**THE NEED**

- **Primary Injury**: Occurs at the moment of trauma
- **Secondary Injury**: Occurs in the hours and days after the primary injury

**Brain Damage or Death**

A continuous monitoring and real-time analytics tool that detects the early onset of hemodynamic instability to prevent TBI patients from suffering from secondary brain injuries.

**COMPETITIVE ADVANTAGE**

- **Real-Time Streaming Data**: Uses high resolution, real-time waveform data unlike other approaches that rely on single source static data.
- **Precision Medicine**: Comprehensive, personalized data portfolio determines patient’s unique neurological and systemic physiology.
- **Non-Invasive**: Technology does not rely on invasively captured patient data.
- **Speed**: Continuous real-time bedside monitoring provides relevant physiological endpoints for timely intervention.

**PROJECT MILESTONES**

- Identify patient cohort
- Data preparation
- Apply & refine signal analytics
- Develop & refine predictive models
- Integrate with real-time IBM Streams platform
- Validate & improve performance

**COMMERCIALIZATION ROADMAP**

- **License Technology**
- **Potential Partners**: AirStrip & IBM
- **Class II Device**: 510(k) premarket notification

**THE TEAM**

- **Ashwin Belle, PhD**: Emergency Medicine
- **Kayvan Najarian, PhD**: Emergency Medicine
- **Venkatakrishna Rajajee, MBBS**: Neurological Surgery
- **Kevin Ward, MD**: Emergency Medicine

**THE TECHNOLOGY**

- **Patient Data**: Real-time & Static
- **Signal Processing**: Algorithms extract biomarkers indicative of hemodynamic instability
- **Predictive Models**: Early detection of hemodynamic instability

**THE TECHNOLOGY**

JOYCE MASSEY TBI INNOVATION FUND
2015 TBI Funded Research Projects

Funding was awarded based on the potential to impact the way TBI is diagnosed and treated during the initial “golden hours” of care.