JOHNS HOPKINS
MEDICINE

PERLHS
Promoting Embedded Research in a Learning Health System

Spring 2026
BI-ANNUAL NEWS

Building a Learning Health System

Johns Hopkins Medicine recognizes that embracing a learning health system mindset is central to the care of patients. We are one of 16 centers to receive funding from the Agency for Healthcare Research and Quality to launch the program that we call : Promoting Embedded Research in a Learning Health System (PERLHS).

Our training model builds skills in embedded researchers by advancing their knowledge and capabilities in patient-centered comparative effectiveness research. Our PERLHS Scholars participate in an 11-month experience during which they engage in asynchronous didactic learning with recorded lectures and reading, participate in monthly workshops as a cohort of scholars, and complete a project of value to our learning health system under the close supervision of a PERLHS mentor.

FOR MORE INFORMATION

Please contact our team at
perlhs@live.johnshopkins.edu

01. WELCOME TO PERLHS

In this issue of our newsletter, we share information about our 2025-2026 Scholars and the amazing projects that they are working on to advance the work of our learning health system LHS). For those new to the LHS concept, the Institute of Medicine defined these as health systems designed to generate and apply the best evidence for the collaborative healthcare choices of each patient and provider. These systems drive the process of discovery as a natural outgrowth of patient care to ensure innovation, quality, safety, and value in health care.

We take this definition seriously in our selection of Scholars to spend the year with us training in these concepts and acquiring the skills to do this work. The mentors with whom they work have been carefully selected to help them to achieve their goals.

This year, we have engaged new mentors for the Scholars including Drs. Som Saha, Eva Tseng, Scott Wright, Henry Michtalik, Yvonne Commodore Mensah, and David Rastall. We welcome back Dr. Eliana Perrin and Dr. Conan Dickson who continue as exceptional mentors.

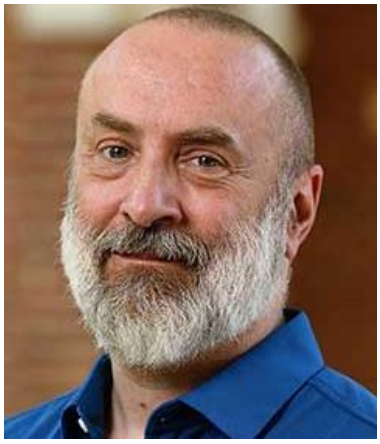
We are having an exciting year as we welcome new and returning speakers to our monthly “laboratory” sessions. The Scholars have had the opportunity to engage with and learn from our health system operations leader as well as those doing the hard, detailed work of liberating data for our researchers.

We hope you enjoy the updates in this letter.

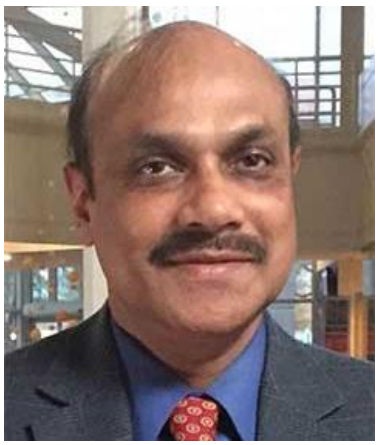
Sincerely,
Jodi Segal and Jill Marsteller

01. MEET OUR TEAM

We have an exceptional leadership team with our Dr. Iwashyna working closely with Dr. Segal on the curriculum, Drs. Lehmann and Robinson teaching our Scholars sound data management and access principles, Dr. Molly Kilcullen working with Dr. Marsteller on evaluation of our program, and Drs. Naqibuddin and Farheen leading our administrative tasks with Ms. Wilson working on special projects with our Scholars including systematic reviews.



T. Jack Iwashyna, Harold Lehmann, Matthew Robinson




Mohammed Naquibuddin, Molly Kilcullen



Renee Wilson, Shagufta Farheen, Ray Terhorst

02. MEET OUR PERLHS SCHOLARS

Our 2025-2026 Scholars come from across Johns Hopkins Medicine. They are completing mentored LHS research projects that will be presented at the 2026 Annual PERLHS

