

## Division Introduction

The Division of Pediatric Critical Care plays a vital role in providing care to critically ill children at Children’s Health™ and is continuously making improvements and utilizing innovative care to ensure the patient care provided is of the highest quality.

Under the direction of Jessica Moreland, M.D., Division Chief, the Division provides top quality patient care with the most advanced medical technologies in the 44-bed Pediatric Intensive Care Unit (PICU). In addition, the Critical Care faculty, in collaboration with the Division of Pediatric Cardiology and within the Heart Center at Children’s Health™, provide state-of-the-art cardiovascular critical care services for children with congenital heart disease as well as other cardiac diseases in the 32-bed Cardiovascular Intensive Care Unit. The Division also provides intensive care in the Children’s Medical Center in Plano in a 12-bed PICU. The Critical Care division also provides consultation services to critically ill children in the Burn Unit at Parkland Hospital.



**Jessica Moreland, M.D.**  
Professor, Division Chief

The Division has a long-standing history of clinical, bench, and translational research, with National Institutes of Health (NIH)-funded laboratories and regular participation in multi-center clinical trials to advance the care of critically ill children.

Some of the country's brightest pediatric graduates enroll in the Division’s internationally recognized Critical Care Fellowship Program, one of the oldest and largest of its kind in the United States. The fellowship currently includes 14 trainees across three years of training. Teaching of fellows, residents, and medical students takes place at the bedside, during lectures, and during interactive sessions.

In addition, there is an array of research training opportunities helping fellows learn to ask and answer scientific questions relating to the genetic, molecular, cellular, and physiologic aspects of pediatric critical care medicine.

## Faculty

Drs. Alicia Williams and Lauren Williams joined the Division in 2022, bringing the total to 26 faculty and 13 fellows.

**Alicia Williams, M.D.**  
Assistant Professor



**M.D.**

The University of Toledo, Toledo, OH, 2015

**Postdoctoral Training**

Residency, Pediatrics

Vanderbilt University, Monroe Carell Jr. Children's Hospital, Nashville, TN, 2015-2018

Chief Resident

Vanderbilt University, Monroe Carell Jr. Children's Hospital, Nashville, TN, 2018-2019

Fellowship, Pediatric Critical Care

Northwestern University, Ann & Robert H. Lurie Children's, Chicago, IL, 2019-2022

Chief Fellow

Northwestern University, Ann & Robert H. Lurie Children's, Chicago, IL, 2021-2022

**Interests**

Academic interests include Post-Intensive Care Syndrome in Pediatrics and neuro-developmental outcomes following ICU care as well as scholarly work within Graduate Medical Education.

**Lauren Williams, M.D.**  
Assistant Professor



**M.D.**

University of Texas Medical Branch Galveston, Galveston, TX, 2014

**Postdoctoral Training**

Residency, Pediatrics

Baylor College of Medicine, Houston, TX, 2014-2018

Fellowship, Pediatric Critical Care

Baylor College of Medical, Houston, TX 2018-2021

Fellowship, Hospice & Palliative Medicine

University of Michigan Hospitals and Health Centers, Ann Arbor, MI 2021-2022

**Interests**

Research interests include exploring the emotional, social, and educational needs of medically fragile patients, particularly those who depend on life sustaining medical technology. I also have research interests in palliative care curriculum development designed for PICU learners.

## Honors / Awards

### **Patient and Family Recognition Award**

- Erin Gordon

### **Best Pediatric Specialists, *D Magazine***

- Cindy Darnell Bowens
- Archana Dhar
- Michael Green
- Darryl Miles
- Jessica Moreland
- Lakshmi Raman
- Joshua Wolovits

**Texas Rising Stars 2021, *Texas Monthly***

- Sarah Ginsburg
- Erin Gordon
- Michael Green (Super Star)
- Olivia Hoffman
- Stephanie Hsu
- Mia Maamari
- Blake Nichols
- Erin Tresselt

**Priya Bhaskar**

- Promoted to Associate Professor

**Cindy Bowens**

- Promoted to Professor

**Sarah Ginsburg**

- Pediatric Critical Care Fellow Educator of the Year – UT Southwestern
- Pediatric Residency Faculty Teaching Award – UT Southwestern

