HUMAN FACTORS WORKSHOP: A Systems Approach to Patient Safety

Location: **MedStar Health Central Office**
10980 Grantchester Way,
First Floor, Conference Rooms **1A-C**
Columbia, MD 21044

Date: April 3 - 4, 2025

MedStar Health

Hosted by:

MedStar Health National Center for Human Factors in Healthcare
&
MedStar Health Institute for Quality and Safety

Faculty Presenters

Lead Presenter: Raj Ratwani, PhD, MPH
Director, MedStar Health National Center for Human Factors in Healthcare
Vice President of Scientific Affairs, MedStar Health Research Institute
Professor, Georgetown University School of Medicine

Rebecca Butler, MA
Senior Program Manager, System Safety, MedStar Health Institute for Quality & Safety

Terry Fairbanks, MD, MS
Senior Vice President & Chief Quality & Safety Officer, MedStar Health
Executive Director, MedStar Health Institute for Quality & Safety
Professor of Emergency Medicine, Georgetown University

Carole Hemmelgarn, MS, MS
Senior Director, Education, MedStar Health Institute for Quality and Safety
Program Director, Executive Master's in Clinical Quality, Safety & Leadership, Georgetown University

Seth Krevat, MD, FACP
Senior Medical Director and Assistant Vice President, MedStar Health National Center for Human Factors in Healthcare
Assistant Professor of Clinical Medicine, Georgetown University School of Medicine

Laura Lee, MS, BSN
Senior Director, High Reliability and Patient Safety, MedStar Health Institute for Quality and Safety

Robin Littlejohn, MS
Research Scientist, MedStar Health National Center for Human Factors in Healthcare

Kristen Miller, DrPH, CPPS
Scientific Director, MedStar Health National Center for Human Factors in Healthcare
Associate Professor, Georgetown University School of Medicine
Affiliate Faculty, Innovation Center for Biomedical Informatics, Georgetown University Medical Center

Zoe Pruitt, MA, CPPS
Human Factors Scientist, MedStar Health National Center for Human Factors in Healthcare

Workshop Description

Human Factors is a multi-disciplinary science that focuses on understanding the interaction among humans and other elements of a system within a given environment. Applying human factors to healthcare reduces medical errors and allows clinicians to deliver better patient care. Human factors boost work processes, enhance patient safety, reduce inefficiencies, and improve quality. As healthcare delivery becomes increasingly more complex, human factors engineering has proven to be a powerful approach for proactively reducing harm. MedStar Health is proud to offer this workshop, which brings together leaders across the system, including human factors engineers, risk management professionals, practicing clinicians, and healthcare safety leaders with vast experience studying risk and implementing innovative change within healthcare organizations. The workshop will include onsite simulations and a networking reception.

Accreditation

In support of improving patient care, MedStar Health is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE) and the American Nurses Credentialing Center (ANCC), to provide continuing education for the healthcare team.

Credit Designation

This activity was planned by and for the healthcare team, and learners will receive **11.00** Interprofessional Continuing Education (IPCE) credits for learning and change.

Physicians: MedStar Health designates this live activity for a maximum of **11.00** *AMA PRA Category 1 Credits™*. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Nurses: This activity is approved for **11.00** ANCC contact hours. Nurses should claim only the credit commensurate with the extent of their participation in the activity.

Pharmacists: This activity is approved for **11.00** contact hours. This learning activity is knowledge-based. The Universal Activity Number for this program is **UAN# JA4008151-0000-25-065-L05-P.**

Physician Assistants:

MedStar Health has been authorized by the American Academy of PAs (AAPA) to award AAPA Category 1 CME credit for activities planned in accordance with AAPA CME Criteria. This activity is designated for **11.00** AAPA Category 1 CME credits. PAs should only claim credit commensurate with the extent of their participation.

Workshop Agenda

Day 1 – Thursday, April 3, 2025

8:15 – 8:45 **Welcome and Breakfast**

8:45 – 9:15 **Icebreaker**

9:15 – 10:15 **Human Factors Essentials: Exploring the Foundations for Safe and Efficient Systems**
Raj Ratwani and Seth Krevat

Gain a profound understanding of how human behavior, cognition, and interactions with aspects of the healthcare system directly influence patient safety and well-being within healthcare systems.

