

**P2587 Automatic sepsis surveillance in a general hospital population using data from electronic health records**

John Karlsson Valik\*<sup>1</sup>, Logan Ward<sup>2</sup>, Hideyuki Tanushi<sup>1</sup>, Ewa Aufwerber<sup>1</sup>, Anna Färnert<sup>1</sup>, Anders Johansson<sup>3</sup>, Mads Lause Mogensen<sup>2</sup>, Brian W. Pickering<sup>4</sup>, Hercules Dalianis<sup>5</sup>, Aron Henriksson<sup>5</sup>, Vitaly Herasevich<sup>4</sup>, Pontus Naucler<sup>1</sup>

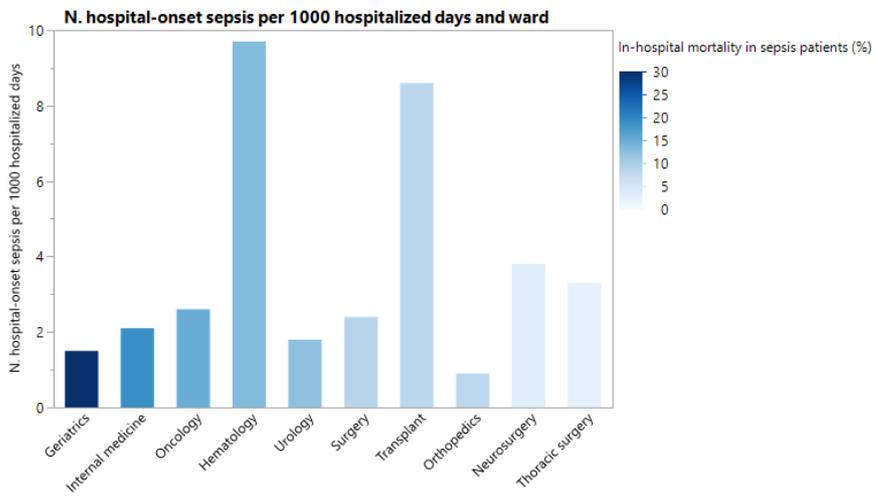
<sup>1</sup> Department of Medicine Solna, Karolinska Institutet, Department of Infectious Diseases, Karolinska University Hospital, Stockholm, Sweden, <sup>2</sup> Treat Systems, Aalborg, Denmark, <sup>3</sup> Department of Clinical microbiology and the Laboratory for molecular infection medicine Sweden (MIMS), Umea University, Umea, Sweden, <sup>4</sup> Department of Anesthesiology and Perioperative medicine, Mayo Clinic, Rochester, MN, United States, <sup>5</sup> Department of Computer and Systems Science, Stockholm University, Kista, Sweden

**Background:** Surveillance of sepsis is important to direct resources and evaluate quality of care interventions. The introduction of the Third International Consensus Definitions for Sepsis and Septic Shock (Sepsis-3) criteria has enabled an objective method for surveillance based on data derived directly from electronic health care records (EHR). The aim was to develop and validate an automated Sepsis-3 based surveillance system in EHR for non-ICU wards, to assess the impact of included parameters, and to determine the burden of sepsis in hospital wards.

**Materials/methods:** Retrospective cohort study in an academic hospital serving a population of 2 300 000 inhabitants in Sweden. We included hospitalized adult patients between July 2012 and December 2013. Patients were excluded if admitted to an obstetric ward and censored during ICU-care. The surveillance algorithm was based on the Sepsis-3 clinical criteria: suspected infection (any culture and 2 doses of antimicrobial treatment) and increase in SOFA score by >2 points. The algorithm was validated by medical record review of 725 randomly chosen episodes with suspected infection.

**Results:** In total, 82653 hospitalizations were included, where 19604 (23.7%) had a suspected infection. Median age 64 years, 50.9% women, median length of stay 3.8 days, and in-hospital mortality 2.4%. The sensitivity and specificity of the Sepsis-3 surveillance algorithm was 0.910 [95% CI: 0.904-0.916] and 0.990 [95% CI: 0.989-0.991], respectively. Reviewers classified 75/725 (10.3%) patients with suspected infection as not having a possible infection of whom 23/725 (3.2%) were misclassified as sepsis by the surveillance algorithm due to organ dysfunction. More conservative definitions of suspected infection resulted in slightly increased specificity at the clear expense of sensitivity. The Sepsis-3 surveillance algorithm detected 8349 (10.1%) sepsis episodes, of which 7240 (8.8%) were community-onset and 1109 (1.3%) were hospital-onset (>48 h after admission). The in-hospital mortality was 9.0% for sepsis patients. Only 11.7% of sepsis patients had an ICD-code equivalent with sepsis. The burden of hospital-onset sepsis and in-hospital mortality showed large differences depending on type of hospital ward (Figure).

**Conclusions:** Based on data derived from EHR, it is feasible to automatically surveil sepsis incidence in non-ICU wards using the Sepsis-3 clinical criteria.



Ward ordered by In-hospital mortality in sepsis patients (%) (descending)

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