

**BIDMC Department of Emergency Medicine Current Funded Research 2018**

<b>Lead</b>	<b>Area of Research</b>	<b>Grant Status and Projects</b>
Basic Science		
Krishnan	Disease mechanisms and treatment	<ul style="list-style-type: none"> <li>• Currently funded by R21 and R01 grants to quantify, target, and alleviate airway smooth muscle contraction in asthma</li> <li>• Currently funded by an NIH grant to define the relationship between genetic mutations and cell mechanical dysfunction in kidney diseases</li> </ul>
Krishnan	Pre-clinical screening	<ul style="list-style-type: none"> <li>• Currently funded by several NIH grants for high-throughput drug discovery in asthma</li> <li>• Performing industry sponsored screening research in liver fibrosis</li> <li>• An NIH grant in systemic capillary leak syndrome is pending</li> </ul>
Krishnan	Cell biology/mechanics	<ul style="list-style-type: none"> <li>• Receiving NIH funding to study the inter-relationship between cell biology and physics in cancer, cardiomyocyte contraction, and endothelial barrier function</li> </ul>
Translational		
Donnino	Metabolic Resuscitation	<ul style="list-style-type: none"> <li>• Funded NIH K24 (Mentoring Grant) for mentoring in metabolic resuscitation</li> <li>• Companion to AHA clinical trial listed below with neuromuscular blockade</li> </ul>
Donnino/Berg	Thiamine in Cardiac Arrest (In-Hospital)	<ul style="list-style-type: none"> <li>• Donnino mentoring Berg on K23 evaluating thiamine in cardiac arrest in-hospital</li> </ul>
Donnino/Liu	Pyruvate dehydrogenase activity in sepsis and cardiac arrest	<ul style="list-style-type: none"> <li>• Funded NIH K02 (PDH) → RO1 2016</li> </ul>
Donnino/Liu	Post-arrest (mitochondrial injury, metabolic relation to immune response)	<ul style="list-style-type: none"> <li>• Completed NIH sub-award</li> <li>• COQ10 grant from Kaneka was recently funded</li> </ul>
Donnino/Liu	Thiamine in DKA	<ul style="list-style-type: none"> <li>• Funded NIH RO1 with combination of clinical trial and lab-based research evaluating thiamine in cardiac arrest</li> </ul>
Donnino/Liu/Cocchi/Berg/Grossestreuer	Thiamine in Cardiac Arrest (Out of Hospital)	<ul style="list-style-type: none"> <li>• Funded NIH RO1 with combination of clinical trial and lab-based research evaluating thiamine in cardiac arrest</li> </ul>
Donnino/Liu/Holmberg	Ubiquinol in cardiac arrest	<ul style="list-style-type: none"> <li>• Funded (Kaneka) pilot trial of ubiquinol in cardiac arrest</li> </ul>
Hornig	ED Risky States	<ul style="list-style-type: none"> <li>• Doris Duke Charitable Foundation Award to discover “risky states” in the ED</li> <li>• Collaboration with the ICU</li> </ul>
Hornig	Big Data	<ul style="list-style-type: none"> <li>• Collaboration with MIT</li> <li>• Funded by Phillips Research (2015-2017)</li> <li>• Plan for R01 submission in Fall 2016</li> </ul>
Hornig	Machine Learning	<ul style="list-style-type: none"> <li>• Collaboration with Courant Institute (NYU)</li> <li>• Completed funding by CIMIT (parent DoD)</li> <li>• Funded by Miles Shore Foundation</li> <li>• Plan for R01 submission in Fall 2016</li> </ul>
Hornig	Heart Failure Risk Stratification and Disease Progression Modelling	<ul style="list-style-type: none"> <li>• Collaboration with MIT</li> <li>• Principal Investigator, funded by Phillips Research (2015-2018)</li> </ul>
Hornig	Joint Learning of Chest Radiographs and	<ul style="list-style-type: none"> <li>• Co-Principal Investigator</li> </ul>

