

# ***Catalog of UMass Pediatric Department Research Opportunities for Residents and Medical Students***

Local Principal Investigators are often approached by pediatric residents or medical students to learn about ongoing research opportunities. The Department of Pediatrics has many ongoing research studies both prospective and retrospective as well as quality improvement initiatives. This catalog is meant to be a resource to residents and students to help them find research opportunities of relevance to them.

This catalog is updated twice per calendar year with new and ongoing projects that need trainee support. We invite faculty, residents, fellows, and research staff to submit new projects to be added to the list. We also encourage all faculty, residents, fellows, and research staff to share any recent publications, awards, or presentations to be highlighted.

Please reach out to Heather White with any questions.  
([Heather.White@umassmed.edu](mailto:Heather.White@umassmed.edu))

To submit a project seeking trainee support please submit inquiries to the submission portal [here](#).

**Division of Critical Care**  
**Project and Research Opportunities Available**

Principal Investigator	Study Title	Purpose of Study	General Responsibilities	Time Commitment	Primary Study Contact and Contact Information
Scot T. Bateman, MD	QI in the pediatric intensive care unit; Organizational ethics	provide safe and effective care in the PICU and assure an ethical approach to our organizational structure	Research Assistant	As available	Dr. Scot Bateman <a href="mailto:scot.bateman@umassmemorial.org">scot.bateman@umassmemorial.org</a>
Stacey Valentine, MD, MPH	Evaluating children admitted to the pediatric ICU with bronchiolitis	The purpose of this study is to evaluate the current management of bronchiolitis in the PICU during the 2022-2023 RSV season. We will be evaluating noninvasive and invasive ventilatory strategies, fluid management, and socioeconomic factors in outcomes of children with bronchiolitis.	Data collection, data analysis, assist with writing abstracts/manuscripts	This study will be over the 2022-2023 academic year. Any time to be able to commit is appreciate. Likely 2-5 hours per week	Dr. Stacey Valentine <a href="mailto:stacey.valentine@umassmemorial.org">stacey.valentine@umassmemorial.org</a>

## Division of Development and Behavioral Medicine

### Project and Research Opportunities Available

Principal Investigator	Study Title	Purpose of Study	General Responsibilities	Time Commitment	Primary Study Contact and Contact Information
Sarabeth Broder-Fingert, MD, MPH	Translating Autism Measures in Four Languages	Our goal in this project is to improve health equity for children with autism spectrum disorder from LEP backgrounds. The project will survey families seen at 8 US autism centers. Our aims are to measure how English proficiency impacts services access for school-age children with Autism Spectrum Disorder in diverse families, to use consensus methods based on the findings to develop guidelines for future interventions and research. The survey will be conducted in five languages (English, Spanish, Vietnamese, Chinese, Haitian Creole), and we will also be conducting follow-up interviews with some families to learn about their individual experiences.	We are looking for students who are fluent in Vietnamese, Chinese, and/or Haitian Creole to review translated materials.	1 hour per week.	Dr. Sarabeth Broder-Fingert; sarabeth.broderfingert1@umassmed.edu

**Division of Emergency Medicine**  
**Project and Research Opportunities Available**

Principal Investigator	Study Title	Purpose of Study	General Responsibilities	Time Commitment	Primary Study Contact and Contact Information
Zachary Binder, MD	PLEXUS: Pediatric Lower Extremity Ultrasound Guided Nerve Block Study	Multi-center prospective observational study comparing the effectiveness of ultrasound guided femoral nerve block, verses systemic opioids, for the management of pain from pediatric femur fractures in the Emergency Department.	Assist local research team in identifying cases. Data extraction from medical record. Entry of data into study REDCAP.	Open ended time commitment. Enrollment is scheduled to continue through June 2024 but there will be tasks to complete beyond that.	Dr. Zachary Binder <a href="mailto:Zachary.Binder@umassmemorial.org">Zachary.Binder@umassmemorial.org</a>

