**Online Supplement:**

**Variation in Identifying Sepsis and Organ Dysfunction Using Administrative Versus Electronic Clinical Data and Impact on Hospital Outcome Comparisons**

**Supplemental Table 1. Sepsis Definitions Using Administrative Claims Codes versus Electronic Health Record (EHR)-Based Clinical Criteria**

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| Claims Codes (*International Classification of Diseases, Ninth Revision, Clinical Modification*) | EHR-Based Clinical Criteria |
| 1. Explicit Sepsis Codes (Severe Sepsis, 995.95, or Septic Shock, 785.52) 2. Implicit Sepsis Codes (Modified Angus Method: Infection + Organ Dysfunction Codes, or Explicit Severe Sepsis or Septic Shock Code) |  **Sepsis Clinical Criteria:***1. Presumed Serious Infection** Blood culture obtained (regardless of result), and
* ≥4 consecutive days of antibiotics – starting within +/-2 days of blood culture day. At least one antibiotic must be given intravenously. Fewer than 4 antibiotic days allowed if antibiotics given until ≤1 day prior to death or discharge to hospice or acute care facility

 +*2. Acute Organ Dysfunction (any one of the following within +/-2 days of blood culture day):** Vasopressor initiationa
* Mechanical ventilation initiation a
* Doubling in serum creatinine or decrease by ≥50% of estimated glomerular filtration rate relative to baselineb (excluding patients with ICD-9-CM code for end-stage kidney disease, 585.6)
* Total bilirubin ≥ 2.0 mg/dL and doubling from baselineb
* Platelet count <100 cells/µL and ≥ 50% decline from baselineb (baseline must be ≥100 cells/µL)
* Serum lactate ≥ 2.0 mmol/L
 |
| **Bacteremic Shock:*** Positive blood culture (excluding common skin contaminantsc)

 +* Vasopressor initiationa within +/-2 days of positive blood culture
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a Vasopressors and mechanical ventilation are considered to be “initiated” during the +/-2 day period surrounding the day of the blood culture draw if there were no vasopressors or mechanical ventilation administered on the prior calendar day.

b For presumed infection present-on-admission (blood culture day or first antibiotic occurring on hospital day 1 or 2), baseline lab values are defined as the best values during hospitalization.For hospital-onset infection (blood culture day and first antibiotic occurring on hospital day ≥ 3),baseline lab values are defined as the best values during the +/-2 day period surrounding the day of the blood culture draw.

c Common skin contaminants include Coagulase negative Staphylococci, Bacillus species (not anthracis), Corynebacterium species, Aerococcus species, Micrococcus species, and Propionibacterium species.

**Supplemental Table 2. Organ Dysfunction Definitions Using Administrative Claims Codes versus Electronic Health Record (EHR)-Based Clinical Criteria**

|  |  |
| --- | --- |
| Claims Codes (*International Classification of Diseases, Ninth Revision, Clinical Modification*) | Clinical Criteria |
| Acute Renal Failure (584) | Doubling of serum creatinine within any +/- 3-day period during hospitalization*Excludes patients with end-stage renal disease [ICD-9-CM code 585.6])* |
| Acute Hepatic Dysfunction (570, 573.3, 573.4) | 1) Any total bilirubin >2.0 mg/dL during hospitalization and doubling from baseline (defined as the lowest value during hospitalization), and 2) Maximum aspartate aminotransferase or alanine aminotransferase >500 U/L anytime |
| Thrombocytopenia (287.3, 287.5) | Any platelet count <100 cells/µL during hospitalization |
| Hypotension / Shock (458, 785.5) | Any administration of vasopressors (norepinephrine, dopamine, epinephrine, phenylephrine, or vasopressin) |

All associated ICD-9-CM subcodes associated with the 3 or 4 digit codes were included.

The denominator for the comparison of organ dysfunction codes vs EHR data included all inpatient encounters with suspected infection, broadly defined as ≥1 blood culture obtained during hospitalization.