	Radiology Reports for Pulmonary Edema	<ul style="list-style-type: none"> <li>• Collaboration MIT CSAIL</li> <li>• Funded by Philips Research</li> <li>• Joint deep learning models of both images and text</li> </ul>
Horng	Clinical Machine Learning	<ul style="list-style-type: none"> <li>• Collaboration with MIT IMES</li> <li>• Completed funding by CIMIT (parent DoD)</li> <li>• Completed funding by Philips Research</li> <li>• Completed funding by Amazon Web Services</li> <li>• Funded by Miles Shore Foundation</li> </ul>
Horng/Kim	Antibiotic Sensitivity Visualization Tool	<ul style="list-style-type: none"> <li>• Horng mentoring Kim on Innovation Grant</li> </ul>
Shapiro	Novel approaches to sepsis diagnostics	<ul style="list-style-type: none"> <li>• Department of Defense Award for sepsis diagnostics using mannose-binding lectin technology to capture bacteria and bacterial products in the blood</li> <li>• Co-investigator on NIH award for Purinergic signaling in sepsis</li> </ul>
Shapiro	Role of complement deposition in trauma	<ul style="list-style-type: none"> <li>• US Army grant co-investigator – recently completed one award and funded on a second</li> </ul>
Shapiro	Liberal versus Restrictive Fluid Resuscitation in Sepsis	<ul style="list-style-type: none"> <li>• Co-Principal Investigator of an NIH sponsored 47-center, 2,100 patient randomized trial in sepsis induced hypotension</li> <li>• Co_Principal Investigator of Prevention and Early Lung Injury in Sepsis (PETAL) network clinical center award</li> </ul>
Shapiro	Peripheral IntraVascular Assessment (PIVA) to measure Volume Status	<ul style="list-style-type: none"> <li>• Principal Investigator of Investigator Initiated Multicenter study of PIVA technology to assess volume status</li> </ul>
Clinical		
Bilello / Edlow	Neurologic Emergencies in Obstetric Patients	<ul style="list-style-type: none"> <li>• Funded through the Eleanor and Miles Shore grant through BIDMC EM</li> </ul>
Boyle	Opioids	<ul style="list-style-type: none"> <li>• Support through NIH LRP</li> <li>• Identifying opioid overdose through naloxone geocoding</li> </ul>
Chase/Donnino	Treatment of Influenza	<ul style="list-style-type: none"> <li>• K23 award funded – enrollments completed</li> </ul>
Cocchi/Donnino	Sepsis treatment	<ul style="list-style-type: none"> <li>• Funded investigator-initiated industry award on CoQ10 → completed and prelim data to fund next phase of study</li> <li>• AHA Scientist Development Grant on esmolol in septic shock funded and enrolling</li> </ul>
Donnino	Chronic back pain	<ul style="list-style-type: none"> <li>• Funded grant through philanthropist to execute clinical trial to mitigate low back pain</li> </ul>
Donnino/Chase/Cocchi/Moskowitz/Berg	Prevention of Cardiac Arrest	<ul style="list-style-type: none"> <li>• Funded grant from CRICO evaluating measures to prevent cardiac arrest</li> </ul>
Donnino/Cocchi/Chase /Berg	Oxygen consumption and critical illness	<ul style="list-style-type: none"> <li>• Funded award from GE beginning January 2015</li> <li>• Funded AHA Clinical Investigation Award</li> </ul>
Donnino/Cocchi/Chase/ Grossestreuer	Sepsis Treatment	<ul style="list-style-type: none"> <li>• 14 center clinical trial evaluating ascorbic acid, thiamine, and steroids in septic shock</li> </ul>
Donnino/Cocchi/Moskowitz	Cardiac arrest	<ul style="list-style-type: none"> <li>• Completing funded AHA “Grant in Aid” on Neuromuscular blockade in post-cardiac arrest (Clinical Outcomes)</li> </ul>

