

2018 Sepsis Measure Specifications: Adult Time Zero Severe/Shock

3-Hour Bundle: The percentage of discharges in calendar year 2018 for which all components of the 3-hour bundle were satisfied by the hospital.

Composite Measure Bundle: The percentage of discharges in calendar year 2018 for which all components of the composite bundle were satisfied by the hospital. The composite includes the 3-hour bundle.

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

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	<p>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)</p> <ul style="list-style-type: none"> •)
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"> • 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 hrs ≤ Initial Lactate Level Collection Time – min(Severe Sepsis Time, Septic Shock Time) ≤ 3 hr) •) <ul style="list-style-type: none"> • 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 hrs ≤ 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

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<p>Numerator:</p> <ul style="list-style-type: none"> • Blood Culture Collection prior to antibiotics and within 3 hours of time zero • Earliest of severe sepsis/septic shock is used to determine time. • This allows for antibiotic to be before blood culture if there is a blood culture acceptable delay. • This allows if antibiotic never done but blood culture was done within 3 hours. <ul style="list-style-type: none"> • 6-hour exclusion or expired: Repeat Lactate Level Collection within 6 hours of time zero • Earliest of severe sepsis/septic shock is used to determine time. 	<p>Administration Time and the minimum of Severe Sepsis Time and Septic Shock Time not less than 0 and not greater than 3 hr ($0 \leq \text{Antibiotic Administration Time} - \min(\text{Severe Sepsis Time, Septic Shock Time}) \leq 3 \text{ hr}$)</p> <ul style="list-style-type: none"> •) • Blood Culture Collection = 1 -AND- Blood Culture Collection Time Not Null -AND- {[Antibiotic Administration Time Not Null -AND- (time interval between Antibiotic Administration Time and Blood Culture Collection Time not less than 0 (Antibiotic Administration Time – Blood Culture Collection Time ≥ 0) -OR- (time interval between Antibiotic Administration Time and Blood Culture Collection Time less than 0 (Antibiotic Administration Time - Blood Culture Collection Time < 0) -AND- Blood Culture Acceptable Delay = 1)]} -OR- (Antibiotic Administration = 2 -AND- Blood Culture Collection = 1)} -AND- • (• (Severe Sepsis Time Not Null -OR- Septic Shock Time Not Null) -AND- time interval between Blood Culture Collection Time and the minimum of Severe Sepsis Time and Septic Shock Time not more than 48 hr before and not greater than 3 hr ($-48 \text{ hr} \leq \text{Blood Culture Collection Time} - \min(\text{Severe Sepsis Time, Septic Shock Time}) \leq 3 \text{ hr}$) •) • ((• (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 6 hr (Excluded Time – $\min(\text{Severe Sepsis Time, Septic Shock Time}) \leq 6 \text{ hr}$)
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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"> •) -OR- • (• (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) • (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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<ul style="list-style-type: none"> • After exclusions, select cases that are crystalloid fluid required as denominator. <ul style="list-style-type: none"> ○ Elevated Lactate (≥ 4) or Septic shock or Initial Hypotension and not VAD <p>Numerator:</p> <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>. • 6-hours of shock exclusion or expired: Vasopressor Administration within 6 hours of septic shock Exclusions 	<p>Fluid Administration $\neq 4$</p> <ul style="list-style-type: none"> • (Initial Lactate Level Collection = 1 -AND- Initial Lactate Level ≥ 4 mmol/L -AND- Elevated Lactate Reason = 2) -OR- 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 ($-6 \text{ hr} \leq \text{Crystalloid Fluid Administration Time} - \text{Fluid Start Time} \leq 3 \text{ hr}$) •) • 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 ($\text{Discharge Time} - \text{Septic Shock Time} \leq 6 \text{ hr}$)
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<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, and persistent hypotension <p>Numerator:</p> <ul style="list-style-type: none"> • Vasopressor Administration within 6 hours of septic shock • Vasopressors cannot be more than 6 hours before <u>Fluid Start Time</u>. 	<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- Adult Crystalloid Fluid Administration = 1 -AND- Persistent Hypotension = 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 ($-6 \text{ hr} \leq \text{Crystalloid Fluid Administration Time} - \text{Fluid Start Time} \leq 3 \text{ hr}$) • (• (Septic Shock Present = 1 -AND- Adult Crystalloid Fluid Administration = 1 -AND- Persistent Hypotension = 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 ($-6 \text{ hr} \leq \text{Crystalloid Fluid Administration Time} - \text{Fluid Start Time} \leq 3 \text{ hr}$)) -AND- Vasopressor Administration = 1 •) -AND- • Septic Shock Time Not Null -AND- Vasopressor Administration Time Not Null -AND- time interval between Vasopressor Administration Time and Septic Shock Time not greater than 6 hr ($\text{Vasopressor Administration Time} - \text{Septic Shock Time} \leq 6 \text{ hr}$) -AND- • <u>Fluid Start Time</u> Not Null -AND- Vasopressor Administration Time Not Null -AND- time interval between Vasopressor Administration Time and <u>Fluid Start Time</u> not more than 6 hr before ($\text{Vasopressor Administration Time} - \text{Fluid Start Time} \geq -6 \text{ hr}$)
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<ul style="list-style-type: none"> • 6-hours of shock exclusion or expired: Fluid Assessment after fluid administration and within 6 hours of septic shock Exclusions <p>Denominator:</p> <ul style="list-style-type: none"> • Septic shock and correct fluids • 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 <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"> • 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 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- <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) • (• 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
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	<p>greater than 3 hr ($-6 \text{ hr} \leq \text{Crystalloid Fluid Administration Time} - \text{Fluid Start Time} \leq 3 \text{ hr}$)</p> <ul style="list-style-type: none">•) -AND-• Septic Shock 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 Septic Shock Time not greater than 6 hr ($\text{Repeat Volume Status and Tissue Perfusion Assessment Performed Time} - \text{Septic Shock Time} \leq 6 \text{ hr}$) -AND-• 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 ($\text{Repeat Volume Status and Tissue Perfusion Assessment Performed Time} - \text{Crystalloid Fluid Administration Time} \geq 0$)
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