10:15 – 10:30 ***Break***

10:30 – 12:00 **Task Analysis and Process Map Fundamentals: Unraveling Efficiency in Workflows**
Kristen Miller and Zoe Pruitt

Learn how to dissect complex tasks into bite-sized, manageable pieces and identify the critical steps, the tricky stumbling blocks, and the shortcuts for optimal and safe task performance.

12:00 – 12:45 **Lunch**

12:45 – 2:30 **Proactive Risk Assessment: Demystifying Failure Modes and Effects Analysis (FMEA)**
Laura Lee and Rebecca Butler

Equip yourself with the tools to tackle risks head-on, unveil proactive strategies, boost performance, and embrace a fearless approach to identifying potential points of failure and evaluating their repercussions.

2:30 – 2:45 ***Break***

2:45 – 4:25 **Hands-on Application of Human Factors Methods to Real-world Settings (Experiential Learning Session One)**
Laura Lee, Zoe Pruitt, Kristen Miller, and Rebecca Butler

Through interactive learning modules and real-world case studies, you will develop the skills to identify potential risks, design usability

technology, implement strategies to enhance patient outcomes and reduce errors.

4:25 – 5:00 **Operationalizing Human Factors in Safety Leadership**

Terry Fairbanks

Discuss how to operationalize human factors throughout an organization. (Q&A)

Day 2 - Friday, April 4, 2025

8:15 – 8:45 **Welcome and Breakfast**

8:45 – 10:15 **Leveraging Heuristic Evaluations to Uncover Design Errors: A Quick and Cheap Approach to Proactive Safety**

Raj Ratwani and Robin Littlejohn

Discover how to wield heuristics to spot design errors and vulnerabilities in software and technology, proactively solve problems, and create user-centric designs.

10:15 – 10:30 ***Break***

10:30-11:00 **Classic Design Processes for Modern Medicine**

Seth Krevat and Zoe Pruitt

Understand how timeless design processes can seamlessly integrate with contemporary innovations to improve healthcare.

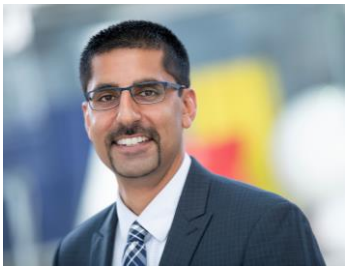
11:00 – 12:30 **Hands-on Application of Human Factors Methods to Real-world Settings (Experiential Learning Session Two)**

Seth Krevat, Zoe Pruitt, and Robin Littlejohn

Through interactive learning modules and real-world case studies, you will develop the skills to identify potential risks, design usability technology, and implement strategies to enhance patient outcomes and reduce errors.

12:30 – 1:00 **End of Day Q&A and Lunch**

Presenter Biographies



Lead Presenter: Raj Ratwani, PhD, MPH

Director, MedStar Health National Center for Human Factors in Healthcare

Vice President of Scientific Affairs, MedStar Health Research Institute

Professor, Georgetown University School of Medicine

Raj Ratwani, PhD, is the director of the MedStar Health National Center for Human Factors in Healthcare-- the largest human factors research team embedded in a healthcare system. As a center director, he is responsible for overall strategy development and execution, and he oversees research, advisory services, and education efforts. He is also the vice president of scientific affairs for the MedStar Health Research Institute. He is responsible for supporting researchers in program development, identifying strategic partners and funding opportunities to foster high-impact research, and supporting an administrative infrastructure that enables rigorous research.

Dr. Ratwani's research focuses on patient safety, digital health, data science, and artificial intelligence. He has received over $20m in federal and industry-applied research and innovation funding, including serving as principal investigator on five R01 awards. He has published over 100 peer-reviewed articles in high-profile journals such as JAMA and Health Affairs. National Public Radio, Fortune Magazine, and Kaiser Health News have all featured his work. He has also focused on improving healthcare policy through testimony to the Senate Health, Education, Labor, and Pensions committee, service on the 21st Century Cures Act Health Information Technology Advisory Committee, and policy advisement to several healthcare stakeholders, including the Senate and House of Representatives. He earned a Doctorate in Human Factors and Applied Cognition from George Mason University and received the Fleishman dissertation award for outstanding research. He completed a National Research Council post-doctoral fellowship at the U.S. Naval Research Laboratory.