**Stephanie Hsu**

- Resident Teaching Award – UT Southwestern/Department of Pediatrics Residency Program

**Lakshmi Raman**

- Promoted to Professor

**Invited Lectures****Leslie Garner**

- Pediatric Acute Care Practitioner Program, University of Texas at Arlington, Arlington, TX, June 2022
  - *“Airway and Lung Development, Control of Breathing and Apnea”*

**Erin Gordon**

- World Federation Pediatric Intensive and Critical Care Societies Congress, Virtual, (July) 2022
  - *“Neonatal Considerations and Understanding Infant Cues”*

**Lakshmi Raman**

- South West Asian African Chapter Extracorporeal Life Support Organization (SWAAC ELSO) Conference, Virtual, February 2022
  - *“Neuromonitoring and neuroprotection on ECMO”*
- European Society of Pediatric and Neonatal Intensive Care, Virtual, April 2022
  - *“The Brain conundrum: Am I protecting the brain or harming my patient’s brain? Let’s take a stock on neuroprotection”*
- EuroELSO Congress, London, England, May 2022
  - *“Failure to wean: Respiratory ECMO strategies to enhance lung recovery”*
  - *“The latest strategies on minimizing neuro morbidity on ECMO”*
  - *“Outcomes of ECPR”*

**Alexandra Volk**

- DPMSC Hospitalist In-Service Training, Plano, TX, (March) 2022
  - *“Home Ventilator Management in the Chronic CPAP/ BIPAP Patient”*

**Conference Presentations****American Academy of Allergy Asthma & Immunology Annual Meeting, Phoenix, AZ, February 2022****Poole A**

Poster Presentation, *“Social Distancing Reveals Determinants of Pediatric Asthma Exacerbations”*

**Pediatric Academic Societies Annual Meeting, Denver, CO, April 2022****Sue PK, Potera R, McMichael A, Garner LB, Katragadda H, Oakman N, Davila S, Nassi L, Davis Volk A, Ginsburg S, Bowens CD, Maamari M**

Oral Presentation, *“Anakinra use in moderate to severe multisystem inflammatory syndrome in children”*

**Raman L, Sirsi D, Said R, Miles D, Clarke R**

Oral Presentation, *“Early EEG as a Predictor of Neurologic and Imaging Outcomes in Young Children with Non-Accidental Traumatic Brain Injury”*

**Other Conferences****Ginsburg S**

Volk AP, Poole AM, Holcomb MJ, Jamieson AR, Chambliss JM, Henley KG, Nichols BE, Miller L, Menegaz CA, Campfield MA, Yagnik PJ, **Luckett PM**

American Thoracic Society, San Francisco, CA, (May) 2022

Poster Session, *“COVID-19 does not cause critical asthma exacerbation in children”*

**Skinner M, Yu P, Raman L, Natarajan S**

International Conference on Artificial Intelligence in Medicine, Halifax, Canada, June 2022

Poster Presentation, *“Medical Prediction Using Predicate Data: an Example of Anytime Querying”*

**Education and Training**

The educational emphases of the Division of Pediatric Critical Care reflect the diversity of the trainees who rotate through the different PICUs and conduct research on the delivery of critical care to children. We provide educational opportunities for medical students and pediatric residents in addition to our fully accredited fellowship program. While the major thrusts of educational activities focus on physicians in various stages of training, Division faculty also participate in the education of pediatric nurse practitioners, staff nurses, and respiratory care practitioners.

**Medical Students**

We offer elective opportunities for fourth-year medical students from UT Southwestern and outside institutions to rotate through our general medical/surgical, trauma/neurosurgical, and cardiac intensive care units. Prerequisites include

acceptable academic standing at the student's current medical institution and successful completion of a third-year pediatric clerkship. Outside rotators are required to provide a letter of recommendation from their residency program director confirming that these prerequisites are satisfied.

