Department of Emergency Medicine
Research Program Overview

Benjamin S. Abella, MD MPhil
Vice Chair for Research

January 2017
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
## Ranking of Emergency Medicine Departments: Federal funding, 2014 (most recent available)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Institution</th>
<th>Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>UNIVERSITY OF MICHIGAN</td>
<td>$4,590,292</td>
</tr>
<tr>
<td>2</td>
<td>OREGON HEALTH &amp; SCIENCE UNIVERSITY</td>
<td>$3,711,826</td>
</tr>
<tr>
<td>3</td>
<td>UNIVERSITY OF PENNSYLVANIA</td>
<td>$3,103,641</td>
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<tr>
<td>4</td>
<td>ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI</td>
<td>$2,848,667</td>
</tr>
<tr>
<td>5</td>
<td>YALE UNIVERSITY</td>
<td>$2,663,424</td>
</tr>
<tr>
<td>6</td>
<td>UNIVERSITY OF PITTSBURGH AT PITTSBURGH</td>
<td>$2,338,446</td>
</tr>
<tr>
<td>7</td>
<td>INDIANA UNIV-PURDUE UNIV AT INDIANAPOLIS</td>
<td>$1,532,778</td>
</tr>
<tr>
<td>8</td>
<td>UNIVERSITY OF CALIFORNIA AT DAVIS</td>
<td>$1,497,347</td>
</tr>
<tr>
<td>9</td>
<td>VANDERBILT UNIVERSITY</td>
<td>$1,484,987</td>
</tr>
<tr>
<td>10</td>
<td>UNIV OF MASSACHUSETTS MED SCH WORCESTER</td>
<td>$1,421,689</td>
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</tbody>
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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**

**2015**

**Management/Original Research**

**Patient Perspectives of Acute Pain Management in the Era of the Opioid Epidemic**

Robert J. Smith, BS; Karin Rhodes, MD, MS, Breah Paciotti, MPH; Sheila Kelly, MPH; Jeanmarie Perrone, MD; Zachary F. Meisel, MD, MPH*

**Access to Care**

**Most Uninsured Adults Could Schedule Primary Care Appointments Before The ACA, But Average Price Was $160**

By Brendan Saloner, Daniel Polsky, Genevieve M. Kenney, Katherine Hempstead, and Karin V. Rhodes
Spans from laboratory to community oriented research

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

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**Examples of recent publications**

- **Developing dual hemofiltration plus cardiopulmonary bypass in rodents**
  
  Koichiro Shinozaki, MD, PhD, a,b,*, Joshua W. Lampe, PhD, a
  Chih-Hsien Wang, MD, PhD, a
  Tai Yin, MD, PhD, a
  Junhwan Kim, PhD, a
  Shigeto Oda, MD, PhD, b
  Hiroyuki Hiratsuka, MD, PhD, b
  and Lance B. Becker, MD, FAHA,

- **Clinical Paper**
  
  Quantitative relationship between end-tidal carbon dioxide and CPR quality during both in-hospital and out-of-hospital cardiac arrest

  2015

  Kelsey R. Sheak, a
  Douglas J. Wiebe, b
  Marion Leary, a
  Saeed Babaeizadeh, d
  Trevor C. Yuen, e
  Dana Zive, f
  Pamela C. Owens, e
  Dana P. Edelson, e
  Mohamud R. Daya, f
  Ahamed H. Idris, e
  Benjamin S. Abella, a,*
Center for Resuscitation Science – internet site with resources

Visit https://www.med.upenn.edu/resuscitation/
National leadership in post-arrest care and TTM training and education

Twice a year Hypothermia and Resuscitation Training (HART) course has Trained >1400 physicians and nurses from >250 hospitals in US and Europe, Asia
Over the past five years of conducting the program
Center for Resuscitation Science – example post-arrest studies

Extensive publication record in post-arrest care, from lab to clinical environment

**Phospholipid alterations in the brain and heart in a rat model of asphyxia-induced cardiac arrest and cardiopulmonary bypass resuscitation**

Junhwan Kim¹ · Joshua W. Lampe¹ · Tai Yin¹ · Koichiro Shinozaki¹ · Lance B. Becker¹

**Shorter time to target temperature is associated with poor neurologic outcome in post-arrest patients treated with targeted temperature management**

Sarah M. Perman a,*, Jonas H. Ellenberg b, Anne V. Grossestreuer d, David F. Galeski c, d, Marion Leary c, Benjamin S. Abella c, d, Brendan G. Carr b, c

**Cerebral Performance Category at Hospital Discharge Predicts Long-Term Survival of Cardiac Arrest Survivors Receiving Targeted Temperature Management**