Rebecca Butler, MA

Senior Program Manager, System Safety

MedStar Health Institute for Quality & Safety

Rebecca Butler is a senior program manager for the system safety program at MedStar Health. In this role, she helps manage the system's adverse event reporting and review processes. Rebecca specializes in integrating human factors engineering and safety science principles to create and implement solutions that increase safety throughout the MedStar Health system. She has expertise in medical device usability and previously worked for MedStar Health's National Center for Human Factors in Healthcare as a consultant to manufacturers working through the Food and Drug Administration (FDA) pre-market submission process. She holds a bachelor's degree in industrial and systems engineering from Virginia Tech and a master's degree in human factors and applied cognition from George Mason University.

Terry Fairbanks, MD, MS

Senior Vice President and Chief Quality & Safety Officer, MedStar Health

Executive Director, MedStar Health Institute for Quality & Safety

Professor of Emergency Medicine, Georgetown University

Dr. Fairbanks is senior vice president and chief quality and safety officer at MedStar Health, professor of emergency medicine at Georgetown University, Executive Director at MedStar Health Institute for Quality and Safety, and founding director emeritus of the MedStar Health National Center for Human Factors in Healthcare. He practices emergency medicine at MedStar Washington Hospital Center in Washington, DC.

Dr. Fairbanks has authored over 200 publications, edited a book on healthcare safety and human factors engineering, and received research funding from the National Institutes of Health, Agency for Healthcare Research and Quality, and others. He has served in safety advisory roles for several national organizations and the United States, British, Spanish, and Australian governments.

A former paramedic, EMS Medical Director, general aviation pilot, and safety engineering researcher, Dr. Fairbanks earned a thesis-based master's degree in industrial systems/safety engineering with a human factors/safety engineering focus at Virginia Tech, completed Medical School at VCU's Medical College of Virginia, and residency training in emergency medicine at the University of Rochester where he was chief resident. He completed the Wharton School's Physician Leadership certificate and the National Patient Safety Foundation's HRET Patient Safety Leadership Fellowship.

Dr. Fairbanks is board-certified in emergency medicine, certified professional in patient safety, and was elected as a Fellow of the Human Factors and Ergonomics Society in 2022. He has been listed multiple times in Becker's Hospital Review as a Top Expert Leading the Field of Patient Safety, is a recognized national and international speaker and influencer, and was recognized with the 2021 Robert L. Wears Patient Safety Leadership Award.

Carole Hemmelgarn, MS, MS

Senior Director, Education, MedStar Health Institute for Quality and Safety

Program Director, Executive Master's in Clinical Quality, Safety & Leadership, Georgetown University

Carole Hemmelgarn, MS, MS, is the Program Director for the Executive Master's program in Clinical Quality, Safety & Leadership at Georgetown University, and the Senior Director of Education at the MedStar Institute for Quality & Safety. Carole received a master's degree in Patient Safety Leadership from the University of Illinois at Chicago and a second master's degree in Health Care Ethics from Creighton University. She sits on the Board of Directors for Leapfrog, the Board of Directors of Children's Hospital Solutions for Patient Safety, the Board of Quality, Safety, and Experience at Children's Hospital Colorado, the Patient and Family Advisory Committee for the Collaborative for Accountability and Improvement, and National Quality Forum Stakeholder Advisory Council. She is a founding member of Patients for Patient Safety US.

