

**IMPROVING SEP-1
TREATMENT BUNDLE
COMPLIANCE AND SEPSIS
METRICS BY IMPLEMENTING
AN ED SEPSIS ALERT**

Ephraim McDowell Hospital System

WHERE WE STARTED

Hospital	Quarter	Population	Sample	Cannot Calculate	Incomplete Cases	B - Exclusions	D - Failures	Numerator Cases	Total Denominator	SEP-1 Rate
Ephraim McDowell Regional Med	2021 Q4	<u>120</u>	<u>120</u>	<u>0</u>	<u>0</u>	<u>62</u>	<u>26</u>	<u>32</u>	<u>58</u>	55.17%
Fort Logan Hospital (KY)	2021 Q4	<u>6</u>	<u>6</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>4</u>	<u>1</u>	<u>5</u>	20.00%
The James B. Haggin Memorial Hospital	2021 Q4	<u>5</u>	<u>5</u>	<u>0</u>	<u>0</u>	<u>2</u>	<u>3</u>	<u>0</u>	<u>3</u>	0.00%

Sepsis

SEP-1 Bundle Compliance



Sepsis Summary All Cases

Q1 2022

Discharges	81
Mortality O/E	1.25
LOS O/E	1.24
Readmission O/E	1.04
Cost per Case O/E	1.27
Variable Cost per Case	\$14,061

Fall 2021 – Sepsis Nurse Navigator joined our team.

Spring 2022 – Renewed effort to improve policies and procedures. Sepsis focus group formed. New badge buddies distributed. Educational posters displayed.

Summer 2022- Sepsis Alert System developed. Education provided by Sepsis Nurse Navigator to current associates. Sepsis education added to provider and new associate orientation. Improved communication with associates and providers regarding missed opportunities as well as successes. New policy and procedure implemented.

WHAT STEPS WE TOOK TO IMPLEMENT THE ED SEPSIS ALERT

- Created an ED Triage Sepsis Screen on all ED patients that was a hard stop in our EMR (Meditech)
- Hired a Sepsis Navigator with a background in ICU/Critical Care to spearhead the Sepsis program that also abstracts all sepsis charts
- Created a multidisciplinary focus group to help develop what the alert process would look like
- Enlisted a Physician Champion at each of our three facilities
- Education blitz developed and taught by the Sepsis Navigator to both Physicians and ED bedside staff at all 3 facilities
- Reviewed and made changes to all Sepsis policies and order sets creating a standing order set to be utilized in triage
- Introduced a Sepsis Alert Checklist to be utilized by the RN during a Sepsis Alert to ensure all steps in the treatment bundle are completed

Standing Orders Sepsis Triage in the Emergency Department

Standing orders to be started after positive sepsis screen for adult patients

Suspected Sepsis

Place a saline lock large bore IV (18 gauge or greater preferred)

CBC

CMP

Procalcitonin

Sepsis Lactate STAT

Venous blood gas STAT

Draw 2 sets of blood cultures

Portable Chest X-ray

UA (cath) and C&S if indicated

Blood Pressure q15 minutes

PT/INR

APTT

Height and Weight Documentation

SARS-FLUAB-RSV Panel PCR

Nurse Signature: _____ Order Date & Time: _____

Nurse Signature: _____ Order Date & Time: _____

Patient Name: _____ M# _____

Sepsis Alert Level 2 (Severe Sepsis)

- Sepsis Alert Called
 - Time: _____
- Remind Provider to order ED.SEPSIS2 order set
 - Time: _____
- Initial Lactate Collected
 - Time: _____
 - Result: _____
- Repeat Lactate Collected
 - Time: _____
 - Result: _____
- Blood Cultures Collected **(BEFORE ABX)**
 - Set 1 time: _____
 - Set 2 time: _____
- Antibiotics Administered
 - Time: _____
- Vital Signs Documented in Meditech Q15 Minutes

**** IF initial hypotension occurs (2 blood pressures with SBP <90 OR MAP <65 within 3 hours of each other) the SEP-1 bundle requires fluid resuscitation even if it is only severe sepsis ** NOTIFY PROVIDER**

- Pt wt in Kg: _____
- Fluid bolus based on actual body weight 30ml/kg
 - Time: _____
 - Amount: _____

OR
- Fluid bolus based on ideal body weight (must have BMI >30)
 - Time: _____
 - Amount: _____

OR
- Less than 30ml/kg
 - Remind provider they need to document reason, amount to give instead of 30ml/kg, and order that amount.