Medical students who select the PICU to fulfill their acute care rotation requirements are exposed to the full range of patients seen in the different units and participate as integral members of the multidisciplinary team of residents, fellows, and faculty. The rotation emphasizes patient-based learning, with the student taking primary responsibility for one or two patients and using their illness as a jumping-off point for learning that combines both didactic and self-directed study.

Other elective opportunities are available for students interested in learning about critically injured patients in a trauma/neurosurgical setting or children recovering from cardiovascular surgery to correct congenital or acquired heart disease.

## Residents

Pediatric residents rotate through the PICU for one four-week block during each of their second and third years of residency. This experience exposes residents to a broad spectrum of critically ill children at distinct phases of their training. To enhance this educational experience, our faculty and fellows provide formal didactic teaching on pertinent critical care topics to the pediatric residents during scheduled lectures three days per week.

As they progress from caring for critically ill children for the first time as second- year residents to functioning as leaders of the PICU teams as third- year providers, the pediatric residents experience both an increasing confidence in their ability to recognize and stabilize a critically ill child and a profound respect for the speed with which illnesses can progress.

Residents from other specialty training programs also rotate through the PICU at varying stages in their training. These include trainees from Emergency Medicine and on an elective basis from Family Medicine, where critical care experience is a valuable adjunct to their education. Their experience is tailored to their educational needs to some degree, but their presence on the PICU teams is enriching for everyone because of the unique perspective they bring from the world of adult medicine.

## Fellows

With the objective of providing excellent training in pediatric critical care medicine and preparing individuals to become future leaders in their field, we have trained more than 100 physicians in the art and science of intensive care for critically ill infants and children. Many graduates have become academic leaders within the field, both in the United States and abroad.

Now one of the largest in the United States, the Fellowship Program currently has 13 fellows and is under the leadership of Dr. Michael L. Green, Program Director, and Drs. Sam Davila, Olivia Hoffman, and Anna Silberman, Associate Program Directors. Clinical experience includes exposure to a wide spectrum of critical illness in the high-volume general PICU. Fellows aid in the management of trauma and Neurocritical care patients and have significant exposure to advanced support modalities including extracorporeal membrane oxygenation (ECMO) and continual renal replacement therapies. In addition, fellows are a fundamental part of the team in the growing cardiovascular ICU where faculty from divisions of critical care and cardiology guide them in advanced care of cardiovascular critical illness. Intense periods of clinical rotations during the early part of the Fellowship progress to periods of protected time later in the fellowship, allowing fellows to carry out a research program developed with the help of faculty both within the Division of Pediatric Critical Care Medicine and in



**Drs. Jessica Moreland, Michael Green, and Fellow Natalia Soulages Arrese**

the larger UT Southwestern community. In addition to the clinical and research opportunities, the Fellowship Program has a robust didactic curriculum designed to give fellows a foundational knowledge of the pathophysiology of critical illness. Other highlights include a simulation curriculum and journal club. Our fellows have an excellent success rate on the American Board of Pediatric Critical Care sub-board examination.

## Academic Accomplishments and Educational Excellence

Division research activities are numerous and diverse, with faculty members engaged in bench, translational, and clinical research projects. There are multiple areas of investigation that we are proud to highlight:

