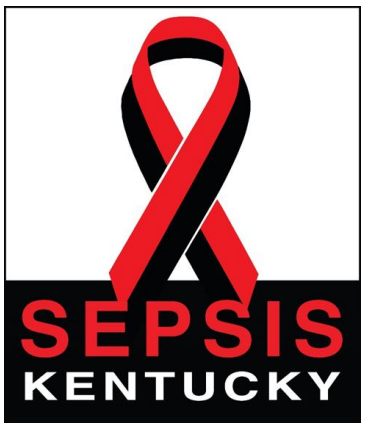

KY Sepsis Consortium

Encyclopedia of Measures

Acute/CAH/Rural Hospitals

Updated: September 2025

Effective Date
July 1, 2021

Postoperative Sepsis Rate

Facilities that perform inpatient surgeries

Sepsis: Post-op Rate– AHRQ PSI-13	
Postoperative sepsis cases (secondary diagnosis) per 1,000 elective surgical discharges for patients ages 18 years and older	
Measure type	Outcome
Numerator	Discharges among cases meeting the inclusion and exclusion rules for the denominator, with any AHRQ designated secondary ICD-10 diagnosis codes for sepsis.
Denominator	Elective surgical discharges for patients ages 18 years and older, with any listed ICD-10-PCS procedure codes for an operating room procedure. These codes are listed here
Calculation	(Numerator/Denominator) X 1000
Specifications/definitions	AHRQ PSI 13 (navigate to PSI 13 Postoperative Sepsis Rate)
Data source(s)	Administrative claims data
Data entry/transfer	For hospitals who have signed a Data Sharing Agreement with KHA for their KY Inpatient and Outpatient (IPOP) administrative data, these data elements will be extracted and uploaded to KQC.
Baseline period	Preferred: CY 2019
Monitoring period	Monthly, beginning January 1, 2021
KQC Measure ID(s)	57: SEPSIS-1a Postoperative Sepsis (AHRQ - PSI 13)

Hospital-Onset Sepsis Mortality Rate

Sepsis: Mortality Rate (Not Present on Admission)	
In-hospital deaths per 1,000 discharges, among patients ages 18 through 89 years or obstetric patients, with hospital-onset sepsis	
Measure type	Outcome
Numerator	Number of in-hospital deaths due to severe sepsis and septic shock
Denominator	Number of patients with hospital-onset severe sepsis / septic shock. Note: hospital-onset is an infection that appears 48 hours or more after admission[1]
Rate calculation	(Numerator/Denominator) X 1000
Specifications/definitions	For specific diagnosis codes identifying severe sepsis / septic shock, refer to the numerator specifications for AHRQ PSI 13 (navigate to PSI 13 Postoperative Sepsis Rate).
Data source(s)	Administrative claims, medical records
Data entry/transfer	For hospitals who have signed a Data Sharing Agreement with KHA for their KY Inpatient and Outpatient (IPOP) administrative data, this data element will be extracted and uploaded to KQC
Baseline period	Preferred: CY 2019
Monitoring period	Monthly, beginning January 1, 2021
KQC Measure ID(s)	194: SEPSIS-1c Hospital-Onset Sepsis Mortality Rate

For more information on reducing sepsis, please visit the

[1] http://www.surgeryencyclopedia.com/Fi-La/Hospital-Acquired-Infections.html#ixzz4O1GlPiWy, http://bmcmedicine.biomedcentral.com/articles/10.1186/1741-7015-12-40, https://systematicreviewsjournal.biomedcentral.com/articles/10.1186/s13643-015-0103-6, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3470069/

