



**Human Factors
and Ergonomics
in Health Care:**

March 26–28, 2018

Marriott Copley Place
Boston, Massachusetts

PRELIMINARY PROGRAM

(As of February 14, 2018)

HFES is pleased to present the preliminary program for the 2018 Health-Care Symposium. Information is subject to change. Register at <http://bit.ly/HCS2018> [Register](#).

SUNDAY, MARCH 25

FDA PRE-SYMPOSIUM WORKSHOPS

(Separate registration fees apply)

8:00 a.m.–12:00 p.m.

Validation of Combination Drug Products: An FDA Workshop

Chair: Anthony D. Andre (Interface Analysis Associates)
Irene Z. Chan (PharmD, BCPS, CDR, U.S. Public Health Service, Deputy Director, Division of Medication Error Prevention and Analysis, FDA/CDER/OSE/OMEPRM/DMEPA) and Nicole Garrison (PharmD, BCPS, Safety Evaluator, Division of Medication Error Prevention and Analysis, FDA/CDER/OSE/OMEPRM/DMEPA)

1:30–5:30 p.m.

Improving the Safety and Effectiveness of Medical Devices Through Human Factors Considerations: An Interactive Workshop

Anthony D. Andre (Interface Analysis Associates)
Hanniebey Wiyor (LT, U.S. Public Health Service, Human Factors Reviewer, Human Factors Pre-market Evaluation Team, FDA/CDRH/DAGRID/HFPMET),
Xin Feng, (Human Factors Reviewer, Human Factors Pre-market Evaluation Team, FDA/CDRH/DAGRID/HFPMET), and Rita Lin (Human Factors Reviewer, Human Factors Pre-market Evaluation Team, FDA/CDRH/DAGRID/HFPMET)

OPENING NETWORKING RECEPTION

5:30-6:30 p.m.

MONDAY, MARCH 26

OPENING PLENARY SESSION

8:30-10:00 a.m.

Chairs: Anthony D. (Tony) Andre, Chair; and Joseph R. Keebler, Chair-Elect

Keynote Address: **Josie's Story: Family-Centered**

Approaches to Patient Safety, Sorrel King, Patient Safety Advocate

CCIT1 - Cognitive Engineering Applications

Clinical and Consumer Health Care IT Track

Monday, March 26, 10:30 a.m.–12:00 p.m.

Lecture Session

Chair: Plinio Morata (University of Waterloo)

1. **Decision-Making for Alternative Procedures: Navigating the Tradeoffs Between Clinical Effectiveness, Patient Safety, Financial and**

Organizational Pressures, and Patient Comfort, Mike Rayo (Ohio State U.), Chandni Pawar (Ohio State U.), Elizabeth Sanders (Ohio State U.), Beth Liston (Ohio State U.), Emily Patterson (Ohio State U.)

2. **Using Cognitive Engineering Methods to Evaluate IT Systems: Developing User Feedback Questionnaires Around Cognitive Support Design Objectives**, Emilie Roth (Roth Cognitive Engineering), Ann Bisantz (U. of Buffalo), A. Zachary Hettinger (Medstar Inst. for Innovation)
3. **More Than Information Access: A Cognitive Work Analysis on Physician-Pharmacist Collaboration Through Electronic Medical Records**, Jessie Chin (U. of Illinois at Chicago), Melissa Yu (U. of

Waterloo), Kelly Grindrod (U. of Waterloo),
Catherine Burns (U. of Waterloo)

HE1 - Electronic Health Records

Hospital Environments Track

Monday, March 26, 10:30 a.m.-12:00 p.m.

Panel and Lecture

Chair: Brandan Kennedy (Children's Mercy Kansas City)

1. **Surveillance Methods for EHR Safety Risks: A Panel Discussion**, Naveen Muthu (Children's Hospital of Philadelphia)-Chair, Evan Orenstein (Children's Hospital of Philadelphia), Allan Fong (Medstar National Center for Human Factors in Healthcare), Aaron Zachary Hettinger (Medstar National Center for Human Factors in Healthcare), Lorraine Possanza (ECRI Inst.)
2. **Once More, With Feeling: Emotional Design**, Paul Weaver (Cerner)

MDD1 - Demystifying HF Considerations – FDA's 2017 Generics and Interchangeable Biosimilars Guidance Documents

Medical and Drug-Delivery Devices Track

Monday, March 26, 10:30 a.m.-12:00 p.m.

Panel Session

Chairs: Rachel Aronchick (UL-Wiklund), Allison Strochlic (UL-Wiklund)

Panelists: Irene Z. Chan (FDA), Brian Holly (Pfizer), Valerie Fenster (Amgen), Lee Wood (medHF), Sherri Biondi (Genentech)

PSRI1 - Human Factors Approaches to Improving Health Equity: Where Have We Been and Where Should We Go Next?

Patient Safety Research and Initiatives Track

Monday, March 26, 10:30 a.m.-12:00 p.m.

Panel Session

Chair: Natalie Benda (MedStar Health)

Panelists: Angela Thomas (MedStar Health), Rupa Valdez (U. of Virginia), Enid Montague (DePaul U.), Deliya Wesley (MedStar Health)

CCIT2 - Understanding Work

Clinical and Consumer Health-Care IT Track

Monday, March 26, 1:30-3:00 p.m.

Lecture Session

Chair: Farzan Sasangohar (Texas A&M University)

1. **Optimizing Rounds in the ICU: Applying Workflow-Centric Human Factors to the Prototyping of a Decision-Support System**, Sylvain Bruni (Aptima)
2. **Clinical Decision Making in a Sea of Displays**, MaryBeth Privitera (HS Design/Univ. of Cincinnati)

3. **Improving Discharge Documents to Better Support Care Transitions**, Patrice Tremoulet (Rowan U.), Ramya Krishnan (ECRI Inst.)
4. **Characterizing Workflow in Nursing Homes**, Mustafa Ozkaynak (U. of Colorado-Anschutz Medical Campus), Cynthia Drake (U. of Colorado-Anschutz Medical Campus), Blaine Reeder (U. of Colorado-Anschutz Medical Campus), Peter Ferrarone (U. of Colorado-Anschutz Medical Campus), Barbara Trautner (Baylor College of Medicine), Heidi Wald (U. of Colorado-Anschutz Medical Campus)

HE2 - Hospital Environments

Hospital Environments Track

Monday, March 26, 1:30-3:00 p.m.

Panels

1. **Survival and Success in Clinically Embedded Human Factors Practice**, Ken Catchpole (Medical U. of South Carolina), Tara Cohen (Cedars-Sinai Medical Center), Joy Rivera (Children's Hospital of Wisconsin), Brittany Anderson-Montoya (Carolinas HealthCare System), Shelley Jeffcott (National Health Service Scotland (NHSS))
2. **Challenges in Pediatric Hospital Medicine—Transitions From Training and Challenges Within the Workforce**, Sophia Sterner and Lisa Carney (Children's Mercy Hospital and Clinics), Sonia Chaudhry (Connecticut Children's Medical Center), Heather Dahlquist (Yale-New Haven Children's Hospital), Angie Etzenhouser (Children's Mercy Hospital and Clinics), Alexander Hogan (Connecticut Children's Medical Center), and Beth Natt (Connecticut Children's Medical Center)

MDD2 - Artificial Pancreas Technologies

Medical and Drug-Delivery Devices Track

Monday, March 26, 1:30-3:00 p.m.

Lecture Session

Chair: Mike Dunkley (Continuum)

1. **Designing Across the User Spectrum for the Hybrid-Closed-Loop Artificial Pancreas System**, Sandhya Pillalamarri (Insulet Corporation)
2. **Using a Commercial, Off-the-Shelf Smartphone as the Primary User Interface for a Class 3 Medical Device**, Sabine Kabel-Eckes (Bigfoot Medical)

PSRI2 - The Historic Scientific Contribution of the Late Robert Wears, MD

Patient Safety Research and Initiatives Track

Monday, March 26, 1:30-3:00 p.m.

Panel Session

Chair: Shawna Perry (U. of Florida)

Panelists: Ann Bisantz (U. at Buffalo), A. Zach Hettinger (National Center for Human Factors in Healthcare-MedStar Health), Pascale Carayon (U. of Wisconsin)

Madison), Emilie Roth (Roth Cognitive Engineering), David Woods (Ohio State U.), Richard Cook (Ohio State U.)

CCIT3 – Mobile Health Applications for Consumers Student Design Competition

Clinical and Consumer Health-Care IT Track

Monday, March 26, 3:30-5:00 p.m.

Special Session

Chair: Richard Holden, Indiana U. - Indianapolis

Following presentation of the finalists listed below, the award will be presented.

1. **Care Connect**, Kristen Webster (Johns Hopkins)
2. **EasyHealth – An Integrated Health Monitoring and Management App for Seniors**, Sommayah Soliman, Harshada Tupe, Mai Chee Vang, and Javy Wang (San Jose State U.)
3. **Recordr. – Facilitating Patient Self-Advocacy and Enabling Large-Scale Human Factors Research**, Marisa Grayson (Ohio State U.)

HE3 – Burnout

Hospital Environments Track

Monday, March 26, 3:30-4:30 p.m.

Lecture Session

Chair: Raymond Chan (Children's Mercy Kansas City)

1. **How LEAN Can Reduce Provider Stress as Well as Improve Organizational Efficiency**, Michael Beck (Penn State Pediatric Hospital Medicine)
2. **Understanding Primary Care Clinician Burnout Through Physiologic Response, Workflow, and the Environment**, Akhila Iyer (MedStar Inst. for Innovation), Jordan Smith (Steelcase Health), Joseph Blumenthal (MedStar Inst. for Innovation), Michelle Ossmann (Steelcase Health)

MDD3 - Increasing Realism in Human Factors Testing

Medical and Drug-Delivery Devices Track

Monday, March 26, 3:30-4:30 p.m.

Lecture Session

Chairs: Elizabeth Roche (Ximedica), Molly Story (Sanofi)

1. **Leveraging AR/VR in Human Factors Research to Increase Realism and Reduce Time and Cost**, Laura Chang (Radius Innovation & Development)
2. **Applying the Lens to the Examiner: Using Ethnography to Uncover and Correct Flaws in Validation Testing of Complex Robotic Systems**, Kathryn Rieger (Cognitive Design), Kate Knudsen (Intuitive Surgical, Inc.), Daniel Nissenbaum (Intuitive Surgical, Inc.)

PSRI3 – Communication

Patient Safety Research and Initiatives Track

Monday, March 26, 3:30-4:30 p.m.

Lecture Session

Chairs: Allen Fong (National Center for Human Factors in Healthcare); Shilo Anders (Vanderbilt U.)