- **Cindy Darnell-Bowens** focuses her time on quality initiatives and improving daily care for critically ill children. Her focus on improving care for all critically ill children has led her to participate in national quality forums such as the Solutions for Patient Safety Clinical Steering Committee. There she leads a team that focuses on healthcare disparities. She also participates in multiple PICU Quality Collaboratives using data to improve patient care. Dr. Darnell-Bowens emphasis on improving the daily care for children and their families was acknowledged when she won the President's Award for Diversity and Humanism in Clinical Care at UTSW.
- **Archana Dhar** is a Distinguished Teaching Professor and a member of the Southwestern Academy of Teachers. Dr. Dhar enjoys the challenge of teaching the entire spectrum of learners from medical students to fellows. At the medical school she co-directs the Cardiovascular Course. She is a Society of Critical Care Medicine (SCCM) Instructor for the Pediatric Fundamental Critical Care Support course and teaches the said course nationally. She has also taught ECMO courses nationally and internationally.
- **Erin Gordon** focuses her current research on human milk and feeding experiences and their potential impact on neurodevelopmental outcomes in those with congenital or acquired heart disease. Dr. Gordon is the medical director of the inpatient developmental care program and is directly involved in creating an environment that fosters the growth and development of the congenital heart disease population, including parental mental health and resilience. She has a number of publications reflecting her passion for nutrition and neurodevelopmental outcomes. Additionally, Dr. Gordon is the 2023 recipient of the Patient and Family Recognition Award in Leaders in Clinical Excellence Program through UT Southwestern.
- **Olivia Hoffman** focuses her research on quality improvement (QI), implementation science, and medical education. She developed and continues to lead a QI curriculum for pediatric critical care fellows. She individually mentors fellows through QI-based scholarly projects; current examples recently presented at national meetings include “Quality Improvement Initiative to Prevent Fluid Overload in Pediatric Intensive Care Unit Patients” and “Building and Implementing an Electronic Rounding Checklist in the CICU and PICU.” Dr. Hoffman participates in and/or co-leads several single institution and multicenter QI initiatives. Recent examples include local work to reduce cardiac arrests in the acute care cardiology unit (“HeartWatch,” PMID: 36518152) and “Target Based Care,” a multicenter collaborative through Cardiac Networks United to reduce variation in time to extubation, transfer out of ICU, and discharge home after certain benchmark cardiac surgeries. She is involved in the UTSW Quality Enhancement Plan’s Team FIRST as an instructor and leader. Team FIRST aims to develop and implement a longitudinal health professions and medical student curriculum focused on communication and teamwork competencies. She is also the site co-investigator for the NIH-funded study “Handoffs and transitions in critical care – understanding scalability” (HATRICC-US) (clinicaltrials.gov identifier: NCT04571749).
- **Peter Luckett**’s current research interests include clinical trials in pediatric critical care. He was a founding member and continues to be an active participant of the Pediatric Acute Lung Injury and Sepsis Investigators (PALISI) clinical trials group. The most recently completed work was a NIH-funded multicenter randomized clinical trial of tight glucose control in critically ill children (The New England Journal of Medicine 376(8): 729-741, 2017). Currently, two NIH-funded clinical trials are being conducted in the PICU. The first is a 2x2 factorial trial randomizing conventional mechanical ventilation versus High Frequency Oscillatory Ventilation (HFOV) and prone versus supine position. The



second is a prospective longitudinal cohort study of patients undergoing three days of ICU care. The aims of this cohort study are to examine the outcomes and trajectory of recovery in survivors and to determine the impact of pediatric critical illness on parents and siblings. Dr. Luckett also participated in a scoping review of outcome domains and their measurement. This work recently led to the development of a Core Outcome Set for pediatric critical care (*Critical Care Medicine* 48(12): e1313-e1321, 2020)