Overall Sepsis Mortality Rate

All facilities

Sepsis: Mortality Rate	
In-hospital deaths per 1,000 discharges, among patients ages 18 through 89 years or obstetric patients, with sepsis	
Measure type	Required Outcome Measure
Numerator	Number of in-hospital deaths due to severe sepsis and septic shock
Denominator	Number of patients with severe sepsis / septic shock[2]
Calculation	(Numerator/Denominator) X 1000
Specifications/definitions	For specific diagnosis codes identifying severe sepsis / septic shock, refer to the numerator specifications for AHRQ PSI 13 (navigate to PSI 13 Postoperative Sepsis Rate). CMS excludes assignment to comfort/palliative care at or within 6 hours of admission to determine sepsis mortality. It is a hospital's choice whether to include or exclude comfort/palliative care, *as long as the monthly measurement is consistent with the baseline measurement and throughout the monitoring period*.
Data source(s)	Administrative claims, medical records
Data entry/transfer	For hospitals who have signed a Data Sharing Agreement with KHA for their KY Inpatient and Outpatient (IPOP) administrative data, this data element will be extracted and uploaded to KQC
Baseline period	Preferred: CY 2019
Monitoring period	Monthly, beginning January 1, 2021
KQC Measure ID(s)	195: SEPSIS-1d Overall Sepsis Mortality Rate

[2] This measure includes hospital-onset sepsis cases, post-operative sepsis cases, AND any cases that present with sepsis to the hospital (for example, those cases coming in as transfers, or presenting in the emergency department). This measure focuses on measuring the management of sepsis patients once they are identified.

Sepsis Screening to be performed at triage
All Acute/CAH/Rural Facilities

Sepsis: Screening to be performed at triage	
The rate of patients presenting to the Emergency Department who are screened for SEPSIS.	
Measure type	Required Process Measure
Numerator	Number of Emergency Department patients 18 years of age and older screened
Denominator	Number of patients 18 years of age and older presenting to the Emergency Department
Calculation	(Numerator/Denominator) X 100
Specifications/definitions	[3]Sepsis screening to be performed at triage to include: • Assessment to include all of the following: 1. Evidence of or suspicion for infection 2. Presence of 2 or more Systemic Inflammatory Response Syndrome (SIRS) criteria: a. Tachycardia (heart rate > 90 beats/min) b. Tachypnea (respiratory rate > 20 breaths/min) c. Fever or hypothermia (temperature > 38 or <36 degrees C) d. Leukocytosis, leukopenia or bandemia (white blood cells > 12,000/mm3, <4,000/mm3 or bandemia >= 10%) • If infection present and patient positive for 2 or more SIRS criteria, assess for the following: 3. Organ dysfunction (MAP <65 torr, Systolic BP <90, Creatinine > 2.0, Serum Lactate > 2.0 4. Platelets less than 100K 5. Total Bili >2.0, INR >1.5 upper limit normal 6. Urine output < 5ml/kg/hr for two hours with documented or suspected infection
Data source(s)	Data will be provided by hospital
Baseline period	Preferred: 2021Q3 (July – September 2021)

Monitoring period	Monthly, beginning October 1, 2021
KQC Measure ID(s)	245 SEPSIS-2c SEPSIS Screening Performed at Triage

[3]CMS SIRS & OD criteria delineates between adult patients who are pregnant with gestational age 20 weeks and older:

Two or more manifestations of systemic infection according to the Systemic Inflammatory Response Syndrome (SIRS) criteria, which are:

- For SIRS criteria, use the table below.
    - Use the Non-Pregnant criteria if Value "2" was selected for the *Pregnant 20 Weeks Through Day 3 Post-Delivery* data element.
    - Use the Pregnant 20 weeks through Day 3 Post-delivery criteria if Value "1" was selected for the *Pregnant 20 Weeks Through Day 3 Post-delivery* data element.

Non-Pregnant Criteria	**Pregnant 20 weeks through Day 3 Post-delivery Criteria**
Temperature > 38.3 C or <36.0 C (>100.9 F or <96.8 F)	Temperature ≥ 38.3 C or <36.0 C (≥100.9 F or <96.8 F)
Heart rate (pulse) >90	Heart rate (pulse) > 110
Respiration >20 per minute	Respiration > 24 per minute
White blood cell count >12,000 or ≤4,000 or >10% bands	White blood cell count >15,000 or <4,000 or >10% bands

Organ dysfunction, evidenced by any one of the following:

- Systolic blood pressure (SBP) <90 mmHg or mean arterial pressure <65 mmHg.
    - Use the Non-Pregnant criteria if Value "2" was selected for the *Pregnant 20 Weeks Through Day 3 Post-delivery* data element
    - Use the Pregnant 20 Weeks through Day 3 Post-delivery criteria if Value "1" was selected for the *Pregnant 20 Weeks Through Day 3 Post-delivery* date element.

