3-Hour Bundle: The percentage of discharges in calendar year 2017 for which all components of the 3-hour bundle were satisfied by the hospital.

Composite Measure Bundle: The percentage of discharges in calendar year 2017 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	
Inclusions	
All cases except cases removed by the exceptions	 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	
Discharges for patients whose age < 18	Admission Datetime – Date of Birth < 18 yrs
 3-hour exclusions: Discharges where patient was excluded from protocol within 3 hours of time zero Earliest of severe sepsis/septic shock is used to determine time. 	• (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)
 3-hour expired exclusions: Discharges where patient died within 3 hours of time zero Earliest of severe sepsis/septic shock is used to determine time. 	• (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)
 3-hour exclusions: Antibiotics Administration Time between 72 and 24 hours <u>prior</u> to time zero Earliest of severe sepsis/septic shock is used to determine time. 	 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) •)

Denominator/Exclusion/Numerator

Denominator:

- Initial Lactate Level Collection
- Antibiotic Administration
- Blood Culture Collection

Numerator:

- Initial Lactate Level Collection within 3 hours of time zero
- Earliest of severe sepsis/septic shock is used to determine time.

Numerator:

- 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.

 All cases except cases dropped by 3-Hour Exclusions

- 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)
-)
- 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 -ANDtime interval between Antibiotic

Numerator:

- 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.

- 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.

Administration Time and the minimum of Severe Sepsis Time and Septic Shock Time not less than 0 and not greater than 3 hr ($0 \le$ Antibiotic Administration Time – min(Severe Sepsis Time, Septic Shock Time) \le 3 hr)

•)

- 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 hr≤ Blood Culture Collection Time – min(Severe Sepsis Time, Septic Shock Time) ≤ 3 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(Severe Sepsis Time, Septic Shock Time) ≤ 6 hr)
-) -OR-

Denominator:

- 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.
 - o Initial lactate >2

Numerator:

- Repeat Lactate Level Collection within 6 hours of time zero
- Earliest of severe sepsis/septic shock is used to determine time.

 3-hours of shock exclusion or expired: Crystalloid Fluid Administration within 3 hours of septic shock Exclusions

- (
- (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)

- (Initial Lactate Level Not Null -AND- Initial Lactate Level > 2 mmol/L) -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)
)
- Septic Shock Time Not Null -AND-Excluded Time Not Null -AND- time interval between Excluded Time and

Denominator:

- 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.
 - Septic shock and not VAD

Numerator:

- Crystalloid Fluid Administration within 3 hours of septic shock
- 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 earliest time.

 6-hours of shock exclusion or expired: Vasopressor Administration within 6 hours of septic shock Exclusions

- Septic Shock Time not greater than 3 hr (Excluded Time Septic Shock Time ≤ 3 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 3 hr (Discharge Time – Septic Shock Time ≤ 3 hr)
- All cases except cases dropped by 3-Hour Exclusions and the exclusions of Crystalloid Fluid Administration -AND-
- Septic Shock Present = 1 -AND- Adult Crystalloid Fluid Administration ≠ 4

- Septic Shock Present =1
- -AND- (
- Adult Crystalloid Fluid Administration = 1 AND- Septic Shock Time Not Null -AND Crystalloid Fluid Administration Time Not
 Null -AND- time interval between
 Crystalloid Fluid Administration Time and
 Septic Shock Time not greater than 3 hr
 (Crystalloid Fluid Administration Time –
 Septic Shock Time ≤ 3 hr) -AND-
- Earliest Time Not Null -AND- Crystalloid Fluid Administration Time Not Null -ANDtime interval between Fluid Administration Time and Earliest Time not more than 6 hr before (Fluid Administration Time – Earliest Time ≥ -6 hr)
-)
- Septic Shock Time Not Null -AND-Excluded Time Not Null -AND- time interval between Excluded Time and

Denominator:

- 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.
 - Septic shock, correct fluids, and persistent hypotension

Numerator:

- Vasopressor Administration within 6 hours of septic shock
- Vasopressors cannot be more than
 6 hours before earliest time.

