

**Clinical Personalized Pragmatic Predictions of Outcomes (C3PO) Protocols for Data Integration and Analysis.** Lewis J. Frey, PhD<sup>1</sup>, Patrick Mauldin, PhD<sup>1</sup>, Jihad Obeid, MD<sup>1</sup>, William Moran, MD MS FACP<sup>1</sup>, William Weintraub, MD, MACC, FAHA, FESC<sup>2</sup>. <sup>1</sup> Medical University of South Carolina, <sup>2</sup> Christiana Care Health System

**Background and Objectives:** To solicit independent external support from the National Institutes of Health (NIH) Big Data to Knowledge (BD2K) initiative, the open source big data Clinical Personalized Pragmatic Predictions of Outcomes (C3PO) platform, developed for the Veterans Affairs (VA), will be extended and disseminated to the Medical University of South Carolina (MUSC) and Christiana Care Health Systems. Using demographic and comorbidity data for adult patients with stroke and cardiovascular disease (CVD) risk factors, initial analysis will focus on predicting acute care utilization.

**Method:** By extending the existing C3PO big data science technology system and disseminating it beyond the VA to MUSC and Christiana Care Health Systems, the team will be well positioned for an R01 through the BD2K opportunity PA-14-156.

**Results:** We have successfully deployed the scalable big data system C3PO at MUSC. The mapping of MUSC data elements to the Observational Medical Outcomes Partnership (OMOP) model has been accomplished. The CVD and stroke risk factors data has been normalized, curated, loaded and analyzed in the new model.

**Discussion and Conclusions:** We are gaining knowledge of how C3PO using an open standard in healthcare can reduce barriers to adoption and integration. The system has enabled (1) rapid deployment at MUSC through cloned big data virtual machines that can scale to large volumes of data and (2) readiness building at Christiana Care. The risk stratification and clustering of patients impacted by stroke and cardiovascular disease will improve our understanding of how to identify patients who could benefit from targeted interventions.