The Center for Research and Innovation in Systems Safety (CRISS) is a human factors research laboratory and technology consultancy housed in the Vanderbilt University Medical Center (VUMC). 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
- Formative usability testing
- User Interface design
- Summative usability testing
- Systems engineering

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 medical technologies and processes
- 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
- FDA and ONC compliant activities and deliverables

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
PRINCIPAL CRISS PERSONNEL

Matthew B. Weinger, MD, **CRISS Director and tenured Professor**, 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 almost 30 years. He was Co-Chairman of the Association for the Advancement of Medical Instrumentation (AAMI) Human Factors Committee for 13 years and currently serves on the AAMI Board of Directors. 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.

Shilo Anders, PhD, **Research Assistant Professor**, applies human factors engineering to projects involving user research, usability testing, and design and development processes. She is a nationally acknowledged, well-published expert in user-centered design, specializing in methods for development of medical technologies and processes. Dr. Anders has worked as a consultant in both industry and academia. She has a PhD in industrial and systems engineering from The Ohio State University.

Carrie Reale, MSN, RN-BC, **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.

Russ Beebe, **User Experience Designer**, is an industrial design specialist with extensive experience 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 prototypes as well as static low-fidelity user interface mockups and storyboards.

Jason Slagle, PhD, **Research Associate 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 a wide variety of performance-shaping factors when using developing technologies. Dr. Slagle has a PhD in industrial-organizational psychology from Alliant International University.

Dan France, PhD, MPH, **Research Associate 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.

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