- 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 Vasopressor Administration -AND-
- Septic Shock Present = 1 -AND- Adult Crystalloid Fluid Administration = 1 -AND-Persistent Hypotension = 1 -AND- Septic Shock Time Not Null -AND- Crystalloid Fluid Administration Time Not Null -ANDtime interval between Crystalloid Fluid Administration Time and Septic Shock Time not greater than 3 hr (Crystalloid Fluid Administration Time – Septic Shock Time ≤ 3 hr) -AND- Earliest Time Not Null -AND- time interval between Fluid Administration Time and Earliest Time not more than 6 hr before (Fluid Administration Time – Earliest Time ≥ -6 hr)
- (
- (Septic Shock Present = 1 -AND- Adult Crystalloid Fluid Administration = 1 -AND- Persistent Hypotension = 1 -AND- Septic Shock Time Not Null -AND- Crystalloid Fluid Administration Time Not Null -AND-time interval between Crystalloid Fluid Administration Time and Septic Shock Time not greater than 3 hr (Crystalloid Fluid Administration Time Septic Shock Time ≤ 3 hr) -AND- Earliest Time Not Null -AND- time interval between Fluid Administration Time and Earliest Time not more than 6 hr before (Fluid Administration Time Earliest Time ≥ -6 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 (Vasopressor Administration Time – Septic Shock Time ≤ 6 hr) -AND-
- Earliest Time Not Null -AND- Vasopressor Administration Time Not Null -AND- time interval between Vasopressor Administration Time and Earliest Time not more than 6 hr before (Vasopressor Administration Time – Earliest Time ≥ -6 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 (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)

Denominator:

Fluid Assessment Denominator

6-hours of shock exclusion or expired: Fluid Assessment after

fluid administration and within 6

hours of septic shock Exclusions

- 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.
 - Septic shock and correct fluids
- 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-Septic Shock Time Not Null -AND-Crystalloid Fluid Administration Time Not Null -AND- time interval between Crystalloid Fluid Administration Time and Septic Shock Time not greater than 3 hr (Crystalloid Fluid Administration Time – Septic Shock Time ≤ 3 hr) -AND- Earliest Time Not Null -AND- time interval between Fluid Administration Time and Earliest Time not more than 6 hr before

Numerator:

 Vital Signs Review after fluid administration and within 6 hours of septic shock

- (Fluid Administration Time Earliest Time ≥ -6 hr)
- Septic Shock Time Not Null -AND- Vital Sign Review Time Not Null -AND- Vital Sign Review = 1 -AND- time interval between Vital Sign Review Time and Septic Shock Time not greater than 6 hr (Vital Sign Review Time – Septic Shock Time ≤ 6 hr) -AND-
- Crystalloid Fluid Administration Time Not Null -AND- Vital Sign Review Time Not Null -AND- Vital Sign Review = 1 -ANDtime interval between Vital Sign Review Time and Crystalloid Fluid Administration Time not less than 0 (Vital Sign Review Time – Crystalloid Fluid Administration Time ≥ 0)

Numerator:

Numerator:

 Cardiopulmonary Evaluation after fluid administration and within 6 hours of septic shock

- Septic Shock Time Not Null -AND-Cardiopulmonary Evaluation Time Not Null -AND- Cardiopulmonary Evaluation = 1 -AND- time interval between Cardiopulmonary Evaluation Time and Septic Shock Time not greater than 6 hr (Cardiopulmonary Evaluation Time – Septic Shock Time ≤ 6 hr) -AND-
- Crystalloid Fluid Administration Time Not Null -AND- Cardiopulmonary Evaluation Time Not Null -AND- Cardiopulmonary Evaluation = 1 -AND- time interval between Cardiopulmonary Evaluation Time and Crystalloid Fluid Administration Time not less than 0 (Cardiopulmonary Evaluation Time – Crystalloid Fluid Administration Time ≥ 0)
- Capillary Refill Examination after fluid administration and within 6 hours of septic shock
- Septic Shock Time Not Null -AND-Capillary Refill Examination Time Not Null -AND- Capillary Refill Examination = 1 -AND- time interval between Capillary Refill Examination Time and Septic Shock Time not greater than 6 hr (Capillary Refill