- **Mia Maamari's** current research activities focus on the impact of COVID-19 and MIS-C on children and is the site Principal Investigator in the Overcoming COVID-19 surveillance study. She is also studying bronchiolitis resource use and is a Co-Investigator in a randomized controlled trial comparing the efficacy of initial flow rates used in patients receiving heated high-flow nasal cannula. She is involved in multicenter studies of critical bronchiolitis as part of the Bronchiolitis: Advancing Care and Outcomes Network subgroup in PALISI.
- **Darryl Miles'** focus is to advance the care of Neurocritical illness in children and learn how the brain responds to injury to better understand what we can do to improve neurologic outcomes. He is the UTSW Principal Investigator for multicenter studies investigating the Approaches and Decisions After Pediatric Traumatic Brain Injury (ADAPT TBI) and MRI Biomarkers of Long-term Recovery after Childhood TBI. Dr. Miles is currently leading projects using ultrasound and transcranial Doppler technology to noninvasively measure intracranial pathology in brain-related injured children and has an ongoing long-term database describing the genetic and prognostic influencers of recovery after TBI. He is a member of the Center for Cerebrovascular Disorders at Children's Medical Center and the Pediatric Neurocritical Care Research Group.
- **Jessica Moreland** focuses her research on better understanding the cell biology of inflammation, with a specific interest in neutrophil biology. Her laboratory studies neutrophil priming by infectious and inflammatory stimuli and the role of the NADPH oxidase in pro- and anti-inflammatory signaling. In addition, the laboratory utilizes a murine model of systemic inflammatory response syndrome and multi-organ dysfunction syndrome (MODS).
- **Alan Poole's** current research areas include studying the impact of COVID-19 and respiratory viruses on pediatric asthma exacerbations, studying glycerol metabolism in non-small cell lung cancer in the laboratory or with Ralph Deberardinis, M.D., Ph.D., and participating in quality improvement initiatives to improve timely administration of antibiotics for sepsis in the PICU.
- **Lakshmi Raman's** interest is in brain injury and the care of ECMO patients. As the Medical Director of the ECMO program, Dr. Raman is primarily focused on researching how to evaluate neurological injury in patients. In collaboration with biomedical engineers, she has leveraged the use of optical monitoring by near-infrared spectroscopy and diffuse correlation spectroscopy to study disturbances in cerebral autoregulation in patients undergoing ECMO therapy. The research was previously funded through the American Heart Association and is currently funded through the Hartwell Foundation. The research has been published in *Pediatric Critical Care Medicine*. Furthermore, Dr. Raman's collaboration with Dr. Ann Stowe, who was previously in the neurorepair lab, to study neuroinflammation and autoreactivity to CNS-specific antigens was published in *Critical Care Medicine*. Recently, Dr. Raman has focused her interest on building prediction models, with the use of machine learning, through collaboration with bioinformatics both at UTSW and at The University of Texas at Dallas.

She currently serves as the Chair of the publications committee at the Extracorporeal Life Support Organization (ELSO). In this role, she leads the effort to develop and publish guidelines covering various aspects of ECMO. These guidelines help clinicians manage patients on ECMO and serve as a reference at the bedside. Furthermore, as a member of the data scientific committee, Dr. Raman collaborates with members of the committee to utilize the ELSO registry database to contribute to advancement of knowledge. As a member of the education committee at ELSO, she works along with an international group of ECMO providers to optimize education across the globe.

Dr. Raman also directs an Education course for ECMO providers that has been endorsed by ELSO. This is a three-day course that covers various aspects of ECMO physiology and management given by national leaders in the field. The course also has a high-fidelity hands-on simulation for learners.

**Clinical Activities**

Pediatric Critical Care faculty deliver the highest standard of care for critically ill children. The pediatric intensive care units at Children's Health are primary referral centers for North Central and Northeast Texas. Depending on their diagnoses, critically ill children are assigned to one of four pediatric intensive care units at Children's, three intensive care units on the Dallas campus and one intensive care unit on the Plano campus. Specialized medical teams assume primary responsibility for their care in one of these units:

- General medical-surgical pediatric intensive care unit (PICU)
- Pediatric trauma-neurologic injury intensive care unit (TICU)
- 32-bed Cardiovascular intensive care unit (CVICU)
- 12-bed PICU (Children's Medical Center of Plano)



**Dr. Jessica Moreland**

The Division, in collaboration with the Division of Pediatric Cardiology and the Heart Center, provides state-of-the-art cardiovascular critical care services for children with congenital heart disease as well as other cardiac diseases. More than 2,000 critically ill patients are admitted each year, giving the facility the highest admission rate in the United States.

**Patient Statistics (patient days)**

Critical Care Patient Stay Duration in Days by Unit/Location by Year

|              | <b>2017</b> | <b>2018</b> | <b>2019</b> | <b>2020</b> | <b>2021</b> | <b>2022</b> |
|--------------|-------------|-------------|-------------|-------------|-------------|-------------|
| CVICU        | 6,590       | 7,943       | 9,309       | 7,507       | 7,057       | 8,291       |
| PICU         | 12,025      | 12,348      | 8,588       | 9,380       | 11,966      | 13,748      |
| Plano Campus | 1,734       | 1,754       | 2,180       | 1,223       | 2,148       | 2,942       |