1. **Identifying and Classifying Communication Failures in Healthcare: Developing Methods to Reduce Communication-Related Incidents**, Milisa Manojlovich (U. of Michigan), Elizabeth UMBERFIELD (U. of Michigan), Amir Ghaferi (U. of Michigan), Sarah Krein (Department of Veterans Affairs)
2. **Neurodynamic and Communication Analysis of Healthcare Teams During Simulation Debriefings**, Ron Stevens (UCLA School of Medicine / The Learning Chameleon), Ann Willemsen-Dunlap (Order of Saint Francis Hospital), Jamie Gorman (Georgia Tech), Trysha Galloway (The Learning Chameleon, Inc.), Donald Halpin (Order of Saint Francis Hospital)
3. **Information Management Goals and Process Failures During Home Visits for Older Adults Receiving Skilled Home Health Care Services After Hospital Discharge: A Multisite, Qualitative Study**, Alicia Arbaje (Johns Hopkins U.), Ashley Hughes (Johns Hopkins U.), Nicole Werner (U. of Wisconsin-Madison), Bruce Leff (Johns Hopkins U.), Ayse Gurses (Johns Hopkins U.)

CCIT-POS1 – Posters/Reception

Clinical and Consumer Health-Care IT Track

Monday, March 26, 4:30-6:00 p.m.

Posters/Reception

1. **Poorly Designed Health Apps Can Do More Harm Than Good**, Arathi Sethumadhavan (Core Human Factors Inc), Adam Shames (Core Human Factors Inc)
2. **Understanding Individual Differences in Use of Historical-Data-Based Decision Support Tools for Time Estimation in Medical Dispatch**, Wayne Giang (U. of Toronto), Canmanie Teresa Ponnambalam (U. of Toronto), Xiaonian He (U. of Toronto), Birsen Donmez (U. of Toronto)
3. **Preoperative Medication Management: Reconciling Differences Across Clinical Sites**, Benjamin Duncan (Arizona State U.), Lu Zheng (Arizona State U.), Bradley Doebbeling (Arizona State U.), Andrew Solomon (Arizona State U.), Stephanie K. Furniss (Arizona State U.), Adela Grando (Mayo Clinic), M. M. Burton (Arizona State U.), Karl A. Poterack (Mayo Clinic), Timothy Miksch (Mayo Clinic), Richard A. Helmers (Mayo Clinic), David R. Kaufman (Arizona State U.)
4. **Triage Nurses Decision Support Application Design**, Tamari Levis (Ben-Gurion U.), Dagan Schwartz (Ben-Gurion U.), Yuval Bitan (Ben-Gurion U.)
5. **Utilizing the User Centered Design Process to Build a Novel Interruption Management Tool for Noncritical Tasks in the Emergency Department**,

- Hannah O'Toole (CapTech Consulting), Jessica Howe (MedStar Inst. for Innovation), Katie Adams (MedStar Inst. for Innovation), Allan Fong (MedStar Inst. for Innovation), Kathryn Kellogg (MedStar Inst. for Innovation)
6. **Visualizing the Determinants of Health**, Edwin Choi (Involution Studios)
 7. **Evaluating the Persuasiveness of a Corporate Wellness Program's Web-Based Learning Interfaces**, L.S. Platt (SUNY Binghamton/UMNSystems), Huiyang Li (SUNY Binghamton), Catherine Bass (Onlife Health)
 8. **Design Thinking, As Applied to New Products in the Physician-Consumer Space**, Jack Fleming (athenahealth | Epocrates)
 9. **System Analysis of an Intervention to Improve Opioid Prescribing in Emergency Medicine**, Enid Montague (DePaul U.), Mary Bungum (DePaul U.), D. Mark Courtney (Northwestern U.), Stephanie Gravenor (Northwestern U.), Ryan McConnell (Northwestern U.), Alyssa Czerniak (Northwestern U.), Mike Wolf (Northwestern U.), Lauren Sherman (DePaul U.), Danielle McCarthy (Northwestern U.)
 10. **Qualitatively Assessing Influences on the Medication Management Strategies of Older Adults With Hypertension**, Kenneth Blocker (U. of Illinois at Urbana-Champaign), Wendy Rogers (U. of Illinois at Urbana-Champaign)
 11. **The Development of the Healthcare Technology Acceptance Model (H-TAM) for Older Adults: A Conceptual Model**, Maurita T. Harris (U. of Illinois at Urbana-Champaign), Wendy A. Rogers (U. of Illinois at Urbana-Champaign)
 12. **Myoelectric Prosthesis Training for Children: A Gamification and User Experience Approach**, Paul Barclay (U. of Central Florida), Matt Dombrowski (U. of Central Florida), Peter Smith (U. of Central Florida), Ryan Buysens (U. of Central Florida)
 13. **Minimizing the Impact of Interoperability Errors on Clinicians**, Jolie Dobre (CSRA), Tippy Carter (CSRA), Jennifer Herout (U.S. Department of Veterans Affairs), Amanda Cournoyer (U.S. Department of Veterans Affairs)
 14. **How Human Factors Can Contribute to the Design of Standards for Ambient Assisted Living (AAL) Technology**, Laura Fadrique (U. of Waterloo), Dia Rahman (U. of Waterloo), Helene Vaillancourt (CSA Group), Tania Donovska (CSA Group), Plinio Morita (U. of Waterloo)
 15. **"Too Busy to Tell Where the Alarms Are Coming From": A Study on the Relationship Between Workload and Alarm Localizability**, Judy Edworthy (Psychology), Scott Reid (Plymouth U.), Katie Peel (Plymouth U.), Samantha Cox (Plymouth U.), Jessica Williams (Plymouth U.), Chloe Newbury (Plymouth U.), Joseph Foster (Plymouth U.), Martin Farrington (Plymouth U.)
 16. **Using Smart Thermostat Data for Remote Monitoring**, Kirti Sundar Sahu (U. of Waterloo), Arlene Oetomo (U. of Waterloo), Raphael Nobrega (U. of Waterloo), Marc Ryan Ting (U. of Waterloo), Plinio Morita (U. of Waterloo)
 17. **Studio 1 Labs – User-Centered Evaluation of a Functional Bedsheet: Benefits, Change in the Routine, Impact, Behavior Change**, Laura Fadrique (U. of Waterloo), Yevgeniy Davletshin (U. of Waterloo), Olivia Y-H Lin (Studio 1 Labs), Edward S. Shim (Studio 1 Labs), Plinio Morita (U. of Waterloo)
 18. **Information Fragmentation in the Electronic Health Record: The Case of Pulmonary Embolism Diagnosis in the ED**, Yudi Wang (U. of Wisconsin-Madison), Brian Patterson (U. of Wisconsin-Madison School of Medicine and Public Health), Shashank Ravi (U. of Wisconsin-Madison School of Medicine and Public Health), Douglas Wiegmann (U. of Wisconsin-Madison), Ann Hundt (U. of Wisconsin-Madison), Peter Hoonakker (U. of Wisconsin-Madison), Peter Kleinschmidt (U. of Wisconsin-Madison School of Medicine and Public Health), Megan Salwei (U. of Wisconsin-Madison), Emily Wirkus (U. of Wisconsin-Madison), Pascale Carayon (U. of Wisconsin-Madison)
 19. **Parental Awareness of Schoolbag Carriage: A Comparative Study of Irish and United States Parents**, Karen Jacobs (Boston U.), Sara Dockrell (School of Medicine, Trinity College), Dagny Barclay (Boston U.), Sabrina Rodriguez (Boston U.)
 20. **Toward the Design of mHealth Technologies to Support Holistic Wellness Among Older Adults**, Christina Harrington (Georgia Inst. of Technology), Jon Sanford (Georgia Inst. of Technology), Wendy Rogers (U. of Illinois Urbana Champaign)
 21. **A Systematic Method for Using Critical Decision Method Interviews to Generate a Garden Path Scenario for Human-in-the-Loop Simulations for Training and Evaluation of New Technologies**, Laura Militello (Unveil, LLC), Christen Sushereba (Unveil, LLC), Simon Fernandez (Ohio State U.), David Bahner (Ohio State U.), Emily Patterson (Ohio State U.)
 22. **A Framework for Designing an Ergonomic Point of Care (POC) Cart for Medical Documentation Management**, Michelle Murphy (Partners Healthcare)
 23. **Design of a Multimodal Interface Solution to Facilitate Nonmedical User Mediation of TBI Screening Using Virtual Reality**, Michael Jenkins (Charles River Analytics), David Young (Charles River Analytics), Arthur Wollocko (Charles River Analytics)

HE-POS1 – Posters Reception

Hospital Environments Track

Monday, March 26, 4:30-6:00 p.m.

Posters/Reception

24. **Patient Decompensation and Alarm Technology: An Observational Study**, Chelsea R. Horwood (Ohio State U.), Michael F. Rayo (Ohio State U.), Morgan Fitzgerald (Ohio State U.), E. Asher Balkin (Ohio State U.), Susuan Moffatt-Bruce (Ohio State U.)
25. **Understanding the Noise: Categorizing the Impact of Clinical Workflow, Behavioral and Environmental Factors on Physiological Sensors**, Tracy Kim (National Center for Human Factors in Healthcare, MedStar Health), Kathryn Kellogg (National Center for Human Factors in Healthcare, MedStar Health), Matthew Nare (California State U.), Joseph Blumenthal (National Center for Human Factors in Healthcare, MedStar Health), Allan Fong (National Center for Human Factors in Healthcare, MedStar Health)
26. **Investigation of Ergonomic Guideline Awareness Among Surgeons**, Kiana Kia (Oregon State U.), Xinhui Zhu (Oregon State U.)
27. **The Influence of Spatial Layouts on the Frequency of Usage of Hand Sanitizing Stations in Health-Care Environments**, Jun Rong Jeffrey Neo (Cornell U.), Rana Sagha Zadeh (Cornell U.), Srisatish Devapatla (Cayuga Medical Center), Ramesh Vidavalur (Cayuga Medical Center)
28. **A Targeted Assessment of Hospitalists Simulation-Based Educational Needs**, Lisa Carney (Childrens Mercy Hospital), Chris Kennedy (Childrens Mercy Hospital)
29. **Participatory Redesign of a NICU Feeding Delivery System**, Leah Konwinski (Spectrum Health Helen DeVos Children's Hospital), Leanne Wendt (Spectrum Health Helen DeVos Children's Hospital)
30. **Collaborative Design: Interprofessional Perspectives on Incorporating Human Factors and Simulation in the Design and Renovation of Health-Care Facilities**, Jessica Ray (Yale New Haven Health), Stephanie Sudikoff (Yale New Haven Health), Smuckler Ben (Shepley Bulfinch), Peter Majewski (Bridgeport Hospital)
31. **Evidence-Based Sourcing: How to Select Health Care Products Using Human Factors Techniques**, Helen Fuller (Veterans Health Administration), Timothy Arnold (Veterans Health Administration), Tandi Bagian (Veterans Health Administration)
32. **Bringing the UX Momentum to Health-Care Facilities – Be a Part of It!** Shannon Halgren (Sage Research & Design), Jody Solem (Sage Research & Design)
33. **Communicating Effectively With Clinical End-Users About Desired Performance Outcomes**
34. **Assessing Nontechnical Skills in Gastrointestinal Endoscopy: Do Better Skills Improve Patient Outcomes?** Charlotte Hitchins (Plymouth Hospitals NHS Trust), Judy Edworthy (Plymouth U.), Magdalena Metzner (Plymouth Hospitals NHS Trust), Catherine Ward (Plymouth Hospitals NHS Trust)
35. **I'm Lost: An Evaluation of An Interactive Wayfinding System**, Tyler Duke (U. of Houston - Clear Lake), Angie Avera (U. of Houston - Clear Lake), Christy Harper (End To End User Research), Andrea Crosser (U. of Houston - Clear Lake), Spencer Jefferies (U. of Houston - Clear Lake)
36. **Understanding Medication Reconciliation in the Ambulatory Setting Using a Systems Approach**, Leah Konwinski (Spectrum Health Helen DeVos Children's Hospital), Emily D'Anna (Spectrum Health Helen DeVos Children's Hospital)
37. **Developing and Testing a Pediatric Resuscitation Memory Prompt**, Robert Schremmer (Children's Mercy Hospital)
38. **Future Scenarios: The Intersection of Design and Story**, Ryan Sohlden (Medtronic)
39. **Interruptions as Experienced by Attendings, Nurses, and Residents in the Emergency Department: A Comparison**, Hunter J. Hawthorne (Mayo Clinic), Katherine L. Forsyth (Mayo Clinic), Renaldo C. Blocker (Mayo Clinic)
40. **Developing Evidence-Based Ergonomics Guidelines for Med/Surg Patient Room Design to Meet the Needs of All Occupational Stakeholders, Patients, and Visitors**, Steven Lavender (Ohio State U.), Carolyn Sommerich (Ohio State U.), Elizabeth Sanders (Ohio State U.), Kevin Evans (Ohio State U.), Jing Li (Ohio State U.), Emily Patterson (Ohio State U.)
41. **Macro-cognition: A Framework for Optimal ICU Design and Interprofessional Team Interactions - From Method to Theory Development – mHCBE**, Susan O'Hara (Clemson U.), Emily S. Patterson (Ohio State U.), Robin Toft Klar (New York U.), Jim Fackler (Johns Hopkins U. School of Medicine), Judy Ascenzi (Johns Hopkins Hospital)
42. **Feasibility and Acceptability of Text Messaging as a Supplementary Channel of Communication Between Parents and NICU Staff**, Hernan Sierra (UIC), Michelle Cora (UIC), Jose Urbina (UIC), Paula Zafra (UIC), Susie Kim (UIC), Ben Gerber (UIC)
43. **The Potential Impact of Hospital Service Robots on Hospital Workflow**, Andrea Thomaz (Diligent), Agata Rozga (Diligent), Margaret Cunningham (Diligent)