CURRENT SCHOLARS

Sajida Chaudry, MBBS, MPH, practices family medicine at Johns Hopkins Community Physicians Odenton and is the Office Medical Director. She is an Assistant Professor with Johns Hopkins University School of Medicine with a joint appointment in the School of Public Health Department of Health Policy and Management. She is investigating provider burnout, turnover, shortages, with turnover identified as the biggest problem. It is uncertain how the EHR and patient portals are contributing to burnout, therefore she is investigating the impact of a virtual AI scribe tool in primary care. She will be investigating whether using a virtual AI Scribe tool in primary care improves patient experience, physician and APP efficiency, and physician and APP productivity.
Mentor: Scott Wright, MD

Christina Mejia, MD, is an Assistant Professor of Medicine at the Johns Hopkins University School of Medicine. Her areas of clinical expertise incl ude chronic and acute kidney disease, and kidney and pancreas transplantation. She is investigating the process of living kidney donor evaluation. This process can be long and time consuming for donor candidates. Her objective is to identify donor, recipient, and center practice factors that affect the duration of living kidney donor evaluations. She expects to find that certain factors associated with prolonged donor candidate evaluation are modifiable and when identified can lead to changes in the process of living kidney donor evaluation at Johns Hopkins.
Mentor: Jack Iwashyna, PhD, MD, AB

Dr. Matt Castner, DPH, MHA, is the Director of Population Health at the Johns Hopkins Howard County Medical Center. He is investigating a program providing patients with transportation support. This quality improvement initiative at Johns Hopkins Howard County Medical Center aims to reduce 30-day hospital readmissions by addressing transportation barriers that prevent patients from accessing timely follow-up care. Community Health Workers (CHWs) will screen hospitalized patients for transportation insecurity and connect eligible individuals to short-term transportation support through vetted partners. He hypothesized that patients in this program will report lower transportation insecurity and higher rates of follow-up appointment attendance compared to baseline. Additionally, patients receiving transportation support will have a lower 30-day readmission rate compared to matched patients who do not receive the intervention.
Mentor: Henry Michtalik, MD, MPH, MHS

Elizabeth (Betsy) Zink, PhD, RN, is embedded in the neurocritical care ICU. She is a clinical nurse specialist in the Johns Hopkins Hospital with a faculty appointment as a research associate withing the Johns Hopkins University School of Medicine and the Johns Hopkins University School of Nursing. The primary objective of her project is to develop a prediction model of brainstem herniation with retrospective data analysis in patients with spontaneous intracerebral hemorrhage. She and her study team hypothesize that clinical and physiologic data collected as a part of routine patient care can be used to predict brainstem herniation prior its occurrence allowing for earlier preventive measures that could improve patient safety.
Mentor: David Rastall, DO, PhD

Ben Bodnar, MD, is an assistant professor of medicine and pediatrics and is embedded in the adult and pediatric inpatient services and in the care transformation operations. Ben's study with the PERLHS program is to assess the impact of EMR-integrated algorithmic clinical decision support (CDS) guidelines on guideline concordant care and patient outcomes. This type of CDS tool utilizes visual flow pathways which offer evidence-based, contextually appropriate clinical guidance to providers from directly within the EMR interface. CDS of this type is increasingly utilized, and generally felt to be valuable, though little evidence exists rigorously evaluating the impact of these guidelines and their use.
Mentor: Som Saha, MD, MPH

Phil Wagner, MD, MS, is an assistant professor of medicine and is embedded in the adult inpatient and consultative services. Phil is studying how patients who require urgent inpatient surgeries at Johns Hopkins Hospital experience variation in perioperative cardiovascular testing during the preoperative process. He asserts that there is little guidance for urgent inpatient surgeries, resulting in providers ordering extensive cardiac testing and consultation that delays time to OR. His project objective is to implement institutional perioperative cardiovascular testing guidelines and recommendations for those patients who are hospitalized for urgent surgeries via the creation of guidelines for urgent inpatient surgeries and a decision support tool. Mentor: Jodi Segal, MD

Heather Watson, PhD, MSN, RN, NPD-BC, is a nurse scientist and is embedded in the Department of Nursing. Heather's PERLHS project is looking at the scarcity of robust empirical evidence establishing virtual nursing as an evidence-based model of care. Virtual nursing has the potential to influence patient outcomes and satisfaction by improving access to education, enhancing communication, and supporting timely care. Additionally, persistent nursing shortages, rising acuity, and administrative burden contribute to burnout and turnover; rigorous evaluation of virtual nursing is needed. Her project's objectives are to assess the impact of implementing inpatient virtual nursing on organizational nursing metrics. She will also be organizing and interpreting findings using the Donabedian Framework across structure, process, and outcome domains.
Mentor: Dr. Conan Dickson, PhD, MPH