**Current Grant Support**

**Sirine Baltagi**

**Grantor:** US Department of Defense/Boston Children's Hospital  
**Title of Project:** Trial of Indication-based Transfusion of Red Blood Cells in ECMO  
**Role:** Principal Investigator  
**Dates:** 07/2022 – 06/2026

**Priya Bhaskar**

**Grantor:** US Department of Defense/Boston Children's Hospital  
**Title of Project:** Trial of Indication-based Transfusion of Red Blood Cells in ECMO  
**Role:** Co-Investigator  
**Dates:** 07/2022 – 06/2026



**Cindy Darnell-Bowens**

**Grantor:** Center for Disease Control and Prevention/Boston Children's Hospital

**Title of Project:** Understanding COVID-19 among critically ill children in the Pediatric Acute Lung Injury and Sepsis Investigator's (PALISI) Network

**Role:** Principal Investigator

**Dates:** 04/2020 – 05/2022

**Grantor:** Center for Disease Control and Prevention/Boston Children's Hospital

**Title of Project:** Understanding COVID-19 among critically ill children PALISI Network - Year 2

**Role:** Principal Investigator

**Dates:** 05/2021 – 05/2022

**Samuel Davila**

**Grantor:** NIH-National Inst of Chld Hlth & Hmn Dev/Nationwide Children's Hospital

**Title of Project:** PediAtric ReseArch of Drugs, Immunoparalysis and Genetics during MODS (PARADIGM)

**Role:** Principal Investigator

**Dates:** 05/2020 – 04/2022

**Archana Dhar**

**Grantor:** NIH-National Heart, Lung and Blood Inst/University of Michigan

**Title of Project:** ASCEND (ARDS in Children and ECMO initiation strategies impact on Neuro-Development)

**Role:** Principal Investigator

**Dates:** 09/2020 – 06/2025

**Stephanie Hsu**

**Sponsor:** Children's Health

**Title of Project:** Evaluation of atypical antipsychotic use for the treatment of intensive care unit delirium in pediatric patients

**Role:** Principal Investigator

**Dates:** 01/2022 – 06/2022

**Peter Lockett**

**Grantor:** NIH-National Inst of Chld Hlth & Hmn Dev/University of Pennsylvania

**Title of Project:** Post-Intensive Care Syndrome Pediatrics, Longitudinal Cohort Study

**Role:** Principal Investigator

**Dates:** 07/2020 – 06/2023

**Grantor:** NIH-National Heart, Lung And Blood/University of Pennsylvania

**Title of Project:** PROSpect Year 4

**Role:** Principal Investigator

**Dates:** 08/2021 – 07/2022

**Mia Maamari**

**Grantor:** NIH-National Inst of Chld Hlth & Hmn Dev/Duke Clinical Research Institute

**Title of Project:** Pharmacokinetics, Pharmacodynamics, and Safety Profile of Understudied Drugs Administered to Children per Standard of Care (POPS)

**Role:** Principal Investigator

**Dates:** 12/2020 – 09/2023

**Darryl Miles**

**Grantor:** Extracorporeal Life Support Organization  
**Title of Project:** Automated pupillometry for prediction of neurologic outcomes in children requiring extracorporeal membrane oxygenation (ECMO)  
**Role:** Principal Investigator  
**Dates:** 01/2022 – 12/2023

**Lakshmi Raman**

**Grantor:** Extracorporeal Life Support Organization  
**Title of Project:** Prospective, blinded analysis of Bivalirudin versus Heparin on clot burden and composition  
**Role:** Principal Investigator  
**Dates:** 05/2018 – 06/2022

**Grantor:** Extracorporeal Life Support Organization  
**Title of Project:** Defects of Primary Hemostasis during Extracorporeal Life Support and the Impact on Bleeding Complications and Blood Product Transfusions  
**Role:** Principal Investigator  
**Dates:** 01/2020 – 12/2022