MDD-POS1 – Posters/Reception

Medical and Drug-Delivery Devices Track

Monday, March 26, 4:30-6:00 p.m.

Posters/Reception

44. **Broaden Your Market: Follow Accessibility Standards**, Molly Story (Sanofi), Melissa Lemke (Agilis Consulting Group)
45. **Developing and Testing User Interface Requirements**, Tara Feuerstein (Farm Design), Kelly GordonVaughn (Farm Design)
46. **Medical Device Sound Design: Impacts and Approaches**, Katie Mowery (Priority Designs), Eddie Gandelman (Priority Designs)
47. **Overcoming Hospital Access Issues to Benefit Medical Device Design**, Natalie Abts (MedStar Inst. for Innovation), Rebecca Butler (MedStar Inst. for Innovation), Bidisha Roy (MedStar Inst. for Innovation, MedStar Health)
48. **Anatomy of a Good Use Error Risk Assessment (UERA)**, Wende Dewing (Usensus LLC), Elizabeth Volk (Phillips-Medisize, LLC)
49. **How “Smart” Are IV Smart Pumps?** Karen Giuliano (Northeastern U.), Kristi Campoe (Pasco-Hernando State College), Kristy Fitzgerald (Adventist Health Central Valley Network)
50. **An Autoinjector Hold Time Formative Study for Immunology Patients**, Kevin Cluff (AbbVie), Chuan Li (AbbVie), Bryan Manis (GfK)
51. **Challenges and Solutions in Home Care Human Factors**, Russell Branaghan (Arizona State U.), Molly Story (Sanofi), Angela Muriset (Shire), Sami Durrani (Fresenius Medical Care), Keith Karn (Human Factors in Context LLC)
52. **Anticipating and Addressing Sources of Transfer in the Design Process**, Matthew Marber (UL-Wiklund), Limor Hochberg (UL-Wiklund), Merrick Kossack (UL-Wiklund)
53. **Color, Typography, and Composition: Effective Design for Medical Device User Documents**, Isabel Campos-Noonan (UL-Wiklund), Kyle Carbone (UL-Wiklund)
54. **Maximizing the Benefits of Contextual Inquiry**, Chris White (Kinneir Dufort)
55. **Expert Elicitation of Use Error Probabilities for Combination Product Risk Assessment**, Nicholas Zampa (Biogen)
56. **Team Communication: A Persistent Problem Across Hospital Environments**, Emily Hildebrand (Research Collective), Matthew Johnson (Children's Mercy Kansas City), Elizabeth Lazzara (Embry-Riddle Aeronautical U.), Katherine Forsyth (Mayo Clinic)
57. **Interaction With a Semi-Automated Hearing Aid: A Field Study**, Qi Yang (GN Advanced Science),

Shira Hahn (Aural Analytics, LLC), Bill Chang (GN Advanced Science), Gregory Olsen (GN Advanced Science)

58. **Balancing Aesthetics and Usability in Medical Device User Interface Design**, Valerie Ng (UL-Wiklund), Jon Tilliss (UL-Wiklund)
59. **Fine Tuning Heuristic Evaluations for Medical Devices of all Shapes and Sizes**, David Powers (Ximedica), Susan McDonald (Ximedica), Meredith Schwarz (Ximedica)

PSRI-POS1 – Posters/Reception

Patient Safety Research and Initiatives Track

Monday, March 26, 4:30-6:00 p.m.

Posters/Reception

60. **Identifying and Classifying Flow Disruptions in Perioperative Orthopedic Care**, Jordan Hilgers (Embry-Riddle Aeronautical U.), Tracy Litzinger (Flagler College), Timothy Disher (Embry-Riddle Aeronautical U.), Victoria Lew (Embry-Riddle Aeronautical U.), Cristina Roy (Embry-Riddle Aeronautical U.), Allison Larsen (Embry-Riddle Aeronautical U.), Brett Nalezinski (Embry-Riddle Aeronautical U.), Albert Boquet (Embry-Riddle Aeronautical U.)
61. **VET Education and Prevention**, Kristen Webster (Johns Hopkins U.), Elliott Haut (Johns Hopkins U.), Michael Streiff (Johns Hopkins U.), Brandyn Lau (Johns Hopkins U.), Dauryne Shaffer (Johns Hopkins U.), Peggy Kraus (Johns Hopkins U.)
62. **A Systems Approach to Designing Safer Opioid Prescribing Processes in Primary Care**, Annie Shutt (Healthcare Systems Engineering Inst. of Northeastern U.), James Benneyan (Healthcare Systems Engineering Inst. of Northeastern U.)
63. **Evaluating Clinical Decision Support in Emergency Medical Services**, Logan Gisick (Embry-Riddle Aeronautical U.), Barbara Chaparro (Embry-Riddle Aeronautical U.), Tiffany Leverenz (Wichita State U.), Paul Misasi (Wichita State U.)
64. **Effects of Communication Processes on Handoff Efficiency**, Kristen Webster (Johns Hopkins U.), Elizabeth Lazzara (Embry-Riddle Aeronautical U.), Joseph Keebler (Embry-Riddle Aeronautical U.)
65. **Assessing the Usability and Cognitive Load of an Electronic Safety Dashboard in the Context of Opioid Prescribing: Preliminary Results**, Theresa Fuller (Brigham And Women's Hospital), Pamela M. Neri (Partners Healthcare Information Systems), Demetri Lemonias (Northeastern Healthcare Systems Engineering), Elizabeth Harry (Brigham and Women's Hospital), Jeffrey L. Schnipper (Brigham and Women's Hospital), Erin Joyce (Northeastern Healthcare Systems Engineering), Thomas Martell (Northeastern Healthcare Systems Engineering),

- Nicole Nehls (Northeastern Healthcare Systems Engineering), David W. Bates (Brigham and Women's Hospital), Anuj K. Dalal (Brigham and Women's Hospital), James C. Benneyan (Northeastern Healthcare Systems Engineering)
66. **Investigating Drivers of Clinician Workload in the Emergency Department: An Exploratory Study**, Natalie Benda (MedStar Health), Joseph Blumenthal (MedStar Health), Aaron Hettinger (MedStar Health), Daniel Hoffman (MedStar Health), Ella Franklin (MedStar Health), David Lavergne (State U. of New York at Buffalo), Emilie Roth (Roth Cognitive Engineering), Shawna Perry (U. of Florida - College of Medicine), Ann Bisantz (State U. of New York at Buffalo)
 67. **Using HFACS-Healthcare to Investigate Near-Miss Events During Surgery**, Tara Cohen (Cedars-Sinai Medical Center), Sarah Francis (Cedars-Sinai Medical Center), Doug Wiegmann (U. of Wisconsin - Madison), Bruce Gewertz (Cedars-Sinai Medical Center)
 68. **These Aren't the Triads You're Looking For: Updating Clinician Mental Models of Acute Spinal Cord Compression**, Christine Jefferies (MedStar Inst. for Innovation), Danielle Mosby (MedStar Inst. for Innovation), Rebecca Kowalski (MedStar Inst. for Innovation), Joseph Blumenthal (MedStar Inst. for Innovation), Allan Fong (MedStar Inst. for Innovation), Susan O'Mara (MedStar Washington Hospital Center), Rollin J. Fairbanks (MedStar Inst. for Innovation), Kristen Miller (MedStar Inst. for Innovation)
 69. **From Safety-I to Safety-II: Using Systems Engineering to Redesign a Hospital Care to Home Care Transition Process**, Ashley Holmes (Northeastern U.), James Benneyan (Northeastern U.)
 70. **Using Systems-Theoretic Process Analysis (STPA) to Design Safer Opioid Prescribing Processes** Basma Bargal (Healthcare Systems Engineering Inst.), Joseph Eisner (Healthcare Systems Engineering Inst.), Margo Jacobsen (Healthcare Systems Engineering Inst.), Alev Atalay (BWH), James Benneyan (Healthcare Systems Engineering Inst.)
 71. **It's Like Scanning the Spoon: Problems and Interventions in Insulin Pen Safety**, Susan Harkness Regli (U. of Pennsylvania Health System), Suzanna Ho (U. of Pennsylvania Health System), Margaret Yoho (U. of Pennsylvania Health System), Ilona Lorincz (U. of Pennsylvania Health System), Rebecca Stamm (U. of Pennsylvania Health System), Melissa Hibbs (U. of Pennsylvania Health System), Terese Kornet (U. of Pennsylvania Health System)
 72. **Examples and Experiences Using FMEA to Design Better Healthcare Processes**, Ashley Holmes (Northeastern U.), Demetri Lemonias (Northeastern U.), Melissa Cyr (Northeastern U.), James Benneyan (Northeastern U.)
 73. **Identifying Improvements in Healthcare System Engineering Models for Chronic Care and Precision Medicine Applications**, Michelle Jahn (Purdue U.), Siobhan Heiden (Purdue U.), Barrett Caldwell (Purdue U.)
 74. **Now What? Determining and Implementing Solutions Post STS Analysis**, Vicki Lewis (Healthcare Safety Strategies, LLC), Andrea Fantegrossi (Brigham and Women's Hospital), Jeremiah Schuur (Brigham and Women's Hospital)
 75. **Translating Error Detection Into Patient Safety Action**, Isaac Lynch (UT Southwestern Medical Center)
 76. **The Effects of Occupational Fatigue on Patient Handling Tasks Among Nurses and Patient Handlers**, Adam Piper (South Dakota School of Mines & Technology), Lauren Estridge-Zwanzig (South Dakota School of Mines & Technology)
 77. **Usability and Effectiveness of Medial Checklist Designs**, Anna Clebone (U. of Chicago), Barbara Burian (NASA Ames Research Center)
 78. **Using Cooperative Advocacy to Resolve Conflicts Between Functionally Distinct Groups: A Mixed-Methods Approach to Tailoring Evidence-Based Guidance for Antibiotic Stewardship to a Hospital**, Emily Patterson (Ohio State U.), Courtney Dewart (Ohio State U.), Kurt Stevenson (Ohio State U.), Mark Lustberg (Ohio State U.), Erinn Hade (Ohio State U.), Nirav Shah (Northshore U. Health System), Courtney Hebert (Ohio State U.)
 79. **Applications of Psychophysiological Measures in Clinical Settings: Studies in Simulation, Surgery, and the Lab**, Sarah Henrickson Parker (Virginia Tech Carilion Research Inst.), Lauren Kennedy (Virginia Tech Carilion Research Inst.), Scott Pappada (U. of Toledo), Nathan Lau (Virginia Tech), Thomas Papadimos (U. of Toledo College of Medicine and Life Sciences)
 80. **Examining the Event Review Process From a Patient Safety Professional's Point of View at MedStar Health**, Jessica Howe (MedStar Health), Andrew Stets (MedStar Health), Kathryn Kellogg (MedStar Health)
 81. **Fall Proxy Identification With Biomechanical Characterization of Corrective Behaviors and Implications for Health Care for the Frail Elderly**, Dorothy Taylor (U. of Utah), Andrew Merryweather (U. of Utah), Janice Morse (U. of Utah)
 82. **Improved Usability of a Multi-Infusion Setup Using a Centralized Control Interface**, Frank Doesburg (U. Medical Center Groningen)
 83. **Simulation as a Tool to Support Adaptive Capacity at the Frontline**, Mary Patterson (Children's National