Sarah Hussain, MBBS, MSc, is a research program analyst at Johns Hopkins School of Medicine and is embedded in transplant ID. She works as a researcher to inform the care of patients with HIV who also have solid organ transplants. Sarah's PERLHS project is focused on determining whether surges in pediatric respiratory viral infections (RVI) detection precedes and can be used to predict subsequent surges in RVIs among adult immunocompromised individuals. She will be performing a non-randomized observational study, using retrospective analysis of data to develop and internally validate a lead-lag prediction model of RVI surges.
Mentor: Matt Robinson, MD

Courtney Holsher, MD, PhD is an assistant professor of Surgery and is embedded in the Johns Hopkins School of Medicine. Her PERLHS project centers on the variable practices of screening for PAD in inpatients who have a wound documented in nursing flowsheets. Her project aims to describe the rate of PAD screening currently, factors associated with appropriate screening, and begin to develop an intervention to improve PAD screening in the presence of a foot wound.

Mentor: Yvonne Commodore-Mensah, PhD, MHS, RN, FAHA, FPCNA, FAAN

Marissa Leff, BSPH, CPHQ, is a Certified Professional in Healthcare Quality, and a Quality and Safety Program Coordinator with the Department of Pediatrics , Johns Hopkins University School of Medicine. Her project focuses on pediatric ambulatory surgery patient experience scores. She is assessing patient and provider expectations, identifying the contributing factors of the key drivers, and evaluating how patients respond to the patient experience surveys can help drive improvement work.
Mentor: Eliana Perrin, MD, MPH

POST-DOCTORAL SCHOLAR

Portia Buchongo, PhD, MPH, RN, is a second year General Internal Medicine Research Fellow and the PERLHS training program. She is a health services researcher with a background in critical care nursing, public health practice, and health care quality. Prior to joining PERLHS, she worked as an Applied Research Scientist for Health Equity at the National Committee for Quality Assurance (NCQA) where she led research projects focused on generating new evidence to inform programmatic and policy strategies to advance health equity. Her PERLHS project is focused understanding cardiovascular risk in patients with prediabetes and the potential for evidence-based diabetes prevention interventions to reduce these risk. She is using primary care data from the Precision Medicine Analytics Platform to compare patterns of clinician referrals to and use of diabetes prevention interventions among patients with prediabetes with and without baseline cardiovascular risk factors. She will evaluate the relationship between patients who use diabetes prevention intervention(s) and their relative CVD risk over two years. Evidence generated will help identify opportunities to develop and/or refine health system strategies for reducing cardiometabolic risk in patients with prediabetes.
Mentor: Eva Tseng, MD, MPH

FEATURED PAST SCHOLAR PROJECTS

Dipal Patel, MD, PhD, used electronic health record data to validate the Kidney Disease Symptom Survey (KDSS), an electronic patient-reported outcome measure used to assess symptoms in patients with kidney disease. Dr. Patel hypothesized that KDSS scores would be stable for patients with stable kidney function, and that KDSS scores would worsen as patients experienced a decline in their kidney function. Her results demonstrated temporal stability of the KDSS for patients with stable kidney function. However, the KDSS had variable responsiveness, and detected a meaningful change in symptoms for about 40% of patients with worsening kidney function. These findings contributed to the temporary suspension of the KDSS in clinical care, while further research is conducted with stakeholders to identify a suitable and validated measure for patients with non-dialysis-dependent kidney disease. Dr. Patel's work led to presentations at the PCORI and ASN conferences in 2025, as well as a presentation to a weekly CHSOR (part of Health Policy and Management) seminar. Her work was featured in HealthDay: News for Healthier Living, and was recently published in Kidney360

Dipal expressed positive feedback about her experience in the PERLHS program, which helped her understand how to integrate clinical and research activities effectively.

Kathleen Page, MD, centered her project around uninsured immigrants in the United States. They face major barriers to ongoing medical care, often relying on episodic or emergency services rather than preventive treatment. In her PERLHS study of uninsured adults with limited English proficiency receiving care at Johns Hopkins Health System, she examined whether participation in The Access Partnership (TAP), a hospital-based charity care program providing comprehensive, no-cost outpatient primary and specialty care, was associated with better kidney health. After carefully matching TAP participants to similar uninsured self-pay patients, she found that those enrolled in TAP had a significantly lower risk of developing impaired kidney function over time. TAP participants were also more likely to have a primary care provider, receive diabetes screening, achieve blood pressure and glucose control, and be prescribed kidney-protective medications. Together, these findings suggest that structured charity care programs that enable access to longitudinal outpatient care may play an important role in preventing chronic kidney disease and improving health outcomes among uninsured immigrant populations.