**Grantor:** Extracorporeal Life Support Organization  
**Title of Project:** Evaluation of Cerebral Blood Flow Differences in Venoarterial versus Venovenous ECMO Using Diffusion Correlation Spectroscopy  
**Role:** Principal Investigator  
**Dates:** 02/2020 – 04/2023

**Grantor:** Extracorporeal Life Support Organization  
**Title of Project:** Prospective Use of Continuous EEG in Pediatric ECMO for Neuromonitoring and Predictive Value of Neurodevelopmental Outcomes  
**Role:** Principal Investigator  
**Dates:** 01/2021 – 01/2023

**Grantor:** Extracorporeal Life Support Organization  
**Title of Project:** Can PreECLS factors predict risk of neurological injury on ECMO?  
**Role:** Principal Investigator  
**Dates:** 01/2021 – 12/2022

**Grantor:** Extracorporeal Life Support Organization  
**Title of Project:** Hematology and Oncology Patients on ECMO (HOPE)  
**Role:** Principal Investigator  
**Dates:** 12/2020 – 11/2022

**Grantor:** Children's Healthcare of Atlanta Inc  
**Title of Project:** A pilot study: an in vitro analysis of clot burden in ECMO circuits anticoagulated with heparin or bivalirudin  
**Role:** Principal Investigator  
**Dates:** 01/2021 – 01/2022

**Grantor:** NIH-National Heart, Lung and Blood Inst/University of Michigan  
**Title of Project:** ASCEND (ARDS in Children and ECMO initiation strategies impact on Neuro-Development)  
**Role:** Co-Investigator  
**Dates:** 09/2020 – 06/2025

**Grantor:** Extracorporeal Life Support Organization  
**Title of Project:** Automated pupillometry for prediction of neurologic outcomes in children requiring extracorporeal membrane oxygenation (ECMO)  
**Role:** Principal Investigator  
**Dates:** 01/2022 – 12/2023

**Grantor:** US Department of Defense/Boston Children's Hospital  
**Title of Project:** Trial of Indication-based Transfusion of Red Blood Cells in ECMO  
**Role:** Co-Investigator  
**Dates:** 07/2022 – 06/2026

**Grantor:** Extracorporeal Life Support Organization  
**Title of Project:** Defects of Primary Hemostasis during Extracorporeal Life Support and the Impact on Bleeding Complications and Blood Product Transfusions  
**Role:** Co-Investigator  
**Dates:** 01/2020 – 12/2022

**Grantor:** NIH-National Inst Of Chld Hlth & Hmn Dev/ Duke Clinical Research Institute  
**Title of Project:** Pharmacokinetics, Pharmacodynamics, and Safety Profile of Understudied Drugs Administered to Children per Standard of Care (POPS)  
**Role:** Principal Investigator  
**Dates:** 12/2020 – 09/2023

**Grantor:** NIH-National Inst Of Chld Hlth & Hmn Dev/ Duke Clinical Research Institute  
**Title of Project:** Pharmacokinetics, Pharmacodynamics, and Safety Profile of Understudied Drugs Administered to Children per Standard of Care (POPS) – COVID Severe Pediatric Brain Injury  
**Role:** Principal Investigator  
**Dates:** 12/2020 – 09/2022

**Grantor:** CCRAC (Children’s Clinical Research Advisory Committee) Early Center  
**Title of Project:** Prospective Randomized Pilot Study Comparing Bivalirudin Versus Heparin in Neonatal and Pediatric Extracorporeal Membrane Oxygenation  
**Role:** Site Principal Investigator  
**Dates:** 08/2019 – 07/2022

#### Josh Wolovits

**Grantor:** NIH-National Heart, Lung And Blood Inst/University of Michigan  
**Title of Project:** Pediatric Influence of Cooling duration on Efficacy in Cardiac Arrest Patients  
**Role:** Principal Investigator  
**Dates:** 09/2021 – 08/2023

#### Priscilla Yu

**Grantor:** Zoll Medical Corporation/Children’s Hospital of Philadelphia  
**Title of Project:** Yu\_CHOP\_Pediatric RESuscitation Quality (pedRES-Q) Collaborative- 07.01.20 - 06.30.20  
**Role:** Principal Investigator  
**Dates:** 07/2020 – 06/2023

