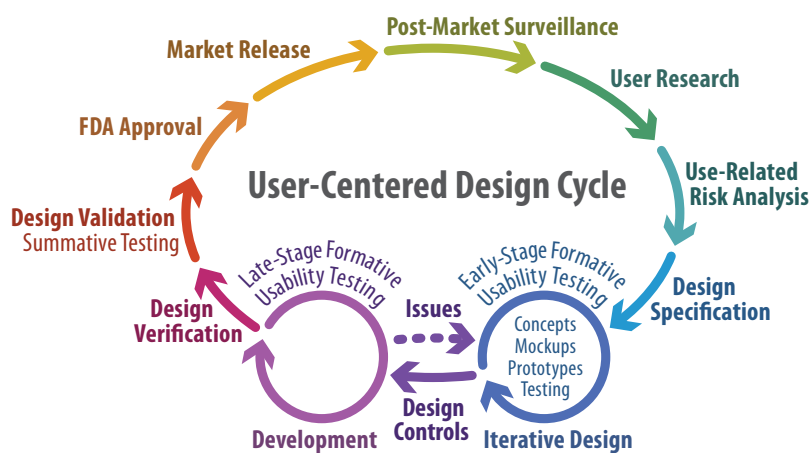


The Center for Research and Innovation in Systems Science (CRISS) is a human factors research laboratory and technology consultancy based at Vanderbilt Health. Our practical product design and evaluation services address end-users' needs and capabilities within the rich context of real-world healthcare practices. Our services and facilities help customers develop highly effective, usable and safe products.



User-Centered Design Services

- Contextual inquiry
- Heuristic evaluation
- Task and workflow analysis
- Use-related risk analysis
- User modeling
- User Interface design
- Formative usability testing
- Summative usability testing
- Systems engineering
- FDA and ONC compliant activities and deliverables



State-of-the-Art Facilities & Resources

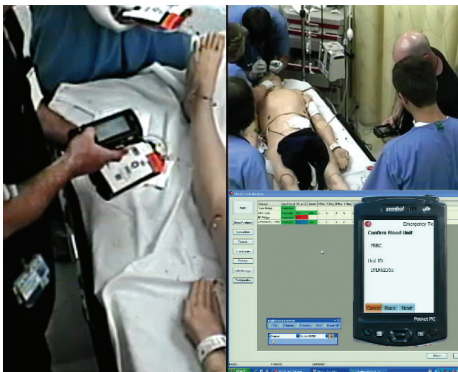
- Usability lab and support space with real-time AV capture systems
- Mobile data recording systems for *in situ* usability evaluations
- Access to the Vanderbilt Center for Experiential Learning & Assessment (CELA), a multipurpose high-fidelity simulation facility with 12 fully equipped clinical exam rooms, 4-bed ICU, 6-bed ED and OR suites
- Physiological monitoring of technology users

Practical Experience & Research Expertise

- Over 20 years of experience studying and improving technologies and processes in healthcare and other industries
- Multidisciplinary team with years of experience in human factors engineering, human-computer interaction, cognitive psychology, biomedical and systems engineering, and clinical patient care
- Daily access to all types of clinicians

Why Use CRISS?

- Develop safer, easier-to-use, more satisfying, more marketable products
- Identify risks and use errors earlier when they can be resolved more quickly and at a lower cost
- Improve return on investment through better marketability, reduced training costs, and decreased obsolescence



The CRISS Team — Making Technology Safer

PRINCIPAL CRISS PERSONNEL



Nicole Werner, PhD, *CRISS Director*, is a Human Factors Engineer and leading expert in the user-centered design of scalable digital health solutions from ideation through implementation/commercialization. Her work co-produces innovative but realistic digital health and care process innovations to improve health and healthcare outcomes. Dr. Werner holds a PhD in Human Factors and Applied Cognition from George Mason University.



Dan France, PhD, MPH, *Professor*, is a systems engineer who specializes in data analytics, computer modeling and simulation, and risk analysis. He frequently performs quality improvement and risk management projects, including work funded by the National Institutes of Health (NIH) and the Agency for Healthcare Research and Quality (AHRQ). Dr. France holds a PhD in biomedical engineering from Vanderbilt University and a master of public health from the University of Utah.



Carrie Reale, MSN, RN-BC, *Principal User Experience Designer, Informatics Nurse Specialist*, is a board-certified nurse informaticist who specializes in the design, facilitation, and analysis of healthcare-related usability evaluations. Her clinical background is primarily in neonatal intensive care and includes both direct patient care and clinical nurse education. Ms. Reale has a master's degree in nursing informatics from Vanderbilt University and a bachelor's degree in business administration from San Jose State University.



Megan Salwei, PhD, *Assistant Professor*, applies human factors engineering methods and principles to improve the design of health information technology (IT), including artificial intelligence-based tools, to support the work of patients and clinicians to enhance care quality and patient safety. She has experience with usability testing, participatory design, workflow integration, decision support design, and cognitive inquiry. Megan received her Ph.D. in Industrial Engineering (Human Factors) at the University of Wisconsin-Madison.



Jason Slagle, PhD, *Research Professor*, has extensive experience in the design and evaluation of healthcare technologies. His specialties include observational and user research, behavioral and cognitive task analysis, workload assessment, and contextual inquiry. Dr. Slagle has performed numerous studies with clinicians evaluating myriad performance-shaping factors when using developing technologies. Dr. Slagle has a PhD in industrial-organizational psychology from Alliant International University.



Matthew B. Weinger, MD, *Professor and Founding Director*, is a nationally recognized human factors expert in healthcare who has consulted with the Food and Drug Administration (FDA) as well as numerous medical device and technology companies for more than 30 years. He was Co-Chairman of the Association for the Advancement of Medical Instrumentation (AAMI) Human Factors Committee for 13 years. Dr. Weinger is the senior editor of the Handbook of Human Factors in Medical Device Design. He holds a bachelor's degree in electrical engineering and a master's degree in neurosciences from Stanford University, and an MD degree from the University of California–San Diego.



Russ Beebe, *User Experience Designer*, is skilled in graphic design and user interface/interaction modeling. He is adept at employing ergonomics, human factors, and user-centered design concepts and testing methodologies to improve the usability of healthcare technologies and related systems. His expertise includes producing interactive high-fidelity application prototypes, technical illustrations, presentation graphics, and data visualizations.



Mark Hughes, *Senior Program Manager*, supervises allocation of CRISS personnel effort among federal and non-federal sponsored projects, ensures Institutional Review Board (IRB) approval is met, oversees subcontractor payments, and provides financial oversight for the CRISS research portfolio.



Teresa N. Thuemling, *Senior Program Manager*, manages center and grant-related communications, timelines/milestones, and general project management.

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