Resource Sharing Plan:
Software
The proposed project will develop software tools to gather information from ventilator waveform data (VWD) and electronic medical record (EMR) data. In addition we will develop machine learning, and Hidden Markov models to both perform retrospective diagnoses of ARDS, and perform prognosis of ARDS state 24 hours after initial diagnosis. The proposed project will develop computational approaches for analyzing VWD that will be freely downloadable through GitHub, and all software will have attendant instruction for new investigators. This follows in line with our work on developing a data analytics system for collecting data from mechanical ventilators, (Rehm et al, JAMIA 2017) where I made my code, and instructions for system setup publically available. Model development tools will be made publically available in aforementioned GitHub repositories. Finalized models will also be stored online so that researchers can utilize an out of the box tool for detecting ARDS and making prognostic judgements.

Datasets:
Information for patients used in this analysis will be made freely accessible to researchers upon request. Patient VWD data is not considered protected health information (PHI) and will not necessitate de-identification preprocessing. EMR data does contain PHI, and we will follow rules outlined by HIPAA regulations (https://www.hhs.gov/hipaa/for-professionals/privacy/special-topics/de-identification/index.html) to de-identify any potentially sensitive information before making it public.

Publications
Any result found in this project will be published in peer-reviewed journals, and will be made available to the scientific community, and come attendant with notification that the National Institutes of Health funded this research.