## Division of General Pediatrics

### Project and Research Opportunities Available

Principal Investigator	Study Title	Purpose of Study	General Responsibilities	Time Commitment	Primary Study Contact and Contact Information
Michael Arenson, MD	Prevalence of Positive and Adverse Childhood Experiences and Association with Adult Mental and Relational Health in Medical Students, Residents, and Fellows: A Multi-Institution Cross-Sectional Study	<p>Positive childhood experiences (PCEs) have been shown to have dose-response associations with adult depression and/or poor mental health and adult-reported social and emotional support after accounting for exposure to adverse childhood experiences (ACEs). Specifically, PCEs in children are associated with (1) reduction in risk for adult depression and/or poor mental health and (2) increased adult relational health after controlling for ACEs. Thus, joint assessment of positive and adverse childhood experiences (PACEs) may better target needs and interventions and enable a focus on building strengths to promote well-being for individuals. While studies have looked at prevalence of PACEs in the general population, less is known about the prevalence of PACEs in medical students, residents, and fellows (i.e., medical trainees, or MTs), which is a population at higher risk of depression, poor mental health, and decreased relational health. These outcomes may in turn effect MTs educational success and ultimately quality of patient care. Thus, this study jointly assesses PACEs and mental and relational health in adulthood in MTs.</p>	<p>Looking for any trainee who can help me with the work of distributing the survey, maximizing response rate, and publishing/communicating the results. The trainee would ideally be detail oriented and interested in medical education, trauma-informed care, and/or mental/emotional health. I unfortunately can only help support one trainee at this time, and people who identify as Underrepresented in Medicine (UIM) are particularly encouraged to reach out.</p>	<p>It will vary depending on stage of the project.</p>	<p>Dr. Michael Arenson  <a href="mailto:michael.arenson@umassmed.edu">michael.arenson@umassmed.edu</a></p>

**Division of Genes and Developmental Research Labs**  
**Project and Research Opportunities Available**

Principal Investigator	Study Title	Purpose of Study	General Responsibilities	Time Commitment	Primary Study Contact and Contact Information
<b>Sumeda Nandadasa, Ph.D.</b>	Developing a targeted mRNA-encapsulated lipid nanoparticles (LNPs) for restoring ciliogenesis & treatment of polycystic kidney disease	<p>The purpose of this study is to develop a dual targeted mRNA-encapsulated nanoparticle that is directed to the renal tubular epithelium of multiple matrix-driven ciliopathy mouse models for treatment of polycystic kidney disease (PCKD). Cystic kidney diseases such as PCKD and nephronophthisis (NPHP) result from genetic mutations affecting ciliogenesis or by ciliary dyskinesia of the renal tubules. TMEM67 is a transmembrane molecule present in the ciliary transition zone and serves as a key gate-keeping structure within the cilium. Genetic variations in TMEM67 are the leading cause of Meckel syndrome (MKS), which is a severe ciliopathy resulting in PCKD. Ciliopathies arise when the primary cilium, an antenna-like organelle present in every cell, fails to develop normally. The primary cilium has pivotal roles in cell signaling and cell sensing and is crucial for healthy development during embryogenesis. The pathophysiological basis for PCKD and the essential functions of the primary cilium are well understood, and, in pediatric patients, there is a clear congenital basis. However, very limited studies have been conducted to restore ciliogenesis and treat PCKD, largely due to the significant challenges relating to: (1) the identification of effective therapeutics and (2) their delivery to the renal tubular microenvironment. The fundamental research performed under this project in mouse models will provide valuable insight into developing a novel gene therapy strategy by delivering mRNA to treat patients with PCKD.</p>	Perform basic science research in a laboratory. Involves molecular biology techniques (harvesting recombinant DNA and synthesis of mRNA and lipid nanoparticles).	10-20hrs/ week	<a href="mailto:Sumeda.Nandadasa@Umassmed.edu">Sumeda.Nandadasa@Umassmed.edu</a>

## Division of Neonatology

### Project and Research Opportunities Available

Principal Investigator	Study Title	Purpose of Study	General Responsibilities	Time Commitment	Primary Study Contact and Contact Information
Lawrence Rhein, MD, MPH	Impact of Kids Comfort Promise Implementation on Physiologic Pain Indicators in Neonates	The purpose of this prospective study is to assess the implementation of Kids Comfort Promise (KCP) in NICU	Students/trainees will work with NICU nurses to obtain the times that painful procedures are conducted and share this information with the Clinical Engineering Department to obtain physiologic data from infants' clinical monitors. They will also collect demographic data from the electronic medical record and input data into a REDCap database.	1-3 hours/week	Lindsey Simoncini, MPH <a href="mailto:Lindsey.Simoncini@umassmed.edu">Lindsey.Simoncini@umassmed.edu</a>
Maushumi Assad, MD, MPH	Closing the Gaps in Neonatal Nutrition Through Data Science	This is a multicenter, longitudinal review study that will examine nutritional parameters and outcomes in infants admitted to the NICU	Students will abstract clinical information from the electronic medical record and input data into a REDCap database.	1-3 hours/week	Lindsey Simoncini, MPH <a href="mailto:Lindsey.Simoncini@umassmed.edu">Lindsey.Simoncini@umassmed.edu</a>