Donnino and CRS	Resuscitation Knowledge Synthesis Unit	<ul style="list-style-type: none"> <li>Funded contract from ILCOR (international group setting consensus on ACLS guidelines) via American Heart Association</li> <li>Performing systematic review and meta-analysis of questions for the next round of AHA guidelines (currently examining the two PICOST questions for the next round of adult updated guidelines)</li> </ul>
Donnino/Grossestreuer/Holmberg	Sepsis Treatment	<ul style="list-style-type: none"> <li>Funded RO3 using "big data" (Cerner Database) to evaluate the efficacy of thiamine in septic shock patients with alcoholism</li> </ul>
Donnino/Lars Andersen/Cocchi	CABG (and thiamine)	<ul style="list-style-type: none"> <li>Donnino mentoring Denmark PhD student on AHA Clinical Investigator Award and Cocchi Co-I – funded, enrollments completed and currently in data analysis</li> </ul>
Donnino/Moskowitz	Sepsis Treatment	<ul style="list-style-type: none"> <li>Funded K23 (Moskowitz) with Donnino as mentor evaluating thiamine for renal protection in septic shock</li> </ul>
Edlow	Neurologic emergencies	<ul style="list-style-type: none"> <li>Co-investigator on NETT grant</li> </ul>
Epstein	Concussion	<ul style="list-style-type: none"> <li>Industry funded by BrainPulse</li> </ul>
Grossestreuer/Donnino	Long-term Clinical outcomes in critical illness	<ul style="list-style-type: none"> <li>Funded KL2 award (Grossestreuer) evaluating long-term outcomes in critical illness with Donnino as mentor</li> </ul>
Hoffmann	Ultrasound Simulator use to develop objective assessment criteria for ultrasound skill testing (Currently awaiting TEE module as final step)	<ul style="list-style-type: none"> <li>Funded through the Eleanor and Miles Shore grant through BIDMC EM</li> </ul>
Joseph	Ethics of ED Observation After Naloxone	<ul style="list-style-type: none"> <li>Greenwall Foundation - Making a Difference in Real World Bioethics Dilemmas</li> </ul>
Joseph/Sanchez	Onsite Acute Care for Seniors in SNF	<ul style="list-style-type: none"> <li>West Health Institute</li> </ul>
Sanchez	Post traumatic sequelae. Aurora study	<ul style="list-style-type: none"> <li>NIH Grant U01MH110925, site PI. 2% effort</li> </ul>
Shapiro	Sepsis treatment and resuscitation	<ul style="list-style-type: none"> <li>Co-investigator on 4 different NIH awards</li> <li>Multiple industry awards</li> <li>Planning for RO1 or DOD submission for resuscitation</li> </ul>
Tyler/Joseph/Sanchez	Resource utilization	<ul style="list-style-type: none"> <li>MACEP resident grant</li> </ul>
Wong/Sanchez	Investigating stress and stress adaptation in emergency physicians using physiological and psychological instruments	<ul style="list-style-type: none"> <li>Funded through the Eleanor and Miles Shore grant through BIDMC EM</li> </ul>
Healthcare Delivery/Public Policy		
Burke	Healthcare delivery models	<ul style="list-style-type: none"> <li>Salary support through Harvard School of Public Health</li> </ul>
Burke	Measuring Quality of Emergency Care: Do Process Measures Correlate with Patient Outcomes?	<ul style="list-style-type: none"> <li>Emergency Medicine Foundation Health Policy Research Scholar Award</li> </ul>
Kannan	Pilot of a novel World Health Organization trauma data initiative	<ul style="list-style-type: none"> <li>Funded by Emergency Medicine Foundation Pilot Grant</li> <li>Funded by WHO / Laerdal Foundation Grant</li> <li>Funded by Eleanor and Miles Shore Grant through BIDMC EM</li> <li>Live in 12 partner sites across 3 countries, 15 additional countries joining in</li> </ul>

		December
Nagurney	Hospitalization of Older Adults from the ED	<ul style="list-style-type: none"> <li>Harvard Translational Research in Aging Postdoctoral Fellowship (T32/NIA)</li> </ul>
Smulowitz	Identifying Predictors of Hospital Admission from the ED Among the Elderly	<ul style="list-style-type: none"> <li>Co-investigator: 1R01HS025408-01</li> </ul>
Smulowitz	Risk Aversion, Fear of Malpractice, and Medical Decision Making in the Emergency Department	<ul style="list-style-type: none"> <li>Scored 26<sup>th</sup> percentile in June submission cycle, will be resubmitted February cycle. PA-14-291, AHRQ Health Services Research Projects (R01)</li> </ul>
Population Health Sciences		
Balsari	Hurricane Maria Mortality Study	<ul style="list-style-type: none"> <li>Dean's Interfaculty Fund. Harvard TH Chan School of Public Health</li> </ul>
Balsari	Prototyping an EHR-lite Toolkit	<ul style="list-style-type: none"> <li>Tata Trusts (Renewal Year 2)</li> </ul>
Balsari	API-enabled health information exchange	<ul style="list-style-type: none"> <li>Harvard Asia Center Grant</li> <li>Provost's Fund for Interfaculty Collaboration</li> </ul>
Balsari	Assessment of healthcare and protection needs in Cox's Bazar (Rohingya Crisis)	<ul style="list-style-type: none"> <li>Salary support by the Harvard FXB Center for Health and Human Rights</li> </ul>
Balsari	Syrian Crisis: An assessment of healthcare delivery in underground hospitals from 2014-2018	<ul style="list-style-type: none"> <li>Salary support by the Harvard FXB Center for Health and Human Rights</li> </ul>
Medical Education		
Dubosh	Patient-centered educational intervention to improve communication skills in residents	<ul style="list-style-type: none"> <li>SAEM Foundation- Education Research Grant</li> </ul>
Dubosh	Patient-centered educational intervention to improve communication skills in medical students	<ul style="list-style-type: none"> <li>Eleanor and Miles Shore grant through BIDMC EM</li> </ul>