Seth Krevat, MD, FACP

Senior Medical Director and Assistant Vice President, MedStar Health National Center for Human Factors in Healthcare

Assistant Professor of Clinical Medicine, Georgetown University School of Medicine

Dr. Krevat is board-certified in Hospice and Palliative Medicine, practices palliative care at MedStar Georgetown University Hospital, is the senior medical director at MedStar Health National Center for Human Factors in Healthcare and is an assistant professor of clinical medicine at Georgetown University School of Medicine. As senior medical director, Dr. Krevat leads the development of strategic partnerships with external industry, academic, and government partners to increase the Center's impact and to improve the translation of the Center's research into practice. Dr. Krevat supports several large government-funded research grants focused on diagnostic error, telehealth, patient safety, and the role that electronic health record (EHR) design challenges play in contributing to medical error. He also leads several Veterans Affairs-supported contracts focused on improving the efficiency, safety, and usability of technology utilized by providers and patients at the VA. Previously, Dr. Krevat served as the assistant vice president, Safety, for the MedStar Health system, leading the development and implementation of a comprehensive patient safety program across the MedStar Health system. His work included leading the implementation of the Agency for Healthcare Research and Quality's (AHRQ) CANDOR program across MedStar and overseeing the review and analysis of hundreds of thousands of occurrence reports.

Prior to joining MedStar, Dr. Krevat worked as a hospitalist and physician advisor at Virginia Mason Medical Center, collaborating with the vice president of finance to shape more efficient and cost-effective care delivery processes. He was trained in Lean and the Toyota Production System management methodologies and traveled to Japan to study them.

Laura Lee, MS, BSN

Senior Director, High Reliability and Patient Safety, MedStar Health Institute for Quality and Safety

Laura Lee is MedStar Health's Senior Director for High Reliability and Patient Safety. In this role, Laura is integral to developing and operationalizing MedStar Health's high reliability and patient safety strategic initiatives. Laura is committed to bringing the principles of high reliability to life through practical applications at the front line of care delivery and healthcare operations and to advancing MedStar Health as a leader in the design of proactive safety systems that anticipate and prevent hazards and unsafe conditions.

Prior to joining the MedStar Health team, Laura was the Director of the Office of Patient Safety and Clinical Quality at the National Institutes of Health Clinical Center (NIH CC). As a senior leadership team member, Laura's responsibilities included managing the NIH CC's patient safety, clinical quality improvement, and performance measurement programs, guiding the NIH CC's high-reliability journey, and managing the NIH CC's accreditation activities.

Laura holds a Master of Science in Patient Safety Leadership from the College of Medicine at the University of Illinois-Chicago, a Bachelor of Science in Nursing from the Catholic University of America, and a Bachelor of Arts in Business Administration from Gettysburg College.

Robin Littlejohn, MS

Research Scientist, MedStar Health National Center for Human Factors in Healthcare

Robin Littlejohn is a research scientist at the MedStar Health National Center for Human Factors in Healthcare. Robin provides usability evaluations of medical devices, health information technology (health IT), and healthcare processes for internal and external clients. Robin applies her expertise to evaluate user-centered systems and designs. She seeks to understand the interaction of multifaceted systems and identify system modifications to maximize the safety and efficacy of processes for the benefit of all system users while considering the needs of all stakeholders. Robin's work focuses on digital health, clinical decision support, and the intersection of providers, patients, and health IT. Robin's career path led to opportunities to provide human factors consulting work and regulatory guidance to Fortune 500 medical device and pharmaceutical companies. Robin's current portfolio includes Bristol Myers Squibb, Iron Bow Technologies, and U.S. Department of Veterans Affairs projects. Robin holds a Bachelor of Science and a Master of Science in Industrial and Systems Engineering, both from Virginia Tech. In addition, she holds the Associate Ergonomics Professional certification from the Board of Certification in Professional Ergonomics. Robin has served as adjunct faculty at the Catholic University Department of Biomedical Engineering.