Medical Center), Ellen Deutsch (ECRI/ Pennsylvania Safety Authority)

84. **Are EMS Providers Willing to Ride in a Self-Driving Ambulance?** Joseph Keebler (Embry-Riddle Aeronautical U.), Stephen Rice (Embry-Riddle Aeronautical U.), Scott Winter (Embry-Riddle Aeronautical U.)
85. **Application of a SHERPA-Based Safety Case Methodology for Managing Risks in Healthcare**

Medication Pathways, David Embrey (Human Reliability Associates)

86. **An Objective Method to Pain Measurement Based on Physiological Signals**, Yingzi Lin (Northeastern U.), Yan Xiao (U. of Texas at Arlington), Li Wang (Northeastern U.), Anas Abou Allaban (Northeastern U.), Richard Dutton (US Anesthesia Partners), Michael Ramsay (Baylor U. Medical Center), Richard Urman (Brigham and Women's Hospital)

TUESDAY, MARCH 27

CCIT4 - Addressing Alarm Fatigue and Information Overload

Clinical and Consumer Health-Care IT Track

Tuesday, March 27, 8:30-10:00 a.m.

Lecture Session

Chair: Wayne Giang (University of Toronto)

1. **Updating an International Medical Device Standard: A Process for Audible Alarms**, Judy Edworthy (Psychology), Richard Mcneer (U. of Miami), Christopher Bennett (U. of Miami), Roman Dudaryk (U. of Miami)
2. **Combating Alarm Fatigue in Medicine**, Trent Bryson (UT Southwestern)
3. **EHR Copy and Paste: What Have We Learned and What Can We Do?** Lana Lowry (National Inst. of Standards and Technology), Mala Ramaiah (National Inst. of Standards and Technology)

HE4 - Systems Engineering

Hospital Environments Track

Tuesday, March 27, 8:30-10:00 a.m.

Lecture Session

1. **The Dirty Human Factors of Reprocessing: Best Practices in Design, IFU, and Testing**, Russell Branaghan (Arizona State U. & Research Collective)-Chair, Anthony Andre (Interface Analysis Associates), Stephanie Seraphina (Intuitive Surgical, Inc.), Emily Hildebrand (Research Collective), Hanniebey Wiyor (FDA)
2. **Resilience Engineering: Evidence in the Health Care Setting**, Renaldo C. Blocker (Mayo Clinic)-Chair, Katherine L. Forsyth (Mayo Clinic), Elizabeth A. Lay (Applied Resilience), Shawna J. Perry (U. of Florida-Jacksonville)

MDD4 - Human Factors in Design Process

Medical and Drug-Delivery Devices Track

Tuesday, March 27, 8:30-10:00 a.m.

Lecture Session

Chairs: Audra Wright (Halyard Health) and Keith Karn (Human Factors in Context LLC)

1. **Making Human Factors Affordable for Medical Device and Global Health Start-Ups**, Elizabeth Johansen (Spark Health Design, LLC)
2. **Tackling the Daunting Task of Evaluating Legacy Devices for Compliance to IEC:62366-1:2015 per Annex C**, Staci Bienenfeld (Ximedica), Maria Swenson (Ximedica)
3. **Fast Thinking, Slow Thinking, and Good Design: Are We Doing Enough to Apply the Learnings From Behavioral Economics to Medical Device Design?** Elizabeth Roche (Ximedica)

PSRI4 - Root Cause Analysis: The HFE Practitioner's Journey from Individual Blame to System Fixes

Patient Safety Research and Initiatives Track

Tuesday, March 27, 8:30-10:00 a.m.

Panel Session

- A. Joy Rivera (Children's Hospital of Wisconsin), Adjhaporn Khunlertkit (Bumrungrad International Hospital), Andrea Cooks (Cincinnati Children's), Shanjing Yin (KK Women's & Children's Hospital, Singapore), Grace M. Tran (National Center for Human Factors in Healthcare, MedStar Inst. for Innovation), Kathryn M. Kellogg (National Center for Human Factors in Healthcare, MedStar Inst. for Innovation), Mary Patterson (Children's National Medical Center), Ellen S Deutsch (Pennsylvania Patient Safety Authority and Children's Hospital of Philadelphia), Joseph R. Keebler (Embry-Riddle Aeronautical U.), Elizabeth Lazzara (Embry-Riddle Aeronautical U.), Elizabeth Blickensderfer (Embry-Riddle Aeronautical U.), Thomas D. Looke (Florida Hospital)

CCIT5 - eHealth and mHealth

Clinical and Consumer Health-Care IT Track

Tuesday, March 27, 10:30 a.m.-12:00 p.m.

Lecture Session

Chair: Ashley Hughes (University of Illinois)

1. **Evaluating Provider Use and Perceptions of a New Electronic Clinical Decision Support Mobile Application for Febrile Infant Decisions**, Tiffany Leverenz (Wichita State U.), Sarah Fouquet (Children's Mercy Kansas City), Ellen Kerns (Children's Mercy Kansas City), Russell McCulloh (Children's Mercy Kansas City)
2. **Nursing Student Remote Performance Assessment Using a Novel Smartphone Application**, Uwe Reischl (Boise State U.), Olga Salinas (Boise State U.), Ron Oberleitner (Behavior Imaging, Inc.), Budimir Mijovic (U. of Zagreb)
3. **The Barriers and Opportunities Identified in Commercializing eHealth and mHealth Technology in Canada From a Human Factors Perspective**, Dia Rahman (U. of Waterloo), Eman Alanazi (Saudi Electronic U.), Plinio Morita (U. of Waterloo)

HE5 - Interruptions and Environments

Hospital Environments Track

Tuesday, March 27, 10:30 a.m.-12:00 p.m.

Lecture Session

Chair: Matt Johnson (Children's Mercy Kansas City)

1. **Interruptions Increase Time and Decrease Accuracy of Chest Radiograph Interpretation**, Rachel Wynn (MedStar Health Research Inst.), Jessica Howe (MedStar Health Research Inst.), Linda Kelahan (Georgetown U. Medical Center), Allan Fong (MedStar Health Research Inst.), Ross Filice (Georgetown U. Medical Center), Raj Ratwani (MedStar Health Research Inst.)
2. **Perceptions of Interruptions in the Emergency Department**, Katherine Forsyth (Mayo Clinic), Hunter Hawthorne (Mayo Clinic), Renaldo Blocker (Mayo Clinic)
3. **Optimizing Electronic Medical Record User Experience: A Human Factors Approach to Hardware Assessment and Design for Inpatient and Emergency Units**, Catherine Dulude (Campbell) (Children's Hospital of Eastern Ontario (CHEO) & Ottawa Children's Treatment Centre (OCTC)), Chantal Trudel (Carleton U.), W. James King (Children's Hospital of Eastern Ontario (CHEO) & Ottawa Children's Treatment Centre (OCTC)), Karen Macaulay (Children's Hospital of Eastern Ontario (CHEO) & Ottawa Children's Treatment Centre (OCTC)), Jennifer Gillert (Children's Hospital of Eastern Ontario (CHEO) & Ottawa Children's Treatment Centre (OCTC)), Leilla Czunyi (Carleton U.), Sanaz Hafezi (Carleton U.)

MDD5 - User Research in Device Design

Medical and Drug-Delivery Devices Track

Tuesday, March 27, 10:30 a.m.-12:00 p.m.

Lecture Session

Chairs: Sami Durrani (Fresenius Medical Care) and Tressa Daniels (Becton, Dickinson & Company)

1. **Tracking the User Over Time: How to Effectively Design for a Longitudinal Study and Best Practices for Observing in the Operating Room**, Kristyn Berry (Farm Design), Laurie Reed (Farm)
2. **Conducting User Research in Emerging Markets**, Taryn Amatruda (Cambridge Consultants), Maureen Halligan (Cambridge Consultants)
3. **Contextual Inquiry That Doesn't Break the Bank**, Lindsay Carrabine (Design Science), Peter Sneeringer (Design Science)

PSR15 - Optimizing Team Performance and Resource Level in Diverse Healthcare Contexts: From Surgery in Rwanda to Medical Event Management in Deep Space

Patient Safety Research and Initiatives Track

Tuesday, March 27, 10:30 a.m.-12:00 p.m.

