

Identifying Patients at Risk for Decompensation in the ICU

Common data platform

Compensated shock

Hypovolemia

Sepsis

Traumatic brain injury

Research Data Collection

Common Data Platform

- Must have interoperability
 - Open architecture
 - Dynamic directed monitoring
 - Incorporate images and image processing
 - Laboratory data and other time dyssynchronous data
 - Force multiplier devices to optimize efficiency

Compensated Shock

- Early disease processes of undiagnosed, under-resuscitated and potentially unstable patients
 - Hypovolemia (trauma, burns)
 - Sepsis
 - Traumatic brain injury

Proposed Research Agenda

- Create a multi-center multi-disciplinary consortium of clinicians, biomedical engineers and industry
- Quantify the heterogeneity of clinical practice
 - Prospective observational study of time-series interventions
 - Defining the database of measured variables
- Institute simple randomized protocol driven studies
- Develop a predictive model to diagnose and treat critical illness
 - Clinically-relevant outcomes measures
 - Iterative interaction with protocolized care
 - Develop novel data bases that evolve from the studies