Javed Mannan, MD, MPH	Utilization of a Chest Shield During Phototherapy to Decrease Patent Ductus Arteriosus in Premature Infants	The purpose of this study will examine the effectiveness of a protective shield for infants undergoing phototherapy treatment	Data collection and chart review	2-4 hours a week	Dr. Javed Mannan <a href="mailto:javed.mannan@umassmemorial.org">javed.mannan@umassmemorial.org</a>
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**Division of Neurology**  
**Project and Research Opportunities Available**

Principal Investigator	Study Title	Purpose of Study	General Responsibilities	Time Commitment	Primary Study Contact and Contact Information
Brenda Wong, MD	Decreased resting energy expenditure in patients with Duchenne muscular dystrophy by stages	To assess the REE in DMD patients by stages and Healthy controls	Protocol finalization study data collection	to be discussed with interested students/residents	Dr. Brenda Wong; <a href="mailto:Brenda.wong@umassmemorial.org">Brenda.wong@umassmemorial.org</a>



**Division of Pediatric Hospital Medicine**  
**Project and Research Opportunities Available**

Principal Investigator	Study Title	Purpose of Study	General Responsibilities	Time Commitment	Primary Study Contact and Contact Information
Kathryn Wynne, MD	A few options!	Helping with our QI team addressing Safe Sleep on the pediatric floor. Review looking at rhabdomyolysis cases - Help completing a simulation project - Other of your choice, happy to support new ideas within pedi hospital medicine/med ed fields	Various depending on project interest	Various depending on project interest	Dr. Kate Wynne <a href="mailto:kathryn.wynne@umassmemorial.org">kathryn.wynne@umassmemorial.org</a>

## Division of Pulmonary and Sleep Medicine

### Project and Research Opportunities Available

Principal Investigator	Study Title	Purpose of Study	General Responsibilities	Time Commitment	Primary Study Contact and Contact Information
Michelle Trivedi, MD, MPH	Asthma Link: Real-world Implementation of School-supervised Asthma Therapy	Use a clinical trial to examine the effectiveness and implementation of school-supervised asthma therapy in pediatric practices. We will assess the impact of this intervention on improving health outcomes for children from low-income and minority communities.	<ol style="list-style-type: none"> <li>1. conduct qualitative interviews to better understand barriers and facilitators to practices implementing this program</li> <li>2. work with schools, school nurses, pediatric practices</li> <li>3. conduct background literature searches on school-based asthma topics and research</li> <li>4. participate in data analysis and paper writing</li> <li>5. participate in analysis of implementation outcomes for the clinical trial</li> </ol>	summer full time then continue as a longitudinal experience after the summer	Dr. Michelle Trivedi <a href="mailto:michelle.trivedi@umassmemorial.org">michelle.trivedi@umassmemorial.org</a>

Michelle Trivedi, MD, MPH	Mixed Methods Evaluation of Asthma Link: a real-world application of school-supervised asthma therapy	To conduct qualitative and quantitative evaluation of Asthma Link, our real-world school supervised asthma therapy intervention for children with poorly controlled asthma.	Conduct qualitative interviews in English or Spanish Code and analyze interviews- qualitative analysis Conduct qualitative analyses on clinical trial data Spanish-fluency is a huge asset to this work	Full-time summer and longitudinal throughout years 2-4 of medical school or residency	Dr. Michelle Trivedi <a href="mailto:michelle.trivedi@umassmemorial.org">michelle.trivedi@umassmemorial.org</a>
Lawrence Rhein, MD, MPH	Recorded Home Oximetry Program Associated Projects	Purpose is to engage young trainees in our remote home oxygen program for preterm infants on home oxygen therapy.	The student will perform a literature search and engage in applicable research skills.	Several hours per week.	Heather White, MPH <a href="mailto:Heather.White@umassmed.edu">Heather.White@umassmed.edu</a>

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