Panel Session

Chair: Steven Yule (Harvard Medical School/Brigham & Women's Hospital)

Panelists: Thoralf Sundt III (Harvard Medical School/ Massachusetts General Hospital), Roger Dias (Harvard Medical School/ Brigham & Women's Hospital), David Meguerdichian (Harvard Medical School/ Brigham & Women's Hospital), Jamie Robertson (Harvard Medical School/ Brigham & Women's Hospital), and David Musson (Northern Ontario School of Medicine)

CCIT6 - New Paradigms for Care Provision Using HIT

Clinical and Consumer Health-Care IT Track

Tuesday, March 27, 1:30-3:00 p.m.

Lecture Session

Chair: Kristen Miller (Medstar)

1. **How I Learned to Stop Worrying & Love My Robot Doctor**, Juhan Sonin (MIT, goinvo)
2. **Information Technology Gaps in Primary Care Management of Chronic Pain**, Shilo Anders (Vanderbilt U. Medical Center), Laura G. Militello (Applied Decision Science), Sarah M. Downs (Indiana U.), Robert W Hurley (Wake Forest School of Medicine), Robert L Cook (U. of Florida), Elizabeth C Danielson (Indiana U.), Christopher A. Harle (Indiana U.)
3. **Role of Human Supervisors in Smarter Cold Chains**, Luca Bertuccelli (Sensitech)
4. **Personal Health Records Buck Traditional Medical Culture**, Melinda Jenkins (Rutgers U.), Melinda Jenkins (Rutgers U.)

HE6 - Decision Making

Hospital Environments Track

Tuesday, March 27, 1:30-3:00 p.m.

Panels

1. **It Takes a Village: Development, Dissemination, and Adoption of a Pediatric Decision Support Tool**, Sarah Fouquet (Children's Mercy Kansas City)-Chair, Angela Cunningham (Children's Mercy Kansas City), Robert Schremmer (Children's Mercy Kansas City), Ellen Kerns (Children's Mercy Kansas City)
2. **Macro-cognition in the Health Care Built Environment: A New Model for Emergency Response Extending Macro-cognition Results in the Inpatient Setting to the Mexico 2017 Earthquake Disaster**, Susan O'Hara (Clemson U.)-Chair, Nathan J. McNeese (Clemson U.), Robin Toft Klar (New York U.), Laura Chavira-Razo (National Inst. of Public Health Mexico), Zafiro Andrade-Romo (National Inst. of Public Health Mexico)

MDD6 - Usability Testing

Medical and Drug-Delivery Devices Track

Tuesday, March 27, 1:30-3:00 p.m.

Lecture Session

Chairs: Korey Johnson (GfK) and Evan Edwards

1. **Testing in Medical Device Acquisition: Beyond Usability**, Jason Flint (Air Force Medical Evaluation Support Activity), Aaron Nelson (Air Force Medical Evaluation Support Activity), Dana Miletic (Air Force Medical Evaluation Support Activity)
2. **Order Effect When Comparing Usability of Two Telehealth Remote Monitoring Solutions**, Juuso Leinonen (ECRI Inst.), Erin Sparnon (ECRI Inst.), Patrice Tremoulet (Rowan U.)
3. **Can We Combine Human Factors Validation and Clinical Testing to Save Time & Resources?** Shannon Clark (UserWise, Inc.), Denise Forkey (UserWise, Inc.)

PSRI6 - The Role of the Patient in Patient Safety

Patient Safety Research and Initiatives Track

Tuesday, March 27, 1:30-3:00 p.m.

Panel Session

Chairs: Richard Holden (Indiana U. - Purdue U.

Indianapolis), Rupa Valdez (U. of Virginia), Elizabeth Papautsky (U. of Illinois at Chicago)

Panelists: Jeffery Belden (U. of Missouri Health, School of Medicine), Dean Karavite (The Children's Hospital of Philadelphia), Jenna Marquard (U. of Massachusetts Amherst), Robin Mickelson (Vanderbilt U.), Matthew Weinger (Vanderbilt U. Medical Center)

CCIT7 - Distributed Cognition for Improving Cancer Care Coordination

Clinical and Consumer Health-Care IT Track

Tuesday, March 27, 3:30-4:30 p.m.

Panel Session

Chair: Brian Hazlehurst (Kaiser Permanente Northwest)

Panelists: Gurvaneet Randhawa (National Cancer Inst.), Yan Xiao (U. of Texas at Arlington), Paul Gorman (Oregon Health & Science U.)

HE7 - Research

Hospital Environments Track

Tuesday, March 27, 3:30-4:30 p.m.

Lecture Session

Chair: Bryant Foster (Research Collective)

1. **Making the Most of Rapid Field Research: A Case Study in Acute Care**, Derek Dumolo (Cambridge Consultants), Adrienne Jones (Cambridge Consultants)
2. **Examining Different Task-Based Layouts of an Anesthesia Workstation Based on Task Relationships and Task Sequencing**, Katherina Jurewicz (Clemson U.), David Neyens (Clemson U.)

MDD7 - Latest Advances in Human Factors for Surgical Robots

Medical and Drug-Delivery Devices Track

Tuesday, March 27, 3:30-4:30 p.m.

Panel Session

Chair: Beth Loring (Loring Human Factors, LLC)

Panelists: Robert J. Stephens (Medtronic), Doug Teany (Corindus Vascular Robotics), Kate Knudsen (Intuitive Surgical)

PSRI7 - Topics in Trauma

Patient Safety Research and Initiatives Track

Tuesday, March 27, 3:30-4:30 p.m.

Lecture Session

Chairs: Ashley Hughes (U. of Illinois at Chicago), Natalie Benda (National Center for Human Factors in Healthcare)

1. **Multilevel, Multidiscipline, and Temporally Diverse Handoffs in Traumatic Brain Injury Rehabilitation**, Siobhan Heiden (Purdue U.), Barrett Caldwell (Purdue U.)
2. **Methodology for Systematically Developing Data Driven Interventions in Trauma Care**, Victoria Lew (Embry-Riddle Aeronautical U.), Tracy Litzinger (Flager College), Timothy Disher (Embry-Riddle Aeronautical U.), Tara Cohen (Cedars-Sinai Medical Center), Jennifer Cabrera (Embry-Riddle Aeronautical U.), Kevin Captain (Florida Hospital), Albert Boquet (Embry-Riddle Aeronautical U.)
3. **Trauma Resuscitation Using in Situ Simulation Team Training (TRUST): Identifying Latent Safety Threats via a Human Factors Informed**

Framework Analysis of Video Recordings, Mark Fan (North York General Hospital), Andrew Petrosoniak (St. Michael's Hospital), Sonia Pinkney (U. Health Network), Christopher Hicks (St. Michael's Hospital), Kari White (St. Michael's Hospital), Ana Paula Siquiera Silva Almeida (Universidade Federal de Itajuba', Itajuba'), Douglas Campbell (St. Michael's Hospital), Melissa McGowan (St. Michael's Hospital), Alice Gray (St. Michael's Hospital), Rodrigo Almeida (Universidade Federal de Itajuba', Itajuba'), Patricia Trbovich (North York General Hospital)

CCIT-POS2 – Posters/Reception

Clinical and Consumer Health-Care IT Track

Tuesday, March 27, 4:30-6:00 p.m.

Posters/Reception

1. **Modeling the Problem Space of Smartphone Assisted Insulin Dose Self-Titration Interventions Targeting Patients With Type 2 Diabetes: A Human Factors Approach**, Hamzah Ibrahim (Claremont Graduate U.)
2. **A Linguistic Approach for Facilitating Interpretation of HFES Proceedings: An Efficient Method for Real-Time Literature Review**, Tim Arnold (VA), Helen Fuller (VA)
3. **Real-World Methods to Improve EHR Usability: Creating a Change Package Toolkit**, Aaron Zachary Hettinger (National Center for Human Factors in Healthcare, MedStar Health), Katharine Adams (National Center for Human Factors in Healthcare, MedStar Health), Jonathan Wald (RTI International), Laura Marcial (RTI International), Tracy Kim (National Center for Human Factors in Healthcare, MedStar Health), Stephanie Rizk (RTI International), Anita Samarth (Clinovations Government + Health), Rollin J Fairbanks (National Center for Human Factors in Healthcare, MedStar Health), Raj Ratwani (National Center for Human Factors in Healthcare, MedStar Health)
4. **Virtual Environments as a Rehabilitation Intervention for Topographical Disorientation in Memory-Impaired Individuals: A Scoping Review**, David Gafni (U. of Toronto)
5. **Assessing Interaction Strategies for Health IT: An Entropy Based Approach**, Xiaomei Wang (U. at Buffalo), Rebecca Berg (U. at Buffalo), Nicolette McGeorge (Johns Hopkins U.), David LaVergne (U. at Buffalo), Natalie Benda (MedStar Health), Ann Bisantz (U. at Buffalo)
6. **Making Sense of Complexity: Using Causal Loop Diagramming in a Healthcare Context**, Athina Santaguida (Healthcare Human Factors), Kathy Huynh (Healthcare Human Factors), Julian Goss (Baycrest Hospital), Mike Lovas (Healthcare Human Factors), Joseph A. Cafazzo (Healthcare Human Factors, U. Health Network)
7. **Simulation-Based Usability Testing Methods Support Nurses' Safe Transition Between Bar-Code Medication Administration Systems**, Carrie Reale (Vanderbilt U. Medical Center), Deborah Ariosto (Vanderbilt U. Medical Center), Matthew B. Weinger (Vanderbilt U. Medical Center), Shilo Anders (Vanderbilt U. Medical Center)
8. **Supporting Older Adults' Trust in Care Providers: Same for a Human or Robot Care Provider?** Rachel Stuck (Georgia Inst. of Technology), Wendy Rogers (U. of Urbana-Champaign)
9. **Use and Acceptance of Mobile Technologies in Health Care**, Sarahfaye Dolman (MedStar Health Research Inst.), Kristen Miller (MedStar Health System), Susan Smola (Christiana Care Health System), Rebecca Kowalski (U. of Delaware)
10. **Designing Technologies for Caregivers in Pregnancy**, Shilo Anders (Vanderbilt U. Medical Center), Hannah Arron (Vanderbilt U. Medical Center), Gretchen P. Jackson (Vanderbilt U. Medical Center), Laurie L. Novak (Vanderbilt U. Medical Center)
11. **Patient Perception of Interactive Mobile Health Care Apps: A Regression Analysis**, Emily Anania (Embry Riddle Aeronautical U.), Mattie Milner (Embry Riddle Aeronautical U.), Nathan Walters (Embry Riddle Aeronautical U.), Stephen Rice (Embry Riddle Aeronautical U.)
12. **EHR-Supported Activities for VTE Prophylaxis: A Case Study**, Megan Salwei (Department of Industrial and Systems Engineering, U. of Wisconsin - Madison), Peter Kleinschmidt (School of Medicine and Public Health, U. of Wisconsin - Madison), Ann Hundt (U. of Wisconsin - Madison), Peter Hoonakker (U. of Wisconsin - Madison), Brian Patterson (School of Medicine and Public Health, U. of Wisconsin - Madison), Pascale Carayon (Department of Industrial and Systems Engineering, U. of Wisconsin - Madison)
13. **A Paradigm Shift: Design and Testing of an Innovative Computerized Provider Order Entry System**, Pamela Neri Garabedian (Partners HealthCare System, Inc.), Isabella Newbury (Brigham and Women's Hospital), Alejandra Salazar (Brigham and Women's Hospital), Kevin Kron (Partners HealthCare System, Inc.), Katherine Forsythe (Partners HealthCare System, Inc.), Aaron W. Nathan, (Brigham and Women's Hospital), Samuel Karmiy (Partners HealthCare System, Inc.), Sara Myers (Brigham and Women's Hospital), Lynn A. Volk (Partners HealthCare System, Inc.), Mary G. Amato (Massachusetts College of Pharmacy and Health Sciences), Adam Wright (Brigham and Women's Hospital), Tewodros Eguale (Massachusetts College

of Pharmacy and Health Sciences), Sarah McCord (Massachusetts College of Pharmacy and Health Sciences), Rosa Rodriguez Monguio (Brigham and Women's Hospital), David W. Bates (Brigham and Women's Hospital), Gordon D. Schiff, (Brigham and Women's Hospital)

