

2020 Sepsis Measure Specifications: Adult Time Zero Severe/Shock

3-Hour Bundle: The percentage of non-excluded severe sepsis or septic shock submitted cases for which all components of the 3-hour bundle were satisfied by the hospital.

Composite Measure Bundle: The percentage of non-excluded severe sepsis or septic shock submitted cases for which all components of the composite bundle were satisfied by the hospital. The composite includes the 3-hour bundle.

Within 3 hours of presentation of severe sepsis:

- Initial lactate level measurement
- Broad spectrum or other antibiotics administered
- Blood cultures drawn prior to antibiotics

Received within 6 hours of presentation of severe sepsis, ONLY if the initial lactate is elevated:

- Repeat lactate level measurement

Within 3 hours of initial hypotension:

- Resuscitation with 30 mL/kg crystalloid fluids

Within 6 hours of septic shock presentation, ONLY if hypotension persists after fluid administration:

- Vasopressors are administered

Within 6 hours of septic shock presentation, if hypotension persists after fluid administration or initial lactate ≥ 4 mmol/L*:

- Repeat volume status and tissue perfusion assessment is performed

*Per discussion with CMS, initial lactate level result is not checked in the algorithm if septic shock is present and hypotension persists after fluid administration.

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Criteria	Relevant Data Dictionary Elements
Denominator	
<i>Inclusions</i>	
<ul style="list-style-type: none"> All cases except cases removed by the exceptions 	<ul style="list-style-type: none"> Same PCN but different MRN or UPI Same MRN but different UPI or DOB Duplicated or Overlapped Visits Incorrect Date or Datetime (wrong datetime format or discharge time before or on admission time)
3-Hour Exclusions	
<ul style="list-style-type: none"> Discharges for patients whose age < 18 3-hour exclusions: Discharges where patient was excluded from protocol within 3 hours of time zero <ul style="list-style-type: none"> Earliest of severe sepsis/septic shock is used to determine time. 3-hour expired exclusions: Discharges where patient died within 3 hours of time zero <ul style="list-style-type: none"> Earliest of severe sepsis/septic shock is used to determine time. 3-hour exclusions: Antibiotics Administration Time between 72 and 24 hours <u>prior</u> to time zero <ul style="list-style-type: none"> Earliest of severe sepsis/septic shock is used to determine time. 	<ul style="list-style-type: none"> Admission Datetime – Date of Birth < 18 yrs (Severe Sepsis Time Not Null -OR- Septic Shock Time Not Null) -AND- Excluded Time Not Null -AND- time interval between Excluded Time and the minimum of Severe Sepsis Time and Septic Shock Time not greater than 3 hr (Excluded Time – min(Severe Sepsis Time, Septic Shock Time) ≤ 3 hr) (Severe Sepsis Time Not Null -OR- Septic Shock Time Not Null) -AND- Discharge Time Not Null -AND- Discharge Status = 20 -AND- time interval between Discharge Time and the minimum of Severe Sepsis Time and Septic Shock Time not greater than 3 hr (Discharge Time – min(Severe Sepsis Time, Septic Shock Time) ≤ 3 hr) Antibiotic Administration Time Not Null and Antibiotic Administration = 1 -AND- ((Severe Sepsis Time Not Null -OR- Septic Shock Time Not Null) -AND- time interval between Antibiotic Administration Time and the minimum of Severe Sepsis Time and Septic Shock Time between 72 and 24 hr before (-72 hr < Antibiotic Administration Time – min(Severe Sepsis Time, Septic Shock Time) < -24 hr))