Non-Pregnant Criteria	**Pregnant 20 weeks through Day 3 Post-delivery Criteria**
Systolic blood pressure (SBP) <90 mmHg or mean arterial pressure <65 mmHg.	Systolic blood pressure (SBP) <85 mmHg or mean arterial pressure <65 mmHg.
Systolic blood pressure decrease of more than 40 mmHg.	Systolic blood pressure decrease of more than 40 mmHg.
Acute respiratory failure as evidenced by a new need for	Acute respiratory failure as evidenced by a new need for

invasive or non-invasive mechanical ventilation.	invasive or non-invasive mechanical ventilation.
Creatinine >2.0 mg/dL	Creatinine > 1.2 mg/dL
Urine output <0.5 mL/kg/hour for two consecutive hours	Urine output <0.5 mL/kg/hour for two consecutive hours
Total Bilirubin >2 mg/dL (34.2 mmol/L)	Total Bilirubin > 2 mg/dL (34.2 mmol/L)
Platelet count <100,000	Platelet count <100,000
INR > 1.5 or aPTT >60 sec	INR >1.5 or PTT >60 sec
Lactate > 2 mmol/L (18.0 mg/dL)	Lactate >2 mmol?L (18.0 mg/dL) NOTE: Do not use lactate obtained during active delivery defined as documentation of uterine contractions resulting in cervical change (dilation or effacement) through delivery or childbirth.

Sepsis Bundle – 3 and 6 Hour
All Acute/CAH/Rural Facilities

Sepsis: Bundle Compliance	
Percent of identified sepsis patients who receive all of the 3 and 6 hour bundle elements	
Measure type	Required Process Measure
Numerator	Number of identified sepsis patients who received all of the following within three hours of presentation of severe sepsis: • Initial lactate level measurement • Broad spectrum or other antibiotics administered • Blood cultures drawn prior to antibiotics • Fluid Resuscitation: Administer 30 mL/kg of crystalloid fluid** for hypotension (defined as mean arterial pressure (MAP) < 65) or lactate (> 4)* Number of identified sepsis patients who received all of the following within six hours of presentation of severe sepsis: the "6-hour septic shock bundle" contains all the therapeutic goals to be completed within 6 hours of the time of presentation with septic shock: 1. to apply vasopressors (for hypotension that does not respond to initial fluid resuscitation) to maintain a MAP ≥65 mmHg, 2. to consider measurement of CVP and $ScvO_2$ when arterial hypotension persists despite volume resuscitation or initial lactate ≥4 mmol/L, and 3. to re-measure lactate if initial lactate was elevated *Two low BPs (either SBP<90 or MAP<65) within 3 hours of each other, not needing to be consecutive and can be 6 hours prior to or after time zero. **<u>For Discharges Starting with July 1, 2021</u>** ****Crystalloid Fluid Administration for Hypotension due to Sepsis** **<u>Exclusion criteria</u> for the 30 ml/kg fluid requirement for CHF & ESRD patients** **If Less than 30ml/kg are ordered and given, <u>All</u> the following criteria must be met:**