Numerator:

 Peripheral Pulse Evaluation after fluid administration and within 6 hours of septic shock

Numerator:

 Skin Examination after fluid administration and within 6 hours of septic shock

- Examination Time Septic Shock Time ≤ 6 hr) -AND-
- Crystalloid Fluid Administration Time Not Null -AND- Capillary Refill Examination Time Not Null -AND- Capillary Refill Examination = 1 -AND- time interval between Capillary Refill Examination Time and Crystalloid Fluid Administration Time not less 0 (Capillary Refill Examination Time – Crystalloid Fluid Administration Time ≥ 0)
- Septic Shock Time Not Null -AND-Peripheral Pulse Evaluation Time Not Null -AND- Peripheral Pulse Evaluation = 1 -AND- time interval between Peripheral Pulse Evaluation Time and Septic Shock Time not greater than 6 hr (Peripheral Pulse Evaluation Time – Septic Shock Time ≤ 6 hr) -AND-
- Crystalloid Fluid Administration Time Not Null -AND- Peripheral Pulse Evaluation Time Not Null -AND- Peripheral Pulse Evaluation = 1 -AND- time interval between Peripheral Pulse Evaluation Time and Crystalloid Fluid Administration Time not less than 0 (Peripheral Pulse Evaluation Time – Crystalloid Fluid Administration Time ≥ 0)
- Septic Shock Time Not Null -AND- Skin Examination Time Not Null -AND- Skin Examination = 1 -AND- time interval between Skin Examination Time and Septic Shock Time not greater than 6 hr (Skin Examination Time – Septic Shock Time ≤ 6 hr) -AND-
- Crystalloid Fluid Administration Time Not Null -AND- Skin Examination Time Not Null -AND- Skin Examination = 1 -ANDtime interval between Skin Examination Time and Crystalloid Fluid Administration Time not less than 0 (Skin Examination Time – Crystalloid Fluid Administration Time ≥ 0)

Numerator:

Central Venous Pressure
 Measurement after fluid
 administration and within 6 hours of
 septic shock

Numerator:

Central Venous Oxygen
 Measurement after fluid
 administration and within 6 hours of
 septic shock

- Septic Shock Time Not Null -AND-Central Venous Pressure Measurement
 Time Not Null -AND- Central Venous
 Pressure Measurement = 1 -AND- time
 interval between Central Venous
 Pressure Measurement Time and Septic
 Shock Time not greater than 6 hr (Central
 Venous Pressure Measurement Time –
 Septic Shock Time ≤ 6 hr) -AND-
- Crystalloid Fluid Administration Time Not Null -AND- Central Venous Pressure Measurement Time Not Null -AND-Central Venous Pressure Measurement = 1 -AND- time interval between Central Venous Pressure Measurement Time and Crystalloid Fluid Administration Time not less than 0 (Central Venous Pressure Measurement Time – Crystalloid Fluid Administration Time ≥ 0)
- Septic Shock Time Not Null -AND-Central Venous Oxygen Measurement
 Time Not Null -AND- Central Venous
 Oxygen Measurement = 1 -AND-time
 interval between Central Venous Oxygen
 Measurement Time and Septic Shock
 Time not greater than 6 hr (Central
 Venous Oxygen Measurement Time –
 Septic Shock Time ≤ 6 hr) -AND-
- Crystalloid Fluid Administration Time Not Null -AND- Central Venous Oxygen Measurement Time Not Null -AND-Central Venous Oxygen Measurement = 1 -AND- time interval between Central Venous Oxygen Measurement Time and Crystalloid Fluid Administration Time not less than 0 (Central Venous Oxygen Measurement Time – Crystalloid Fluid Administration Time ≥ 0)
- Septic Shock Time Not Null -AND-Bedside Cardiovascular Ultrasound Time Not Null -AND- Bedside Cardiovascular Ultrasound = 1 -AND- time interval between Bedside Cardiovascular Ultrasound Time and Septic Shock Time

Numerator:

 Bedside Cardiovascular Ultrasound after fluid administration and within 6 hours of septic shock