### Peer-Reviewed Publications

1. Alten J, Cooper DS, Klugman D, Raymond TT, Wooton S, Garza J, Clarke-Myers K, Anderson J, Pasquali SK, Absi M, Affolter JT, Bailly DK, Bertrandt RA, Borasino S, Dewan M, Domnina Y, Lane J, McCammond AN, Mueller DM, Olive MK, Ortmann L, Prodhan P, Sasaki J, Scahill C, Schroeder LW, Werho DK, Zaccagni H, Zhang W, Banerjee M, Gaies M, PC4 CAP Collaborators. [Preventing Cardiac Arrest in the Pediatric Cardiac Intensive Care Unit Through Multicenter Collaboration](#). *JAMA Pediatr*. 2022 Oct 1;176(10):1027-1036. PMID:35788631

2. **Baltagi SA**, Jaquiss RDB. [Commentary: Comparison of management strategies for the neonate with symptomatic tetralogy of Fallot and weight <2.5 kg-jogging towards equipoise?](#) *J Thorac Cardiovasc Surg.* 2022 Jan;163(1):208-209. PMID:33714576
3. Bell MJ, Rosario BL, Kochanek PM, Adelson PD, Morris KP, Au AK, Schober M, Butt W, Edwards RJ, Zimmerman J, Pineda J, Le TM, Dean N, Whalen MJ, Figaji A, Luther J, Beers SR, Gupta DK, Carpenter J, Buttram S, Wisniewski SR, Approaches and Decisions for Acute Pediatric TBI (ADAPT) Investigators. [Comparative Effectiveness of Diversion of Cerebrospinal Fluid for Children With Severe Traumatic Brain Injury.](#) *JAMA Netw Open.* 2022 Jul 1;5(7):e2220969. PMID:35802371
4. Birely A, **Avula S**, **Butts RJ**, **Wolovits JS**, **Lemler MS**, **Hoffman OL**. [HeartWatch: Implementing a Pediatric Heart Center Program to Prevent Cardiac Arrests Outside the ICU.](#) *Pediatr Qual Saf.* 2022 Nov-Dec;7(6):e617. PMID:36518152
5. Bridges BC, **Dhar A**, Ramanathan K, Steflink HJ, Schmidt M, Shekar K. [Extracorporeal Life Support Organization Guidelines for Fluid Overload, Acute Kidney Injury, and Electrolyte Management.](#) *ASAIO J.* 2022 May 1;68(5):611-618. PMID:35348527
6. Dahmer MK, Yang G, Zhang M, Quasney MW, Sapru A, Weeks HM, Sinha P, Curley MAQ, Delucchi KL, Calfee CS, Flori H, RESTORE and BALI study investigators, Pediatric Acute Lung Injury and Sepsis Investigators (PALISI) Network. [Identification of phenotypes in paediatric patients with acute respiratory distress syndrome: a latent class analysis.](#) *Lancet Respir Med.* 2022 Mar;10(3):289-297. PMID:34883088
7. Di Nardo M, Ahmad AH, Merli P, Zinter MS, Lehman LE, Rowan CM, Steiner ME, Hingorani S, Angelo JR, Abdel-Azim H, Khazal SJ, Shoberu B, McArthur J, Bajwa R, Ghafoor S, Shah SH, Sandhu H, Moody K, Brown BD, Mireles ME, Stepan D, Olson T, **Raman L**, Bridges B, Duncan CN, Choi SW, Swinford R, Paden M, Fortenberry JD, Peek G, Tissieres P, De Luca D, Locatelli F, Corbacioglu S, Kneyber M, Franceschini A, Nadel S, Kumpf M, Loreti A, Wösten-Van Asperen R, Gawronski O, Brierley J, MacLaren G, Mahadeo KM. [Extracorporeal membrane oxygenation in children receiving haematopoietic cell transplantation and immune effector cell therapy: an international and multidisciplinary consensus statement.](#) *Lancet Child Adolesc Health.* 2022 Feb;6(2):116-128. PMID:34895512
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