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Denominator/Exclusion/Numerator	
<p>Denominator:</p> <ul style="list-style-type: none"> • Initial Lactate Level Collection • Antibiotic Administration • Blood Culture Collection <p>Numerator:</p> <ul style="list-style-type: none"> • Initial Lactate Level Collection within 3 hours of time zero • Earliest of severe sepsis/septic shock is used to determine time. <p>Numerator:</p> <ul style="list-style-type: none"> • Antibiotic Administration within 3 hours of time zero • Earliest of severe sepsis/septic shock is used to determine time. • If the antibiotic is before time zero then antibiotic administration selection is not required. If antibiotic is on or after time zero then antibiotic administration selection is required. 	<ul style="list-style-type: none"> • All cases except cases dropped by 3-Hour Exclusions <ul style="list-style-type: none"> • All cases except cases dropped by 3-Hour Exclusions -AND- • Initial Lactate Level Collection = 1 -AND- Initial Lactate Level Collection Time Not Null -AND- • (• (Severe Sepsis Time Not Null -OR- Septic Shock Time Not Null) -AND- time interval between Initial Lactate Level Collection and the minimum of Severe Sepsis Time and Septic Shock Time not more than 6 hr before and not greater than 3 hr (-6 hr ≤ Initial Lactate Level Collection Time – min(Severe Sepsis Time, Septic Shock Time) ≤ 3 hr) •) <ul style="list-style-type: none"> • All cases except cases dropped by 3-Hour Exclusions -AND- • Antibiotic Administration = 1 -AND- Antibiotic Administration Time Not Null -AND- • (• (Severe Sepsis Time Not Null -OR- Septic Shock Time Not Null) -AND- time interval between Antibiotic Administration Time and the minimum of Severe Sepsis Time and Septic Shock Time not more than 24 hr before and less than 0 (-24 hr ≤ Antibiotic Administration Time – min(Severe Sepsis Time, Septic Shock Time) < 0) -OR- • (Severe Sepsis Time Not Null -OR- Septic Shock Time Not Null) -AND- Antibiotic Administration Selection = 1 -AND- time interval between Antibiotic Administration Time and the minimum of Severe Sepsis Time and Septic Shock Time not less than 0 and not greater than

