A332 - Cut-offs for increased risk of 7-day mortality, for vital- and laboratory values; have we got them right?

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Introduction:
The aim was to validate or refute the known thresholds for increased risk of 7-day mortality among acute patients, according to vital and laboratory values. Vital- and laboratory values measured at arrival to an emergency department (ED), are part of different risk-stratification scores, like the Sequential Organ Failure Assessment score, that indicates whether a patient is critical ill or in risk of deterioration.

Methods:
A population-based cohort study at the ED at Odense University Hospital, covering all adult patients ≥18 years arriving from 1 April 2012 to 31 March 2015. Patients were included at first contact within the study period. Variables were first recorded standard vital values and laboratory-values included in risk-stratification scores; respiratory rate, blood pressure, heart rate, Glasgow Coma Scale, temperature, saturation, creatinine, PaO\textsubscript{2}, platelet, and bilirubin. The association between vital- and laboratory values and mortality were described using a restricted cubic spline. A predefined 7-day mortality rate of 2.5% was chosen as a relevant threshold of increased risk.

Results:
We included 40,423 patients, 52.5% female, median age 57 (IQR 38-74) years, and 7-day mortality 2.8%. Seven-day mortality of 2.5% had thresholds of; respiratory rate < 12/min and > 18/min, systolic blood pressure < 112mmHg and > 192mmHg, heart rate < 54beats/min and > 102beats/min, temperature < 36.0°C and > 39.8°C, saturation < 97%, Glasgow Coma Scale < 15, creatinine < 41µmol/L and > 98µmol/L, for PaO\textsubscript{2} < 9.9kPa and > 12.3 kPa, platelets < 165*10^9/L and > 327*10^9/L, and bilirubin > 12µmol/L.

Conclusion:
In our population of adult ED patients, the thresholds of vital values associated with increased 7-day mortality were very close to routinely used values, and most of the thresholds were included in the lowest urgency level in triage and risk-stratification scoring systems.