14. **Involving Patients to Improve Documentation Accuracy: A New EHR Screen Design**, Onur Asan (Medical College of Wisconsin), Bradley Crotty (Medical College of Wisconsin), Jeanne Tyszka (Medical College of Wisconsin)
15. **Designing Effective Dashboards for Healthcare Providers, Patients, and Family Caregivers to Patients With Diabetes**, Jennifer Teves (Veritas Technologies), Barbara Chaparro (Embry-Riddle Aeronautical U.), Alex Chaparro (Embry-Riddle Aeronautical U.)
16. **Cognitive Task Analysis of a Primary Care Team: Exploring Cognitive Requirements for Addressing Preventive Care**, Shimeng Du (U. of Wisconsin-Madison), Douglas Wiegmann (U. of Wisconsin-Madison), Randi Cartmill (U. of Wisconsin-Madison), Amanda Hoffmann (U. of Wisconsin-Madison), Linsey Steege (U. of Wisconsin-Madison), Laura Farrell (U. of Wisconsin-Madison), Tosha Wetterneck (U. of Wisconsin-Madison)
17. **Human Computer Interaction Trends in Healthcare: An Update and Call to Action**, Kimberly Stowers (U. of Alabama), Mustapha Mouloua (U. of Central Florida)
18. **Lost in Translation: Factors Influencing Successful Implementation of Evidence-Based Guidelines Into Clinical Decision Support**, Christopher Saikalis (National Center for Human Factors in Healthcare, MedStar Health), Danielle Mosby (National Center for Human Factors in Healthcare, MedStar Health), Rebecca Kowalski (National Center for Human Factors in Healthcare, MedStar Health), Kristen Miller (National Center for Human Factors in Healthcare, MedStar Health)
19. **Using a Narrative Format and Sociotechnical Systems Approach to Perform a User-Centered Problem Analysis of the HIT in Present-Day Clinical Environments**, Kurt Ruark (VHA), Danielle Hoover (VHA), Jennifer Herout (VHA)
20. **Exploring Primary Care RN & MA Cognitive Needs for EHR Design: A Qualitative Analysis**, Laura J. Farrell (U. of Wisconsin-Madison), Linsey M. Steege (U. of Wisconsin-Madison), Douglas A. Wiegmann (U. of Wisconsin-Madison), Randi S. Cartmill (U. of Wisconsin-Madison), Amanda E. Hoffmann (U. of Wisconsin-Madison – School of Medicine and Public Health), Shimeng Du (U. of Wisconsin-Madison), Tosha B. Wetterneck (U. of Wisconsin-Madison)

21. **All Hands on Deck: Health IT Usability and Safety Challenges During Medication Reconciliation**, Lana Lowry (National Inst. for Standards and Technology), Mala Ramaiah (National Inst. for Standards and Technology), Danielle Mosby (National Center for Human Factors in Healthcare, MedStar Health), Kristen Miller (National Center for Human Factors in Healthcare, MedStar Health), Bidisha Roy (National Center for Human Factors in Healthcare, MedStar Health), Raj Ratwani (National Center for Human Factors in Healthcare, MedStar Health)

HE-POS2 – Posters/Reception

Hospital Environments Track

Tuesday, March 27, 4:30-6:00 p.m.

Posters/Reception

22. **Participatory Redesign of an Online Catalog for Laboratory Testing**, Leah Konwinski (Spectrum Health Helen DeVos Children's Hospital), Hayley Goward (Spectrum Health Helen DeVos Children's Hospital)
23. **Establishing the Key Nontechnical Skills in Gastrointestinal Endoscopy: A Qualitative Study**, Charlotte Hitchins (Plymouth Hospitals NHS Trust), Judy Edworthy (Plymouth U.), Julie Griffin (Plymouth U.), Magdalena Metzner (Plymouth Hospitals NHS Trust), Catherine Ward (Plymouth Hospitals NHS Trust)
24. **ShadowBox Training to Advance Nursing Expertise: A Demonstration Project**, Helen Altman Klein (MacroCognition LLC), Emily Newsome (ShadowBox LLC)
25. **Designing Wayfinding Systems for Hospitals**, Christy Harper (End to End User Research), Angie Avera (U. of Houston - Clear Lake), Andrea Crosser (End to End User Research), Tyler Duke (U. of Houston-Clear Lake), Spencer Jefferies (End to End User Research)
26. **The Pediatric Psychosocial Environment: How Psychosocial Risk Factors Are Associated With MSD Pain and Functional Consequences**, Francesca Macaluso (Cincinnati Children's Hospital Medical Center), Nancy Daraiseh (Cincinnati Children's Hospital Medical Center), Lauren Summerville (Cincinnati Children's Hospital Medical Center), Maurizio Macaluso (Cincinnati Children's Hospital Medical Center)
27. **Use Preferences for Continuous Cardiac and Respiratory Monitoring Systems in Hospitals: A Survey of Patients and Family Caregivers**, Emily Patterson (Ohio State U.), Chris Hritz (Ohio State U.), Liya Gebru (Ohio State U.), Kashvi Patel (Ohio State U.), Todd Yamokoski (Ohio State U.), Susan Moffatt-Bruce (Ohio State U.)

28. **Information Exchange in the Operating Room: Task Analysis and Multimodal Design Concepts**, Noemi Bitterman (Technion)
 29. **Preliminary Analysis of Surgeon Body Posture and Musculoskeletal Risk Based on Patient Positioning During Microsurgical Breast Reconstruction**, Jordyn Koenig (Mayo Clinic), Amro Abdelrahman (Mayo Clinic), Chris Curry (Mayo Clinic), Anita Mohan (Mayo Clinic), Valerie Lemaine (Mayo Clinic), Shelley Noland (Mayo Clinic), Susan Hallbeck (Mayo Clinic), Bethany Lowndes (Mayo Clinic)
 30. **Use of Friction Reducing Devices to Reduce the Spine Loads During Repositioning of Patients**, Susan Kotowski (U. of Cincinnati), Kermit Davis (U. of Cincinnati)
 31. **A Guide for Installing Wall Mounted Computers at Ergonomic Heights**, Aaron Ross (Partners Healthcare)
 32. **Cardiac Arrhythmia Simulations for Comparing Remote Telemetry Monitoring Systems**, Noa Segall (Duke U. Medical Center), Ron Nisha Franklin (North Carolina State Veterans Home), Melanie Wright (Trinity Health and Saint Alphonsus Health System)
 33. **A Work Systems Analysis of Sterile Processing**, Myrte de Alfred (Medical U. of South Carolina), Emily Huffer (Clemson U.), Kevin Taafe (Clemson U.), Lawrence Friendendall (Clemson U.), Ken Catchpole (Medical U. of South Carolina)
 34. **Impact of Interruptions on Mental Demand and Reaction Time by Clinician Role**, Anna R. Linden (St. Olaf College), Hunter J. Hawthorne (Mayo Clinic), Katherine L. Forsyth (Mayo Clinic), Blake Young (U. of Minnesota-Rochester), Renaldo C. Blocker (Mayo Clinic)
 35. **Patterns of Resilience and Brittleness in Hospital-Based Emergency Care During Hurricane Harvey**, Changwon Son (Texas A&M U.), Vu Hoang Le (Texas A&M U.), S. Camille Peres (Texas A&M U.), Farzan Sasangohar (Texas A&M U.)
 36. **A Systems Approach to Sharps Disposal Safety in a Malawian Hospital**, Morven Millar (U. of Dundee), Evridiki Fioratou (U. of Dundee), Emma Thomson (Malawi College of Medicine)
 37. **Identifying Higher Ergonomic Risk During a Simulation Task**, Christopher Curry (Mayo Clinic), Amro Abdelrahman (Mayo Clinic), Bethany Lowndes (Mayo Clinic), Melissa Morrow (Mayo Clinic), Susan Hallbeck (Mayo Clinic)
 38. **Roles and Processes Around End-of-Life Care in the Medical Intensive Care Unit**, Ummesalmah Abdulbaseer (U. of Illinois at Chicago), Elizabeth Papautsky (U. of Illinois at Chicago)
 39. **Workflow Analysis of Interprofessional Medical Education in the Clinical Learning Environments to Improve Learning Outcomes and Patient Safety**, Catarina Smith (Northeastern U.), Nicole Nehls (Northeastern U.), Adam Schleis (Northeastern U.), Margo Jacobsen (Northeastern U.), Peter Bates (Maine Medical Center), Robert Bing-You (Maine Medical Center), Thomas Van der Kloot (Maine Medical Center), Paul Han (Maine Medical Center), Awatef Ergai (Northeastern U.), James Benneyan (Northeastern U.)
 40. **Effects of Workflow Interruptions on ED Providers' Stress: An Observational Study on ED Physicians and Nurses**, Matthias Weigl (U. Hospital of LMU Munich), Anna Schneider (U. Hospital of LMU Munich)
 41. **Thematic Issues in Analysis and Visualization of Hospital Emergency Department Patient Flow**, Benjamin Bauchwitz (Charles River Analytics), Spencer Lynn (Charles River Analytics), Peter Weyhrauch (Charles River Analytics), Raj Ratwani (National Center for Human Factors in Healthcare, MedStar Health), Danielle Mosby (National Center for Human Factors in Healthcare, MedStar Health), Jessica Howe (National Center for Human Factors in Healthcare, MedStar Health), James Niehaus (Charles River Analytics)
 42. **Outpatient Clinic Patient Exam Room - Provider Preferences**, Carolyn Sommerich (Ohio State U.), Steven Lavender (Ohio State U.), Kevin Evans (Ohio State U.), Elizabeth Sanders (Ohio State U.)
- MDD-POS2 – Posters/Reception**
 Medical and Drug-Delivery Devices Track
 Tuesday, March 27, 4:30-6:00 p.m.
 Posters/Reception
43. **Applying Heuristics for Early Formative Evaluation: A New Structured Approach for Device User Interface Assessment**, Carolin A. Ruf (Sanofi-Aventis Deutschland GmbH), Katrin Rapp (Sanofi-Aventis Deutschland GmbH), Florian Schauderna (Sanofi-Aventis Deutschland GmbH), Molly F. Story (Sanofi)
 44. **How to Integrate Human Factors Engineering With Complaint Management**, Shannon Clark (UserWise, Inc.)
 45. **Leveraging Efficiencies and Avoiding Pitfalls When Coupling a Human Factors Study With a Clinical Trial**, Cynthia Warman (Ximedica), Ross Lenzing (Ximedica)
 46. **Case Study: Is This the Solution You Are Looking for? A Cross-Functional Approach to Development and Evaluation of a Label-Based Mitigation**, Young J Chun (Shire), Angela Muriset (Shire), Bharat Arora (Shire)
 47. **How Can Human Factors Studies Conducted by a Medical Device Manufacturer Provide More Value**

