Human Factors Engineering – Rx for the Medical Error Epidemic

Abstract: Michael Wiklund will talk about the need to apply human factors engineering (HFE) in medical technology development as a principle means to address the medical error epidemic.

Did you know people in the US stand a good chance of dying due to medical error?

Did you know that comprehensive HFE is part of the battle against this cause of death?

Wiklund will review the HFE R&D tasks that constitute a comprehensive approach to making a safe & effective product. He will instantiate the benefits of good HFE by citing some medical errors that led to adverse outcomes as well as example of great user interface design that have protected against error & driven commercial success.

Wiklund will assert that the financial benefits of HFE are almost certain because HFE is one way to help drive a product’s commercial success. He will also reflect on (1) Tufts’ historically strong role in preparing students to serve in vital HFE roles, & (2) how the HFE program has evolved to help address the medical error crisis.

Bio: Mr. Wiklund has taught HFE at Tufts since 1987. He founded the Engineering College’s first course on software user interface design (ENP 166) and, more recently, the first courses focus on applying HFE to medical technology (ENP 109, ENP 110)

Board Certified as a Human Factors Professional, Mr. Wiklund has 37 years of experience in HFE, much of which has focused on medical technology development; optimizing hardware & software user interfaces as well as user documentation. However, he has applied HFE to a wider array of products & systems including children’s toys, household appliances, aircraft instrumentation, websites, transportation systems, & nuclear power plants.

He leads a consulting practice that includes 70 HFEs working at dedicated sites in the USA, UK, The Netherlands, & Japan. The global team’s services to industry include user research, use-related risk analysis, user interface design, instructional media development, formative & validation usability testing, & HFE training to corporations. The team has designed or improved >100 medical products ranging from a heart-lung machine to a patient monitor & defibrillator to an advanced hospital bed to an epinephrine pen-injector.

Wiklund has authored/and edited leading books on human factors, including:

- Designing for Safe Use
- Usability Testing of Medical Devices
- Medical Device Use Error – Root Cause Analysis.
- Handbook of Human Factors in Medical Device Design
- Designing Usability into Products
- Usability in Practice

He is also one of the primary authors of today’s most pertinent standards & guidelines on human factors engineering of medical devices: AAMI HE75 & IEC 62366. In 2018, he received the Human Factors & Ergonomics Society’s A. R. Lauer Safety Award.