	The ordering Provider **must document** within a **single note** in the medical record: ▪ That administration of 30ml/kg of crystalloid fluids would be **detrimental or harmful** for the pt. despite having hypotension, a lactate >= 4 mmol/L, or documentation of septic shock; ▪ **AND** the pt. has one of the following conditions: ○ **Advanced or End Stage Heart Failure** (with documentation of **NYHA** class III or symptoms with minimal exertion, **OR NYHA** class IV or symptoms at rest or with any activity) ○ **Advanced or End Stage Chronic Renal Disease** (with documentation of Stage IV or GFR 15-29ml/min, **OR** Stage V or GFR <15ml/min **OR** ESRD) ▪ **AND** the **volume** of crystalloid fluids **in place of** 30ml/kg the pt. was to receive; ▪ **AND** an **order** for the volume of fluids **in place of** 30ml/kg to be administered ▪ **Utilizing IBW to determine the amount of Crystalloid Fluid Administration** The Provider can use Ideal Body Weight (IBW) to determine the target ordered volume if **ALL** the following conditions are met. Other acceptable weight terms include predicted weight, dosing weight, and adjusted body weight. ▪ Provider documents the **pt. is obese** (defined as BMI >30). ▪ Provider documents the **IBW is used** to determine target ordered volume. ▪ **IBW is documented** in the medical record. Provider orders are required for the fluids.
Denominator	Inpatients age 18 and over with an ICD-10-CM Principal or Other Diagnosis Code of Sepsis, Severe Sepsis or Septic Shock
Denominator Exclusions	The following patients are excluded from the denominator: Severe sepsis is not present. Patients Transferred in from another acute care facility. Patients receiving IV antibiotics for more than 24 hours prior to presentation of severe sepsis. Patients with a Directive for Comfort Care or Palliative Care within 3 hours of presentation of severe sepsis. Patients with an Administrative Contraindication to Care within 6hours of presentation of severe sepsis. Patients with an Administrative Contraindication to Care within 6 hours of presentation of septic shock. Patients with a Directive for Comfort Care or Palliative Care within 6

	hours of presentation of septic shock. Patients with septic shock who are discharged within 6 hours of Presentation. Patients with severe sepsis who are discharged within 6 hours of Presentation. Patients with a Length of Stay >120 days. Patients included in a Clinical Trial.
Calculation	(Numerator/Denominator) X 100
Specifications/definitions	This measure focuses on adults 18 years and older with a diagnosis of severe sepsis or septic shock. Consistent with Surviving Sepsis Campaign guidelines, the measure contains several elements, including measurement of lactate, obtaining blood cultures, administering broad spectrum antibiotics, fluid resuscitation, vasopressor administration, reassessment of volume status and tissue perfusion, and repeat lactate measurement. As reflected in the data element and their definitions, these elements should be performed in the early management of severe sepsis and septic shock.
Data source(s)	Data will be provided by hospital
Methodology	See CMS sampling methodology instructions (Attachment A)
Baseline period	Preferred: 2021Q3 (July – September 2021)
Monitoring period	Monthly, beginning October 1,2021
KQC Measure ID(s)	250 SEPSIS-2d 3 and 6 Hour Sepsis Bundle Compliance

Sepsis Bundle – 3 Hour
LTAC ONLY Facilities

Sepsis: Bundle Compliance	
Percent of identified sepsis patients who receive all the 3 hour bundle elements	
Measure type	Required Process Measure
Numerator	Number of identified sepsis patients who received all of the following within three hours of presentation of severe sepsis: • Initial lactate level measurement • Broad spectrum or other antibiotics administered • Blood cultures drawn prior to antibiotics • Fluid Resuscitation: Administer 30 mL/kg of crystalloid fluid** for hypotension (defined as mean arterial pressure (MAP) < 65) or lactate (> 4)* *****Best practice recommendation****** 1. to re-measure lactate within 6 hours if initial lactate was elevated. 2. Continue monitoring of vital signs to assess for signs of decompensation 3. Consider use of vasopressors (for hypotension that does not respond to initial fluid resuscitation), 4. Consider measurement of CVP and $ScvO_2$, when arterial hypotension persists despite volume resuscitation or initial lactate ≥4 mmol/L. 5. Consider transfer to short term acute care if appropriate **Exclusion criteria for the 30 ml/kg fluid requirement for CHF & ESRD patients** **If Less than 30ml/kg are ordered and given, All the following criteria must be met:** The ordering Provider **must document** within a **single note** in the medical record: ▪ That administration of 30ml/kg of crystalloid fluids would be **detrimental or harmful** for the pt. despite having hypotension, a lactate >= 4 mmol/L, or documentation of septic shock; ▪ **AND** the pt. has one of the following conditions: ○ **Advanced or End Stage Heart Failure** (with documentation of **NYHA** class III or symptoms with