Dr. Page enjoyed meeting other colleagues through the PERLHS program who are working on health system initiatives throughout our institutions, sharing ideas and learning from each other. She believes that the PERLHS program has great mentorship, which has continued beyond the program. Dr. Page is preparing her PERLHS project for publication. Through the PERLHS program, she has learned how to leverage the EMR to rigorously analyze the impact of charity care programs on health outcomes and has learned how to conduct causal inference analysis using the EMR.

03. PERLHS TEAM PROJECTS

The goal of the PERLHS program is not only to prepare embedded investigators to apply rigorous methods to generate and disseminate evidence. Our administration, education, and data science teams also work together on internal LHS research projects.

Umbrella Review of Learning Health Systems Reviews

Our post-doctoral fellow Portia Buchongo is leading a systematic review of reviews. This study aims to identify and analyze systematic reviews on Learning Health System (LHS) science to map the breadth of existing evidence, identify gaps, and categorize findings by themes and stages of the AHRQ LHS Model to highlight opportunities for future research. This review will be used to describe and understand which areas of LHS science have been studied and identify gaps in LHS science and areas for future research. We will identify themes across systematic reviews on LHS science. Then, the Agency for Healthcare Research and Quality (AHRQ) LHS Model will be used to identify how well the LHS improvement cycle is reflected in systematic reviews on LHS science.

Leadership Perceptions of Learning Health Systems

Dr. Portia Buchongo is also leading a qualitative effort to interview LHS leadership to understand the role system leaders have in cultivating an effective LHS at JHHS through policies, practices and/or processes, challenges with maintaining the LHS, and goals to improve various functional areas across JHHS that support the development of the LHS. The secondary objective of this effort is to determine how best to evaluate the impact of LHS research on Johns Hopkins Health System. A total of 15 interviews with LHS leadership were conducted and transcribed. Qualitative coding and analysis has been started and results from this study will be summarized and submitted for publication.

Learning Health System Working Groups

LHS Informatics Working Group: Dr. Harold Lehmann is leading a working group which is an E-Star wide endeavor to share best practices for informatics for our scholars.

LHS Evaluation Working Group: Dr. Molly Kilcullen is leading the effort in collaboration with Dr. Jill Marsteller to build a LHS evaluation working group. The purpose of this group is to synthesize existing LHS metrics and evaluation methods, develop novel ones, and disseminate findings to advance science and practice.

LHS-Strategic Health Advancement and Research for Equity (SHARE) Working Group: Dr. Portia Buchongo participates in the working group focused on helping LHS center to operationalize the lates LHS Equity and Justice domain and associated learner competencies.

04. RECRUITING SCHOLARS FOR 2026-2027

The Johns Hopkins University Promoting Embedded Research in Learning Health Systems (PERLHS) announces an opportunity for early or mid career faculty or staff committed to conducting research as embedded scientists in learning health systems (LHS).

Who is eligible?

- This program invites early or mid career faculty and staff, both clinician and non-clinician applicants, who can dedicate at least 10% effort to the research program.
- In permanent, local positions within Johns Hopkins who are embedded in the delivery of health care.
- Be U.S. citizens or non-citizen nationals, or individuals lawfully admitted for permanent residence.

What are the program benefits?

- Research support funding of up to $10,000 for 11 months.
- Participation in an LHS science curriculum, faculty and peer to peer mentoring and scientific writing feedback, mentored research environment, and local, regional, and national LHS networking.
- You will become part of the PERLHS scholar and partnership network

Applications must be completed via Google Forms [PERLHS Academy Application 2026 – Fill out form**] by 5pm Eastern, March 15th, 2026.**

SCAN OR CLICK HERE TO APPLY TO BE A PERLHS SCHOLAR

05. UPCOMING EVENTS

PERLHS ANNUAL SYMPOSIUM

2026 PERLHS/Hopkins Business of Health Initiative (HBHI) Symposium
June 11, 2026
8:30 AM to 4:00 PM
Owens Auditorium
CRB 1
Johns Hopkins Hospital
1550 Orleans Street
Baltimore, Maryland 21287

Register Here