Numerator:

 Passive Leg Raise Examination after fluid administration and within 6 hours of septic shock

Numerator:

 Fluid Challenge Performed after fluid administration and within 6 hours of septic shock

- not greater than 6 hr (Bedside Cardiovascular Ultrasound Time – Septic Shock Time ≤ 6 hr) -AND-
- Crystalloid Fluid Administration Time Not Null -AND- Bedside Cardiovascular Ultrasound Time Not Null -AND- Bedside Cardiovascular Ultrasound = 1 -AND- time interval between Bedside Cardiovascular Ultrasound Time and Crystalloid Fluid Administration Time not less than 0 (Bedside Cardiovascular Ultrasound Time - Crystalloid Fluid Administration Time ≥ 0)
- Septic Shock Time Not Null -AND-Passive Leg Raise Examination Time Not Null -AND- Passive Leg Raise Examination = 1 -AND- time interval between Passive Leg Raise Examination Time and Septic Shock Time not greater than 6 hr (Passive Leg Raise Examination Time – Septic Shock Time ≤ 6 hr) -AND-
- Crystalloid Fluid Administration Time Not Null -AND- Passive Leg Raise
 Examination Time Not Null -AND- Passive Leg Raise Examination = 1 -AND- time interval between Passive Leg Raise
 Examination Time and Crystalloid Fluid Administration Time not less than 0
 (Passive Leg Raise Examination Time – Crystalloid Fluid Administration Time ≥ 0)
- Septic Shock Time Not Null -AND- Fluid Challenge Performed Time Not Null -AND- Fluid Challenge Performed = 1 -AND- time interval between Fluid Challenge Performed Time and Septic Shock Time not greater than 6 hr (Fluid Challenge Performed Time – Septic Shock Time ≤ 6 hr) -AND-
- Crystalloid Fluid Administration Time Not Null -AND- Fluid Challenge Performed Time Not Null -AND- Fluid Challenge Performed = 1 -AND- time interval between Fluid Challenge Performed Time

Numerator:

- Fluid Assessment after fluid administration and within 6 hours of septic shock
- Vital Signs Review met -AND-Cardiopulmonary Evaluation met -AND- Capillary Refill Examination met -AND- Peripheral Pulse Evaluation met -AND- Skin Examination met

OR

- Central Venous Oxygen Measurement met (+1) OR
- Central Venous Pressure Measurement met (+1)
 OR
- Bedside Cardiovascular Ultrasound met (+1) OR
- Passive Leg Raise or Fluid Challenge met (+1)

With the "count" >=2

and Crystalloid Fluid Administration Time not less than 0 (Fluid Challenge Performed Time – Crystalloid Fluid Administration Time ≥ 0)

- Septic Shock Present = 1 -AND- Adult Crystalloid Fluid Administration= 1 -AND-Septic Shock Time Not Null -AND-Crystalloid Fluid Administration Time Not Null -AND- time interval between Crystalloid Fluid Administration Time and Septic Shock Time not greater than 3 hr (Crystalloid Fluid Administration Time – Septic Shock Time ≤ 3 hr) -AND- Earliest Time Not Null -AND- time interval between Fluid Administration Time and Earliest Time not more than 6 hr before (Fluid Administration Time – Earliest Time ≥ -6 hr)
- -AND-
- (
- Vital Signs Review met -AND-Cardiopulmonary Evaluation met -AND-Capillary Refill Examination met -AND-Peripheral Pulse Evaluation met -AND-Skin Examination met
- -OR-
- (
- Passive Leg Raise met -AND- Fluid Challenge Performed not met -AND- at least one of (Central Venous Oxygen Measurement, Central Venous Pressure Measurement, Bedside Cardiovascular Ultrasound) met -OR-
- Fluid Challenge Performed met -AND-Passive Leg Raise not met -AND- at least one of (Central Venous Oxygen Measurement, Central Venous Pressure Measurement, Bedside Cardiovascular Ultrasound) met -OR-
- (Passive Leg Raise met -AND- Fluid Challenge Performed met) -AND-at least one of (Central Venous Oxygen