******NOT A PART OF THE MEDICAL RECORD******

Sepsis Alert Level 1 (Septic Shock)

- Sepsis Alert Called
 - Time: _____
- Remind Provider to order ED.SEPSIS2 order set
 - Time: _____
- Initial Lactate Collected
 - Time: _____
 - Result: _____
- Repeat Lactate Collected
 - Time: _____
 - Result: _____+
- Blood Cultures Collected **(BEFORE ABX)**
 - Set 1 time: _____
 - Set 2 time: _____
- Antibiotics Administered
 - Time: _____
- Vital Signs Documented in Meditech Q15 Minutes
- Fluid Resuscitation required even if no hypotension present:**
 - Pt wt in Kg: _____
 - Fluid bolus based on actual body weight 30ml/kg
 - Time: _____
 - Amount: _____

OR
 - Fluid bolus based on ideal body weight (must have BMI >30)
 - Time: _____
 - Amount: _____

OR
 - Less than 30ml/kg
 - Provider must document reason, amount to give instead of 30ml/kg, and order that amount.
- Document at least 2 blood pressures within one hour of fluid bolus completion.
 - Time: _____
 - Time: _____
- Vasopressor administered if 2 hypotensive blood pressures (SBP <90 OR MAP <65) occur within one hour of fluid completion. **NOTIFY PROVIDER**
 - Time: _____
- Remind Provider to complete and document repeat volume status and tissue perfusion assessment after fluids are started but within 6 hours.

Sepsis Alert Level 2 (Severe Sepsis)

SIRS = Two of the following within 6 hours of each other

- HR > 90
- Temperature > 100.9 OR < 96.8
- Respiration > 20/min
- WBC > 12,000 OR < 4,000 OR > 10% band

Sepsis = SIRS + known OR suspected source of infection

Severe Sepsis = Sepsis + at least ONE sign of organ dysfunction OR provider documentation of severe sepsis:

Signs of Organ Dysfunction include the following: (Only need 1)

- SBP < 90, MAP < 65, OR Drop of > 40 points SBP (only 1 needed to meet criteria)
- Creatinine > 2.0 OR UOP < 0.5 ml/kg/hr for 2 hours
- Bilirubin > 2 mg/dl (34.2 mmol/L)
- Platelet Count < 100,000
- INR > 1.5 or aPTT > 60 secs
- Lactate > 2 mmol/L (18.0 mg/dl)
- Acute Respiratory Failure AEB a new need for invasive or non-invasive mechanical ventilation

Sepsis Alert Level 1 (Septic Shock)