Cindy H. Hsu, MD, PhD; Jiaqi Li, MS; Marisa J. Cinousis, MHA; Kelsey R. Sheak, BS; David F. Galeski, MD; Benjamin S. Abella, MD, MPhil; Marion Leary, MSN, RN
Additional examples of post-arrest care publications from our team and multicenter collaborations in post-arrest care:

**Initial Lactate and Lactate Change in Post–Cardiac Arrest: A Multicenter Validation Study**

Michael W. Donnino, MD; Lars W. Andersen, MD; Tyler Giberson, BS; David F. Gaieski, MD; Benjamin S. Abella, MD, MPhil; Mary Anne Peberdy, MD; Jon C. Rittenberger, MD; Clifton W. Callaway, MD, PhD; Joseph Ornato, MD; John Clore, MD; Anne Grossestreuer, MS; Justin Salciccioli, MA; Michael N. Cocchi, MD; for the National Post-Arrest Research Consortium

2014

**Examination of Physiological Function and Biochemical Disorders in a Rat Model of Prolonged Asphyxia-Induced Cardiac Arrest followed by Cardio Pulmonary Bypass Resuscitation**

Junhwan Kim*, Tai Yin¹, Ming Yin¹, Wei Zhang¹, Koichiro Shinozaki¹, Mary A. Selak¹, Kirk L. Pappan², Joshua W. Lampe¹, Lance B. Becker¹

2014

**Higher mean arterial pressure with or without vasoactive agents is associated with increased survival and better neurological outcomes in comatose survivors of cardiac arrest**

Marie E. Beylin
Sarah M. Perman
Benjamin S. Abella
Marion Leary
Frances S. Shofer
Anne V. Grossestreuer
David F. Gaieski

2013
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

**Seeing Health Insurance and HealthCare.gov Through the Eyes of Young Adults**
Charlene A. Wong, M.D., David A. Asch, M.D., M.B.A., Cjoe M. Vinoya, Carol A. Ford, M.D., Tom Baker, J.D., Robert Town, Ph.D., and Raina M. Merchant, M.D., M.S.H.P.

**Use of Mobile Apps: A Patient-centered Approach**
Lauren A. Houdek VonHoltz, Kendra A. Hypolite, Brendan G. Carr, MD, MA, MSHP, Frances S. Sheffer, PhD, Flaura K. Winston, MD, PhD, C. William Hanson, III, MD, and Raina M. Merchant, MD, MSHP
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**

*Neurological Emergencies Treatment Trials (NETT) network*

Jill M. Baren, MD, MBE
Chair, Department of Emergency Medicine

**Implementation of the Exception From Informed Consent Regulations in a Large Multicenter Emergency Clinical Trials Network: The RAMPART Experience** 2012
Robert Silberglied, MD, Michelle H. Biros, MS, MD, Deneil Harney, MPH, MSW, Neal Dickert, MD, PhD, and Jill Baren, MD, MBE, on behalf of the NETT Investigators*
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 – April 20, 2016

One day symposium, convened in April

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

Speakers from past two years:

Lynne Richardson, MD
Professor of EM
Mt. Sinai School of Medicine

Sheldon Cheskes, MD
EMS Research Director
University of Toronto

Planning underway for our next Research Day, April 5, 2017!
Research in Progress (RIP) seminar series

Wednesdays at noon - this year lunch to be provided courtesy of CECPR and CRS research teams

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

Great chance to get advice and feedback

Always looking for more speakers; contact Ben Abella or Eileen McDonnell

Some of our guest speakers:

Josh Levine
Neuro ICU

Nuala Meyer
MICU

Carrie Sims
Trauma/ESS
Academic Associates (AA) program

Resource for clinical research screening
And enrollment in the ED

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

Program administered by Tim Vaughan
and Erica Dahlmeier

“No project too small” – contact us if you want to start generating data for your project
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

Dates and locations for this year will be available soon
SAEM annual meeting activities

Society of Academic Emergency Medicine
Annual meeting

New Orleans, May 10-13, 2016

SAEM “prep day” to practice poster and oral presentations

Penn EM reception

For this next year: Penn EM group “rounding” and discussion

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

Erica Dahlmeier
Research coordinator

Tim Vaughan
AA program coordinator

Libby Moore
Grants administrator

Fran Shofer
Director of research design & biostatistics

Ben Abella
Vice Chair for Research

Eileen McDonnell
Administrative coordinator
Thanks and questions

A marker of program success

Former residents who have now chosen academic careers and further scholarly training