- for Pharmaceutical Companies to Succeed in their Combination Product Validations?** Karen Guerrero (Becton Dickinson), Luc Marticou (Becton Dickinson), Sarah Baer (Becton Dickinson)
48. **Noninvasive Wearable Sensors to Detect Onset of Hypoglycemia: A Literature Review**, Karim Zahed (Texas A&M U.), Yibo Zhu (Texas A&M U.), Farzan Sasangohar (Texas A&M U.), Ranjana Mehta (Texas A&M U.), Madhav Erraguntla (Texas A&M U.), Mark Lawley (Texas A&M U.)
49. **Factors Affecting Consumers' Acceptance of Robotic Dentists**, Mattie Milner (Embry Riddle Aeronautical U.), Emily Anania (Embry Riddle Aeronautical U.), Nadine Ragbir (Embry Riddle Aeronautical U.), Matthew Pierce (Embry Riddle Aeronautical U.), Nathan Walters (Embry Riddle Aeronautical U.), Stephen Rice (Embry Riddle Aeronautical U.)
50. **KeyS, or How Not to Design for a Happy Flow**, Beant Kaur Dhillon (Philips), Jon Pluyter (Philips)
51. **A Usability Perspective on Current Industry Practice of Reprocessing for Medical Device Development**, Tara Daugherty (Medtronic), Robert Stephens (Medtronic)
52. **Investigating the HbA1c Assessment Methods for a Smart and Connected Diabetes System**, Alexa Gutierrez (Texas A&M U.), Farzan Sasangohar (Texas A&M U.), Khalid Qaraq (Texas A&M - Qatar), Mark Lawley (Texas A&M U.)
53. **Pay No Attention to That Research Team Behind the One-Way Mirror: How to Transport Participants Into Simulations**, Samantha Sye (Core Human Factors, Inc.), Jennifer Soosaar (Core Human Factors, Inc.), Marc Egeth (Core Human Factors, Inc.)
54. **Employing Remote Usability Testing Methods to Conduct Summative Usability Testing**, Michael Jenkins (UL-Wiklund), Eric Smith (Ivenix), Erin Davis (UL-Wiklund)
57. **Mobile Technology to Assess Balance During Sit to Stand Manuever Among Older Adults at Risk for Falling**, Deanna Gray-Miceli (Florida Atlantic U.), William Craelius (Rutgers U.), Kang Li (Rutgers U.)
58. **Evaluating Situation Awareness During a Simulated Active-Shooter Mass Casualty Incident: Lessons Learned**, Tiffany Leverenz (Wichita State U.), Paul Misasi (Wichita State U.), Barbara Chaparro (Embry-Riddle Aeronautical U.)
59. **First Human Factors Based Selection of Technology in the Spanish Healthcare System: Evaltec Project**, Laura Herrero (IDIVAL), Elena Rojo Santos (Hospital virtual Valdecilla), Marina Cano Iglesias (IDIVAL), Juan Pedraja Vidal (Hospital virtual Valdecilla), Lourdes Escobar Hoyos (Hospital Universitario Marqués de Valdecilla), José María Maestre (Hospital virtual Valdecilla), Carmen Sánchez Juan (Servicio Cántabro de Salud), Lorenzo Alonso Vega (Servicio Cántabro de Salud), Manuel Gómez Fleitas (Hospital Universitario Marqués de Valdecilla), Ignasi Maspons Molins (IDIVAL), Natalie Abts (MedStar Inst. for Innovation, MedStar Health), Natalie Benda (MedStar Inst. for Innovation, MedStar Health), Lawrence Wolpert (MedStar Inst. for Innovation, MedStar Health), Ignacio del Moral Vicente-Mazariegos (Hospital virtual Valdecilla), Galo Peralta Fernández (IDIVAL)
60. **Developing Predictive Models of Flow Disruption Effect on Bypass Time in Cardiovascular Operating Rooms**, Timothy Disher (Embry-Riddle Aeronautical U.), Jordan Hilgers (Embry-Riddle Aeronautical U.), Albert Boquet (Embry-Riddle Aeronautical U.), William MacKunis (Embry-Riddle Aeronautical U.)
61. **The AHRQ Patient Safety Learning Laboratories: What Are We Learning?** James Benneyan (Healthcare Systems Engineering Inst., Northeastern U.)
62. **Informing Patient & Family Centered Care: An HFE Approach to New Facility Design**, Ella Franklin, (National Center for Human Factors in Healthcare), Akhila Iyer (National Center for Human Factors in Healthcare)
63. **Increasing the Use of Evidence-Based Practices in Stroke Rehabilitation**, Joseph Laffoon (San José State U.), Dan Nathan-Roberts (San José State U.)
64. **An Objective Battery of Sensorimotor and Cognitive Tests to Assess Effects of Work Shift Length on Healthcare Workers: A Proof-of-Principle Study**, Harsimran Baweja (San Diego State U.), Emily Carper (San Diego State U.), Natalie Dib (San Diego State U.), Candace Edwards (San Diego State U.), Jessica Fellow (San Diego State U.), Alex Harrington (San Diego State U.), Ariana Middleman (San Diego State U.), Andrew Stewart (San Diego State U.)

PSRI-POS2 – Posters/Reception

Patient Safety Research and Initiatives Track
 Tuesday, March 27, 4:30-6:00 p.m.
 Posters/Reception

55. **Usability Design for Multiple Clinical End-Users: An Evaluation of Medication Labels**, Matthew N. Jesso (Carilion Clinic), Sarah Henrickson Parker (Virginia Tech Carillon Research Inst.)
56. **Preventing Accidental Falls of the Newborn In Hospitals: A Review of Systematic Implementation of Evidence-Based Practices and Ergonomic Devices That Support Parent/Infant Skin-to-Skin Behaviors In Hospital Settings**, Phaidra Harper (Sentier Strategic Resources), Yamille Jackson (Nurtured by Design)

- State U.), Daniel Goble (Oakland U.), Matthew Mahar (San Diego State U.), Megan Conrad (U. of Detroit Mercy)
65. **Ergonomic Factors Contributing to Preventable Adverse Drug Events in Healthcare: A Grounded-Theory Approach**, Thomas Hilgers (Embry-Riddle Aeronautical U.)
 66. **A Novel Curriculum Framework for Education in Robotic Surgery**, Anthony Dwyer (U. of Illinois College of Medicine), David Crawford, MD, FACS (U. of Illinois College of Medicine), Rayan Elkattah, MD, FACOG (U. of Illinois College of Medicine), Richard Pearl, MD, FACS, FAAP, FRCS (U. of Illinois College of Medicine)
 67. **Building the Best Operating Room Team: Lessons in Leadership & Teamwork**, Jennifer Hauck (Duke U. & VA Medical Center), Jonathan Mark (Duke U. & VA Medical Center), Atilio Barbeito (Duke U. & VA Medical Center)
 68. **Optimization of EHR Clinical Data Visualization to Improve Clinical Accuracy and Patient Safety**, Vishal Patel (Christianity Care), Grace Tran (MedStar Health)
 69. **Time to Recognizing Out-of-Hospital Cardiac Arrest**, Omer Perry (Ben-Gurion U. of the Negev), Oren Wacht (Ben-Gurion U. of the Negev), Eli Yafe (Magen-David-Adom), Tzillah Sinuany-Shteren (Ben-Gurion U. of the Negev), Yuval Bitan (Ben-Gurion U. of the Negev)
 70. **Hybrid Usability Methods: Practical Techniques for Evaluating Health Information Technology in an Operational Setting**, Blake Lesselroth (VA Portland Health Care System), Kathleen Adams (VA Portland Health Care System), Ginnifer Mastarone (Oregon Health & Science U.), Stephanie Tallett (VA Portland Health Care System)
 71. **Optimizing the Design of Visual Patterns for Label Design**, Greg Fukakusa (U. of Toronto), Paul Milgram (U. of Toronto), Yuval Bitan (Ben Gurion U. of the Negev)
 72. **Development of Virtual Simulations for Medical Team Training: An Evaluation of Key Features**, Jessica Howe (MedStar Health), Joseph Puthumana (MedStar Health), Daniel Hoffman (MedStar Health), Rebecca Kowalski (MedStar Health), Danielle Mosby (MedStar Health), Kristen Miller (MedStar Health), Peter Weyhrauch (Charles River Analytics), James Niehaus (Charles River Analytics), Benjamin Bauchwitz (Charles River Analytics), Ashley McDermott (Charles River Analytics), Raj Ratwani (MedStar Health)
 73. **Pilot Testing an Interruption Management Tool for Emergency Medicine Physicians**, Katharine Adams (MedStar Health), Jessica Howe (MedStar Health), Kathryn Kellogg (MedStar Health)
 74. **Designing High Reliability Processes for Coordinating Perioperative Care for Medically Complex Children**, Joseph Salem (Northeastern U.), James Benneyan (Northeastern U.)
 75. **Innovative Approaches to Consult Tracking Within the Veterans Health Administration**, Kathleen Adams (VA Portland Health Care System), Ginnifer Mastarone (Oregon Health & Science U.), Victoria Church (VA Portland Health Care System), Blake Lesselroth (VA Portland Health Care System)
 76. **Qualitative Review of Wrong-Site Surgeries: What Side Will My Surgery Take Place?** Anoosha Moturu (Baylor College of Medicine), Grace Tran (National Center for Human Factors in Healthcare, MedStar Inst. for Innovation), Jessica Howe (National Center for Human Factors in Healthcare, MedStar Inst. for Innovation)
 77. **Creativity in Practice: The Role of Human Factors for Innovating Patient Safety**, Sara Albolino (Centre for Clinical Risk Management and Patient Safety), Giulia Dagliana (Centre for Clinical Risk Management and Patient Safety), Giulio Toccafondi (Centre for Clinical Risk Management and Patient Safety), Riccardo Tartaglia (Centre for Clinical Risk Management and Patient Safety)
 78. **DVT Patient Education: Created for Patients, by Patients**, Brandyn D. Lau, Michael B. Streiff, Peggy S. Kraus, Dauryne L. Shaffer, Deborah B. Hobson, Kristen L. W. Webster, Oluwafemi P. Owodunni, Katherine L. Florecki, and Elliott R. Haut (Johns Hopkins)
 79. **Preventing DVT Through Nursing Education**, Dauryne L. Shaffer, Brandyn D. Lau, Michael B. Streiff, Peggy S. Kraus, Deborah B. Hobson, Kristen L. W. Webster, Oluwafemi P. Owodunni, Katherine L. Florecki, and Elliott R. Haut (Johns Hopkins)
 80. **Providing Resident Feedback to Improve DVT Risk Assessment and Prophylaxis Ordering**, Brandyn D. Lau, Michael B. Streiff, Peggy S. Kraus, Dauryne L. Shaffer, Deborah B. Hobson, Kristen L. W. Webster, Oluwafemi P. Owodunni, Katherine L. Florecki, and Elliott R. Haut (Johns Hopkins)

WEDNESDAY, MARCH 28

CCIT8 - Innovative Interactive Technologies

Clinical and Consumer Health-Care IT Track

Wednesday, March 28, 8:30-10:00 a.m.