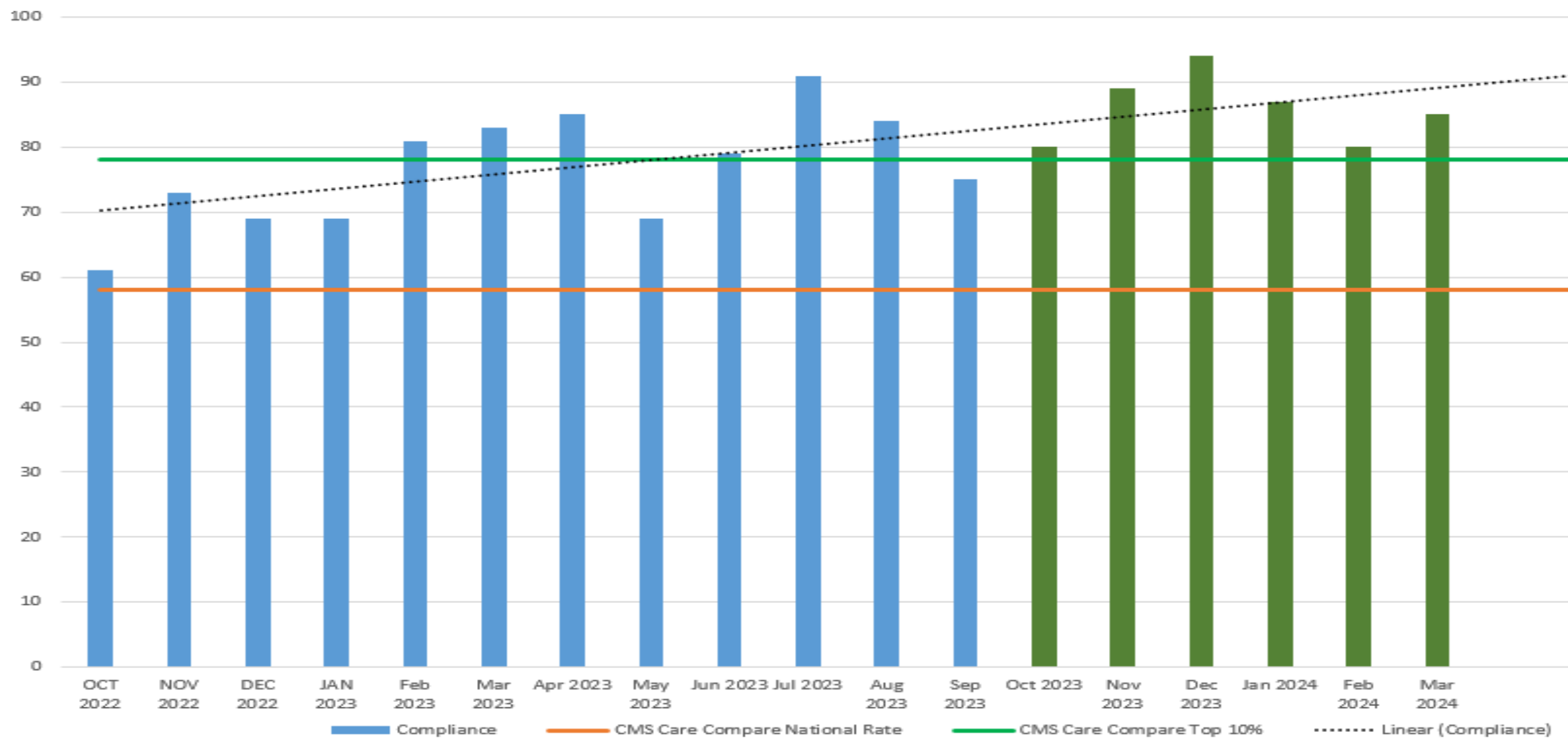
Septic Shock = Severe Sepsis + ONE of the following OR provider documentation of septic shock:

- Persistent Hypotension: 2 consecutive blood pressures SBP < 90 OR MAP < 65 within the hour after fluids complete.
- Lactate level > OR = 4 mmol/L

Y-Site Drug Compatibility in Antibiotics and Fluids Commonly Used for Sepsis				
	Cefepime	Piperacillin/ Tazobactam	Vancomycin	Lactated Ringers Normal Saline
Cefepime			Compatible*	Compatible
Piperacillin/ Tazobactam			Compatible* *	Compatible** *
Vancomycin	Compatible *	Compatible* *		Compatible

**All Zosyn products stocked contain EDTA
***Hosp Pharm. 2021. 56(4):228-234 - Y-site compatibility with LR

SEP-1 Bundle Compliance with Linear Forcast Trendline



Sepsis Summary All Cases

	2022 Q1	2023 Q1	2024 Q1
Discharges	79	84	158
Mortality O/E	1.27	0.96	0.70
LOS O/E	1.25	0.99	0.98
Readmission O/E	0.85	1.30	0.80
Cost/Case O/E	1.28	0.95	0.82
Variable Cost per Case	\$13,951	\$11,232	\$8,677