Kristen Miller, DrPH, CPPS

Co-Director, MedStar Health Center for Diagnostic Systems Safety

Scientific Director, MedStar Health National Center for Human Factors in Healthcare

Associate Professor, Georgetown University School of Medicine

Kristen Miller is the Co-Director of the MedStar Health Center for Diagnostic Systems Safety, Senior Scientific Director of the MedStar Health National Center for Human Factors in Healthcare, Associate Professor of Emergency Medicine at Georgetown University School of Medicine, Affiliate Faculty at Georgetown Innovation Center for Biomedical Informatics, and Graduate Faculty at George Mason University College of Public Health. Dr. Miller is a clinically oriented human factors researcher focusing on diagnostic safety, medical decision-making, informatics, and the assessment of medical interventions with an emphasis on healthcare delivery. Her work incorporates both industrial engineering and cognitive psychology components and takes into account the entire system, from health information technology to characteristics of individual patients. Her work includes meaningful and active collaboration with patient partners, families, caregivers, and frontline teams. As Co-Director of the diagnostic center, she leads the Center's research, operations, and education strategy to leverage systems thinking and human factors engineering to support the delivery of high-quality care and improve diagnostic safety. Dr. Miller was recently appointed to the National Academy of Medicine (NAM) Forum on Advancing Diagnostic Excellence, serves as a mentor in the Society to Improve Diagnosis in Medicine (SIDM) Fellowship in Diagnostic Excellence, and is an active participant on the Diagnostic Safety Measures Expert Workgroup to support AHRQ's Quality Indicators (QI) Program.

Dr. Miller's research portfolio includes federally funded work from the National Institutes of Health (NIH), Agency for Healthcare Research and Quality (AHRQ), and Office of the National Coordinator for Health IT (ONC). Her teaching experience includes capstone director of the Georgetown Executive Master's in Clinical Quality, Safety, and Leadership; course director for the Georgetown Master's in Health Informatics and Data Science and Georgetown Medical School, and Academy of Emerging Leaders in Patient Safety (AELPS). Dr. Miller earned her Bachelor of Arts from Johns Hopkins University and a Doctorate in Public Health in Epidemiology, with specialized training in Human Factors Engineering and Ergonomics, and a Master of Science in Public Health in Occupational Health and Safety from Texas A&M University. She then completed a fellowship in Advanced Patient Safety at the Department of Veterans Affairs National Center for Patient Safety. She holds a Master of Science in Law from the University of Maryland, Baltimore Francis King Carey School of Law. She is a Certified Professional in Patient Safety (CPPS) credential from the National Patient Safety Foundation. She previously served as adjunct faculty in the Department of Public Health, University of Michigan, as an invited faculty for an international summer school on mobile healthcare sponsored by the Association for Computing Machinery, and as adjunct faculty in the Department of Biomedical Engineering at Catholic University.

Zoe Pruitt, MA, CPPS

Research Scientist, MedStar Health National Center for Human Factors in Healthcare

Zoe Pruitt is a research scientist at the MedStar Health National Center for Human Factors in Healthcare. She specializes in applying the psychology of human error to safety event analysis and process improvement. Her research interests include the usability of healthcare technologies, including electronic health records and medication administration records. Zoe manages several human factors research projects, including grants from the Agency for Healthcare Research and Quality and the National Institutes of Health. She also helps manage the center's internal and external human factors consulting team and synchronous and asynchronous education initiatives. She has lectured at various conferences and institutions, including the Institute for Healthcare Improvement and the Patient Safety Authority. Zoe earned her Master of Arts in Human Factors and Applied Cognition at George Mason University and her Bachelor of Arts in Brain and Cognitive Science at the University of Rochester. She is also a Certified Professional in Patient Safety.

Logistics Team

Jackie Stark, MSM-PM, CAPM

Program Manager, Education, MedStar Health Institute for Quality & Safety

Associate Director of Graduate Studies, Executive Master's in Clinical Quality, Safety & Leadership, Georgetown University

Jackie Stark is a Program Manager of Education for MedStar Health Institute of Quality & Safety (MIQS) and the Associate Director of Graduate Studies for Georgetown University's Executive Master's in Clinical Quality, Safety, and Leadership. She is responsible for the operational processes within the master's program and for managing several of MIQS's Quality and Safety education programs. Jackie has had a successful career with MedStar Health since 2014, continuing to manage and grow educational programs within MIQS and Georgetown University.

Jackie is a University of Maryland Global Campus graduate with a BS in Management Studies and a Master's in Business Management, specializing in Project Management. She is also a Certified Associate in Project Management.