	minimal exertion, **OR NYHA** class IV or symptoms at rest or with any activity) ○ **Advanced or End Stage Chronic Renal Disease** (with documentation of Stage IV or GFR 15-29ml/min, **OR** Stage V or GFR <15ml/min **OR** ESRD) ▪ **AND** the **volume** of crystalloid fluids **in place of** 30ml/kg the pt. was to receive; ▪ **AND** an **order** for the volume of fluids **in place of** 30ml/kg to be administered ▪ **Utilizing IBW to determine the amount of Crystalloid Fluid Administration** The Provider can use Ideal Body Weight (IBW) to determine the target ordered volume if **ALL** the following conditions are met. Other acceptable weight terms include predicted weight, dosing weight, and adjusted body weight. ▪ Provider documents the **pt. is obese** (defined as BMI >30). ▪ Provider documents the **IBW is used** to determine target ordered volume. ▪ **IBW is documented** in the medical record. Provider orders are required for the fluids.
Denominator	Inpatients age 18 and over with an ICD-10-CM Principal or Other Diagnosis Code of Sepsis, Severe Sepsis or Septic Shock
Denominator Exclusions	The following patients are excluded from the denominator: Severe sepsis is not present. Patient admitted to the LTACH facility with an active diagnosis of severe sepsis and/or septic shock, with ongoing treatment initiated at the transferring facility. Patients receiving IV antibiotics for more than 24 hours prior to presentation of severe sepsis. Patients with a Directive for Comfort Care or Palliative Care within 3 hours of presentation of severe sepsis. Patients with an Administrative Contraindication to Care within 6hours of presentation of severe sepsis. Patients with an Administrative Contraindication to Care within 6 hours of presentation of septic shock. Patients with a Directive for Comfort Care or Palliative Care within 6 hours of presentation of septic shock. Patients with septic shock who are discharged within 6 hours of Presentation. Patients with severe sepsis who are discharged within 6 hours of Presentation. Patients with a Length of Stay >120 days. Patients included in a Clinical Trial.
Calculation	(Numerator/Denominator) X 100

Specifications/definitions	This measure focuses on adults 18 years and older with a diagnosis of severe sepsis or septic shock. Consistent with Surviving Sepsis Campaign guidelines, the measure contains several elements, including measurement of lactate, obtaining blood cultures, administering broad spectrum antibiotics, fluid resuscitation, vasopressor administration, reassessment of volume status and tissue perfusion, and repeat lactate measurement. As reflected in the data element and their definitions, these elements should be performed in the early management of severe sepsis and septic shock.
Data source(s)	Data will be provided by hospital
Methodology	See CMS sampling methodology instructions (Attachment A)
Baseline period	Preferred: October-December 2025 in Kentucky Quality Counts
Monitoring period	Monthly, beginning January 1,2026
KQC Measure ID(s)	610 SEPSIS-2f 3-Hour Sepsis Bundle Compliance (LTAC)

Blood Culture Contamination Rate

All Acute/CAH/Rural Facilities

Sepsis: Blood Culture Contamination	
The number of blood culture sets with growth of skin commensals without the same organism in other sets collected within 24 hours over the total number of all eligible blood culture sets collected	
Measure type	Required Process Measure
Numerator	The number of blood culture sets with growth of skin commensals without the same organism in other sets collected within 24 hours
Denominator	The total number of all eligible blood culture sets collected
Rate calculation	$(\frac{numerator}{denominator}) * 100\%$
Specifications/definitions	CDC Recommendation
Data source(s)	EHR or laboratory-generated report Data will be provided by hospital
Baseline period	4th Quarter 2022
Monitoring period	Monthly, beginning January 1, 2023
KQC Measure ID(s)	321: SEPSIS Blood Culture Contamination

For more information, please refer to:

NHSN Terminology | NHSN | CDC

You may use the Terminology Browser to search for specific organisms. The synonym list is also available for your use.

Required Structural Sepsis Bundle Measures:

1. Are standing orders for nurses containing bundle elements available for patients who screen positive for sepsis? Y/N

246 SEPSIS-3a Bundle Elements Standing Orders
Monthly Submission starting July 1, 2021

2. Are order sets for MDs, APRNs, other LIPs containing bundle elements available for patients who screen positive for sepsis? Y/N

247 SEPSIS-3b SEPSIS Order Sets
Monthly Submission starting July 1, 2021