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<p>Denominator:</p> <ul style="list-style-type: none"> • Repeat Lactate Level Collection • First exclude all 3-hour exclusions and then exclude cases that are in 6-hour exclusions of Repeat Lactate Level Collection. • After exclusions, select cases that are repeat lactate required as denominator. <ul style="list-style-type: none"> ○ Initial lactate >2 ○ Elevated lactate reason = 2 <p>Numerator:</p> <ul style="list-style-type: none"> • Repeat Lactate Level Collection within 6 hours of time zero • Earliest of severe sepsis/septic shock is used to determine time. 	<ul style="list-style-type: none"> • (• (Severe Sepsis Time Not Null -OR- Septic Shock Time Not Null) -AND- Discharge Time Not Null -AND- Discharge Status = 20 -AND- time interval between Discharge Time and the minimum of Severe Sepsis Time and Septic Shock Time not greater than 6 hr (Discharge Time – min(Severe Sepsis Time, Septic Shock Time) ≤ 6 hr) •)) • All cases except cases dropped by 3-Hour Exclusions and the exclusions of Repeat Lactate Level Collection -AND- • (Initial Lactate Level Not Null -AND- Initial Lactate Level > 2 mmol/L -AND- Elevated Lactate Reason = 2) • All cases except cases dropped by 3-Hour Exclusions and the exclusions of Repeat Lactate Level Collection -AND- • (Initial Lactate Level Not Null -AND- Initial Lactate Level > 2 mmol/L -AND- Elevated Lactate Reason = 2) -AND- Repeat Lactate Level Collection = 1 -AND- • (• (Severe Sepsis Time Not Null -OR- Septic Shock Time Not Null) -AND- Repeat Lactate Level Collection Time Not Null -AND- time interval between Repeat Lactate Level Collection Time and the minimum of Severe Sepsis Time and Septic Shock Time not less than 0 and not greater than 6 hr (0 ≤ Repeat Lactate Level Collection Time – min(Severe Sepsis Time, Septic Shock Time) ≤ 6 hr)
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<p><u>Fluid Start Time</u></p> <ul style="list-style-type: none"> • Earliest of septic shock/initial hypotension is used to determine time. • 3-hours of <u>Fluid Start Time</u> exclusion or expired: Crystalloid Fluid Administration within 3 hours of <u>Fluid Start Time</u> Exclusions <p>Denominator:</p> <ul style="list-style-type: none"> • Crystalloid Fluid Administration • First exclude all 3-hour exclusions and then exclude cases that are in 3-hour exclusions of Crystalloid Fluid Administration. • After exclusions, select cases that are crystalloid fluid required as denominator. <ul style="list-style-type: none"> ○ Septic shock or Initial Hypotension and not VAD <p>Numerator:</p>	<ul style="list-style-type: none"> •) • The minimum of (Septic Shock Presentation Time, Initial Hypotension Time) IF • (• Septic Shock Present = 1 • Initial Hypotension = 1 •) • <u>Fluid Start Time</u> Not Null -AND- Excluded Time Not Null -AND- time interval between Excluded Time and <u>Fluid Start Time</u> not greater than 3 hr (Excluded Time – <u>Fluid Start Time</u> ≤ 3 hr) -OR- • <u>Fluid Start Time</u> Not Null -AND- Discharge Time Not Null -AND- Discharge Status = 20 -AND- time interval between Discharge Time and <u>Fluid Start Time</u> not greater than 3 hr (Discharge Time – <u>Fluid Start Time</u> ≤ 3 hr) • All cases except cases dropped by 3-Hour Exclusions and the exclusions of Crystalloid Fluid Administration -AND- • [Septic Shock Present = 1 -OR- Initial Hypotension = 1] -AND- Adult Crystalloid Fluid Administration ≠ 4
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<ul style="list-style-type: none"> • Crystalloid Fluid Administration within 3 hours of <u>Fluid Start Time</u> • This captures all cases where fluid administration datetime is present AND the correct volume was administered. Fluids cannot be more than 6 hours prior to <u>Fluid Start Time</u>. <ul style="list-style-type: none"> • 6-hours of shock exclusion or expired: Vasopressor Administration within 6 hours of septic shock Exclusions <p>Denominator:</p> <ul style="list-style-type: none"> • Vasopressor Administration • First exclude all 3-hour exclusions and then exclude cases that are in 6-hour exclusions of Vasopressor Administration. • After exclusions, select cases that are vasopressor required as denominator. <ul style="list-style-type: none"> ○ Septic shock, correct fluids, 	<ul style="list-style-type: none"> • All cases except cases dropped by 3-Hour Exclusions and the exclusions of Crystalloid Fluid Administration -AND- • Septic Shock Present = 1 -OR- Initial Hypotension = 1-AND- (• Adult Crystalloid Fluid Administration = 1 -AND- Crystalloid Fluid Administration Time Not Null -AND- <u>Fluid Start Time</u> Not Null -AND- time interval between Crystalloid Fluid Administration Time and <u>Fluid Start Time</u> not more than 6 hr before and not greater than 3 hr ($-6 \text{ hr} \leq \text{Crystalloid Fluid Administration Time} - \text{Fluid Start Time} \leq 3 \text{ hr}$) •) <ul style="list-style-type: none"> • Septic Shock Time Not Null -AND- Excluded Time Not Null -AND- time interval between Excluded Time and Septic Shock Time not greater than 6 hr ($\text{Excluded Time} - \text{Septic Shock Time} \leq 6 \text{ hr}$) -OR- • Septic Shock Time Not Null -AND- Discharge Time Not Null -AND- Discharge Status = 20 -AND- time interval between Discharge Time and Septic Shock Time not greater than 6 hr ($\text{Discharge Time} - \text{Septic Shock Time} \leq 6 \text{ hr}$) <ul style="list-style-type: none"> • All cases except cases dropped by 3-Hour Exclusions and the exclusions of Vasopressor Administration -AND- • Septic Shock Present = 1 -AND- Persistent Hypotension = 1 -AND- Adult Crystalloid Fluid Administration = 1 -AND- Crystalloid Fluid Administration Time Not Null -AND- <u>Fluid Start Time</u> Not Null -AND- time interval between Crystalloid Fluid Administration Time and <u>Fluid Start Time</u> not more than 6 hr before and not