Lecture Session

Chair: Changwon Son (TAMU)

1. **Electronic Health Records: Solving the Little Data Problem**, John Flach (Mile Two LLC), Phil Schanely (Mile Two LLC), Luke Kuenneke (Mile Two LLC), Bennett Chidoro (Mile Two LLC), Jad Mubaslat (Mile Two LLC), Brandon Howard (Mile Two LLC)
2. **The Evaluation of Tactile Technology for Continuous Informing Displays in Anesthesia**, Kylie Gomes (Clemson U.), Sara Riggs (Clemson U.)
3. **Augmented Reality: The Future of Medic Training**, Laura Militello (Applied Decision Science, LLC), Christen Sushereba (Unveil, LLC)

HE8 – Potpourri

Hospital Environments Track

Wednesday, March 28, 8:30-10:00 a.m.

Panels

1. **Inpatient Multidisciplinary Rounds for Medically Complex Pediatric Patients as an Example of Teamwork in Healthcare Settings**, Irina Trifonova (Children's Mercy Hospital, Kansas City)-Chair, Troy Richardson (Children's Mercy Hospital, Kansas City), Leah Jones (Children's Mercy Hospital, Kansas City), Raymond Chan (Children's Mercy Hospital, Kansas City)
2. **The Challenges and Rewards of Surgical Ergonomics**, M. Susan Hallbeck (Mayo Clinic)-Chair, Kristin Chrouser (U. of Minnesota Medical College), Victor Paquet (U. at Buffalo), Ladin Yurteri-Kaplan (Columbia U. Medical Center), Bethany Lowndes (Mayo Clinic)

MDD8 - Emerging Innovations

Medical and Drug-Delivery Devices Track

Wednesday, March 28, 8:30-10:00 a.m.

Lecture Session

Chairs: Robert J. Stephens (Medtronic) and David Eibling (U. of Pittsburgh)

1. **Assessing Medical Device Usability With Eye-Tracking**, Jordan Hilgers (Embry-Riddle Aeronautical U.), Kevin Ten Brink (Intuitive Surgical Inc.)
2. **Human Factors in Implantables**, Jayme Coates (iO life science), Maria Jensen (iO life science)
3. **Instructions for Use Development Using Heat Maps**, Katrin Rapp (Sanofi), Molly Story (Sanofi)

PSRI8 – Patient Safety Potpourri I

Patient Safety Research and Initiatives Track

Wednesday, March 28, 8:30-10:00 a.m.

Panels

1. **Creative Research Approaches for Complex Questions in Prehospital Emergency Medicine**, Yuval Bitan (Ben Gurion U.)-Chair, Eli Jaffe (Magen David Adom in Israel), Logan Gisick (Embry-Riddle Aeronautical U.), Greg Hallihan (U. of Calgary), Joseph Keebler (Embry-Riddle Aeronautical U.)
2. **Emergency Usability Lab: Testing Usability of Products in Self-care Emergencies**, Peter Rasche (Institut of Industrial Engineering and Ergonomics), Katharina Schäfer (Institut of Industrial Engineering and Ergonomics), Sabine Theis (Institut of Industrial Engineering and Ergonomics), Christina Bröhl (Institut of Industrial Engineering and Ergonomics), Matthias Wille (Institut of Industrial Engineering and Ergonomics), Alexander Mertens (Institut of Industrial Engineering and Ergonomics)

CCIT9 - UX and Usability

Clinical and Consumer Health-Care IT Track

Wednesday, March 28, 10:30 a.m.-12:00 p.m.

Lecture Session

Chair: Janey Barnes (User-View Inc.)

1. **UX Strategies for Health Information Systems: UX of Medicare**, Elizabeth Rosenzweig (Bentley U.)
2. **Safeuristics! Do Heuristic Violation Severity Ratings Correlate With Patient Safety Severity Ratings for a Native EHR Mobile Application?** Sarah Fouquet (Children's Mercy Hospital Kansas City), Y. Raymond Chan, MD (Children's Mercy Hospital Kansas City), Ellen Kerns, MPH, CPH (Children's Mercy Hospital Kansas City), Barbara Chaparro (Embry-Riddle Aeronautical U.), Tiffany Leverenz, MA (Wichita State U.)
3. **A Multisite Project to Promote Cognitive Support Technology Use and Employment Success Among Postsecondary Students With Traumatic Brain Injuries**, Karen Jacobs (Boston U.), Amanda Nardone (Boston U.), Phillip Rumrill (Kent State U.), Deborah Minton (Kent State U.), DJ Hendricks (West Virginia U.), Elaine Sampson (West Virginia U.), Eileen Elias (JBS International, Inc.), Anne Leopold (JBS International, Inc.), Marcia Scherer (U. of Rochester)
4. **How Much Time (and Effort) Does a Timeline Save? Usability Testing of a Patient Asthma History Timeline**, Dean Karavite (The Children's Hospital of Philadelphia), Jeritt Thayer (Children's Hospital of Philadelphia), Jeritt Thayer (Children's Hospital of Philadelphia), Daria Ferro (Children's Hospital of Philadelphia), Joseph Zorc (Children's Hospital of Philadelphia)

HE9 - User Experience and Teams

Hospital Environments Track

Wednesday, March 28, 10:30 a.m.-12:00 p.m.

Lecture Session

Chair: Emily Hildebrand (Research Collective)

1. **Engineering the Future of Sepsis Care: An Application of Fuzzy Logic Cognitive Mapping for Sepsis Diagnosis**, Kristen Miller (MedStar Health), Danielle Mosby (MedStar Health), Joseph Blumenthal (MedStar Health), Kendall McKenzie (North Carolina State U.), Muge Capan (Christiana Care Health System), Ryan Arnold (Christiana Care Health System), Rebecca Kowalski (MedStar Health), F. Jacob Seagull (U. of Michigan), Ken Catchpole (Medical U. of South Carolina), Ella Franklin (MedStar Health), Russell Branaghan (Arizona State U.)
2. **A Strategic Approach to Determining the Relative Impact of Team Behavior on Guideline Violations**, Aaron Ashby (Arizona State U.), Marshall Smith (Arizona State U.), Regina Gaines (Arizona State U.), David Kaufman (Arizona State U.)
3. **Unique Health and Safety Exposures in the Workplace: The Story of Home Healthcare Workers**, Kermit Davis (U. of Cincinnati), Noma Agbonifo (U. of Cincinnati), Beverly Hittle (U. of Cincinnati), Russell Suarez (U. of Cincinnati), Susan Reutman (U. of Cincinnati)

MDD9 - FDA CDRH / CDER Panel: Medical Device Human Factors

Medical and Drug-Delivery Devices Track

Wednesday, March 28, 10:30 a.m.-12:00 p.m.

Panel Session

Chair: Anthony D. Andre (Interface Analysis Associates)

1. **CDER Panel**, Irene Z. Chan (PharmD, BCPS, CDR, U.S. Public Health Service, Deputy Director, Division of Medication Error Prevention and Analysis, FDA/CDER/OSE/OMEPRM/DMEPA) and Nicole Garrison (PharmD, BCPS, Safety Evaluator, Division of Medication Error Prevention and Analysis, FDA/CDER/OSE/OMEPRM/DMEPA)

2. **CDHR Panel**, Hanniebey Wiyor (LT, U.S. Public Health Service, Human Factors Reviewer, Human Factors Pre-market Evaluation Team, FDA/CDRH/DAGRID/HFPMET), Xin Feng, (Human Factors Reviewer, Human Factors Pre-market Evaluation Team, FDA/CDRH/DAGRID/HFPMET), and Rita Lin (Human Factors Reviewer, Human Factors Pre-market Evaluation Team, FDA/CDRH/DAGRID/HFPMET)

PSRI9 - Patient Safety Potpourri II

Patient Safety Research and Initiatives Track

Wednesday, March 28, 10:30 a.m.-12:00 p.m.

Lecture Session

Chairs: Rebecca Butler (National Center for Human Factors in Healthcare), Ella Franklin (National Center for Human Factors in Healthcare)

1. **Co-Designing a Mobile Application for Patient Engagement: From Pain Points to Lessons Learned**, Sylvain Bruni (Aptima)
2. **Are Patient Admission Handoffs From ED to MICU PARfect?** Imade Ihianle (U. of Illinois), Shirley Burton (U. of Illinois), Joanna Abraham (U. of Illinois)
3. **FUTURES: Forecasting the Unexpected Transfer to Upgraded REsources in Sepsis**, Rebecca Kowalski (MedStar Health), Kristen Miller (MedStar Health), Muge Capan (Christiana Care Health System), Danielle Mosby (MedStar Health), Ryan Arnold (Christiana Care Health System)
4. **How Nurses Identify Hospitalized Patients on Their Personal Notes: Findings From Analyzing “Brains” Headers With Multiple Raters**, Ritesh Sarkhel (Ohio State U.), Jacob Socha (Ohio State U.), Susan Moffatt-Bruce (Ohio State U.), Simon Fernandez (Ohio State U.), Kashvi Patel (Ohio State U.), Arnab Nandi (Ohio State U.), Austin Mount-Campbell (Ohio State U.), Emily Patterson (Ohio State U.)

POST-SYMPOSIUM WORKSHOPS

Wednesday, March 28

(Separate registration fees apply)

1:30–5:30 p.m.

Workshop 1: How to Design Effective Safety

Information for Medical Devices, Eric F. Shaver,

Human Factors MD

1:00–6:00 p.m.

Workshop 2: Innovation, Not Just Evaluation:

Leveraging Human Factors Tools to Inspire

Innovation, Karen Unterman and Serge Roux, Cambridge

Consultants

(Location: Cambridge Consultants, Boston, MA,

transportation provided)

1:30–5:30 p.m.

Workshop 3: You're Not Done Yet – Conducting a

Residual Risk Analysis After a Summative Usability

Test, Michael Wiklund, Erin Davis, and Andrea Dwyer,

UL-Wiklund

1:30–5:30 p.m.

Workshop 4: A Human Factors Approach to Root

Cause Analysis, Brittany Anderson-Montoya, Carolinas

HealthCare System; Ken Catchpole, Medical U. South

Carolina; & T. Robert Turner, Anne Arundel Medical

Center