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Abstract Use Case ASIC

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The SMITH consortium, as part of the German Medizin Informatik Initiative (MII), is home to various clinical Use Cases. One of these Use Cases is ASIC (Algorithmic Surveillance in Intensive Care), where acute respiratory distress syndrome (ARDS) was investigated based on routine clinical data. These data were processed and analysed by artificial intelligence. The results are sent to an App, which is intended to support physicians on the intensive care unit (ICU) diagnosing the potential incidence of this syndrome, still being described with a a mortality rate of about 45% [1]. The Use Case ASIC engaged eight (8) University Hospitals that included 31 intensive care units across Germany. In a Quality Improvement Strategy (QIS), particularly the utility of a mobile application for the earlier diagnosis of ARDS and improved treatment guideline adherence was investigated. The QIS was conducted as a three-phase, stepped-wedge design over 21 months. It endured through the COVID-19 pandemic and concluded with data from ~15,000 patients, which greatly exceeded the initial data size expectations at the start of the project. The ASIC patient dataset includes over 120 parameters, among others ARDS diagnosis, tidal volume, end-inspiratory, positive end-expiratory, & driving pressures. The Data Integration Centres and IT departments associated with each of the University Hospitals worked together within the Use Case ASIC to assemble this national dataset. This collaboration pushed the standardization of German medical data forward towards the goal of complete interoperability between University Hospitals nationwide. Outside of the MIMIC-III database, the ASIC dataset is the largest non-US critical care dataset, which provides a unique opportunity to support the development of AI-based prediction methods.