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## WP8 – ARTIFICIAL INTELLIGENCE

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UVSQ (DAVID & LMV)/CEA LIST/OBS Medical will create individual sepsis profiles, moving from disease- to patient-centered models. Major challenges of this WP consist in designing algorithmic tools able to integrate observations from heterogeneous data sources (from temporal signals to categorical variables), with preexisting knowledge (e.g. structured as graphs), to yield efficient methodologies towards “similar historical situation identification” and “situation prediction”. We will start with corticosteroids responses signatures (RECORDS project), and then, we will incorporate information related to hemodynamic, renal and metabolic interventions. Specification for interface with WP2 data warehouse will be set-up. Then, we will propose monomodal and multimodal

algorithms leveraging data mining and machine learning techniques to analyze and predict responsiveness to hemodynamic, renal, metabolic and immune interventions. We will develop using existing cohorts, initial hemodynamic, renal, metabolic, and immune response signatures to be tested on WP1 trial platform. In turn, by integrating (within WP2) accrual data (collected within WP1 and WP3-7), patients' profiles will be generated by unsupervised learning, patient's history analyzed by supervised/unsupervised learning, mathematical model of sepsis course will be computed, and effective, accurate and scalable prediction algorithms will be provided to guide antimicrobial, hemodynamic, renal, metabolic and immune interventions.