Levine, Neuro ICU
- Nuala Meyer, MICU
- Carrie Sims, Trauma/ESS
Resource for clinical research screening And enrollment in the ED

“Blue coats” are pre-health students (mostly Penn post-bac program)

Program led by full time Research Coordinator Tim Vaughan

All new projects are welcome – contact us if you want to start collecting data for your project
Journal Club series

Collaboration between research and residency domains of our department

For residents, fellows and faculty

Hosted at faculty homes – discussion led by residents with faculty support

Dinner provided

Mira Mamtani, Kevin Scott, and Lauren Conlon
Residency Program Directors
Michele Haynes
Residency Program Coordinator

Fran Shofer
Director of Research Design & Biostatistics
SAEM annual meeting activities

Society of Academic Emergency Medicine Annual meeting

Last year: Indianapolis, May 2018
Next year: Las Vegas, May 2019

SAEM “prep day” to practice poster and oral presentations

Penn EM reception

SAEM committee participation and pre-conference workshop encouraged
Key people to help you with research within EM

Barb Biney
AA program coordinator

Libby Moore
Grants administrator

Fran Shofer
Director of research design & biostatistics

Ben Abella
Vice Chair for Research

Zack Meisel
Director, CECPR

Eileen McDonnell
Research administrative coordinator
Final note

A marker of program success

Examples of recent resident alumni who have now chosen academic careers after further scholarly training

Kevin Scott: educational fellowship, now faculty at Penn EM
Cindy Hsu: critical care fellowship, now faculty at U Michigan EM
Nick Johnson: critical care fellowship, now faculty at U Washington