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<p>Denominator:</p> <ul style="list-style-type: none"> • Septic shock and correct fluids and either persistent hypotension or elevated lactate • First exclude all 3-hour exclusions and then exclude cases that are in 6-hour exclusions of Fluid Assessment. • After exclusions, select cases that are fluid assessment required as denominator. <ul style="list-style-type: none"> ○ Septic shock and correct fluids and either persistent hypotension = 1 or elevated lactate (≥ 4 and elevated lactate reason = 2 and persistent hypotension = 2) <p>Numerator:</p> <ul style="list-style-type: none"> • Repeat Volume Status and Tissue Perfusion Assessment Performed after fluid administration and within 6 hours of septic shock 	<ul style="list-style-type: none"> • All cases except cases dropped by 3-Hour Exclusions and the exclusions of Fluid Assessment -AND- • Septic Shock Present = 1 -AND- Adult Crystalloid Fluid Administration = 1 -AND- Crystalloid Fluid Administration Time Not Null -AND- Fluid Start Time Not Null -AND- time interval between Crystalloid Fluid Administration Time and Fluid Start Time not more than 6 hr before and not greater than 3 hr ($-6 \text{ hr} \leq \text{Crystalloid Fluid Administration Time} - \text{Fluid Start Time} \leq 3 \text{ hr}$) -AND- • Persistent Hypotension = 1 -OR- (Persistent Hypotension = 2 and Initial Lactate Level ≥ 4 mmol/L and Elevated Lactate Reason = 2) <ul style="list-style-type: none"> • All cases except cases dropped by 3-Hour Exclusions and the exclusions of Fluid Assessment -AND- • (• Septic Shock Present = 1 -AND- Adult Crystalloid Fluid Administration = 1 -AND- Crystalloid Fluid Administration Time Not Null -AND- Fluid Start Time Not Null -AND- time interval between Crystalloid Fluid Administration Time and Fluid Start Time not more than 6 hr before and not greater than 3 hr ($-6 \text{ hr} \leq \text{Crystalloid Fluid Administration Time} - \text{Fluid Start Time} \leq 3 \text{ hr}$) -AND- • Persistent Hypotension = 1 -OR- (Persistent Hypotension = 2 and Initial Lactate Level ≥ 4 mmol/L and Elevated Lactate Reason = 2) •) -AND- • Septic Shock Time Not Null -AND- Repeat Volume Status and Tissue
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<p><i>Additional measure: Persistent Hypotension - Unable to determine</i></p> <p><i>6-Hour Shock Exclusions:</i></p> <ul style="list-style-type: none"> • 6-hours of shock exclusion or expired: <p>Denominator:</p> <ul style="list-style-type: none"> • <i>Persistent Hypotension - Unable to determine</i> • First exclude all 3-hour exclusions and then exclude 6-hour shock exclusions. 	<p>Perfusion Assessment Performed Time Not Null -AND- Repeat Volume Status and Tissue Perfusion Assessment Performed = 1 -AND- time interval between Repeat Volume Status and Tissue Perfusion Assessment Performed Time and Septic Shock Time not greater than 6 hr (Repeat Volume Status and Tissue Perfusion Assessment Performed Time – Septic Shock Time ≤ 6 hr) -AND-</p> <ul style="list-style-type: none"> • Crystalloid Fluid Administration Time Not Null -AND- Repeat Volume Status and Tissue Perfusion Assessment Performed Time Not Null -AND- Repeat Volume Status and Tissue Perfusion Assessment Performed = 1 -AND- time interval between Repeat Volume Status and Tissue Perfusion Assessment Performed Time and Crystalloid Fluid Administration Time not less than 0 (Repeat Volume Status and Tissue Perfusion Assessment Performed Time – Crystalloid Fluid Administration Time ≥ 0) • Septic Shock Time Not Null -AND- Excluded Time Not Null -AND- time interval between Excluded Time and Septic Shock Time not greater than 6 hr (Excluded Time – Septic Shock Time ≤ 6 hr) -OR- • Septic Shock Time Not Null -AND- Discharge Time Not Null -AND- Discharge Status = 20 -AND- time interval between Discharge Time and Septic Shock Time not greater than 6 hr (Discharge Time – Septic Shock Time ≤ 6 hr) • All cases except cases dropped by <i>3-Hour Exclusions</i> and <i>6-Hour Shock Exclusions</i> -AND- • Septic Shock Present = 1 -AND- Adult Crystalloid Fluid Administration = 1 -AND- Crystalloid Fluid Administration Time Not Null -AND- <i>Fluid Start Time</i> Not Null -
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<ul style="list-style-type: none"> • After exclusions, select cases that are required as denominator. <ul style="list-style-type: none"> ○ Septic shock and correct fluids <p>Numerator:</p> <ul style="list-style-type: none"> • <i>Persistent Hypotension - Unable to determine</i> • These cases will FAIL the composite bundle. 	<p>AND- time interval between Crystalloid Fluid Administration Time and <u>Fluid Start Time</u> not more than 6 hr before and not greater than 3 hr (-6 hr ≤ Crystalloid Fluid Administration Time – <u>Fluid Start Time</u> ≤ 3 hr)</p> <ul style="list-style-type: none"> • All cases except cases dropped by 3-Hour Exclusions and 6-Hour Shock Exclusions -AND- • Septic Shock Present = 1 -AND- Adult Crystalloid Fluid Administration = 1 -AND- Crystalloid Fluid Administration Time Not Null -AND- <u>Fluid Start Time</u> Not Null -AND- time interval between Crystalloid Fluid Administration Time and <u>Fluid Start Time</u> not more than 6 hr before and not greater than 3 hr (-6 hr ≤ Crystalloid Fluid Administration Time – <u>Fluid Start Time</u> ≤ 3 hr) • -AND- • Persistent Hypotension = 3 or 4
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