In this talk I will discuss my research program and my lab as well as the research collaboration with my clinical colleagues. I will discuss a specific series of projects about reducing medication administration errors in anesthesia delivery. The goal of our research is to understand the work complexity, the latent risks, and the variability in work practices in order to design and evaluate interventions for reducing the risk of patient harm associated with anaesthesia medication delivery. The Systems Engineering Initiative for Patient Safety (SEIPS) model is used as the framework for our assessment and design strategies as part of a research partnership between researchers at Clemson, MUSC and Johns Hopkins. The interventions being evaluated include medication labels and icons, medication trays, syringe holders, workstation layout and furniture/equipment design, and event reporting systems. This talk will describe these interventions as well as the evaluation strategy (as impacted by COVID-19). I will also discuss the extension of this work into other areas (e.g., NORA (Non-Operating Room Anaesthesia)) and the strategies for broader evaluation.