Sepsis

Samaritan Health Services

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- Alert Process
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Introduction

Purpose of Training

- Samaritan Health Services has created the following training to meet the DNV requirement(s) for education related to Sepsis and Septic Shock.
- Assignment of the training has been approved by the SHS Sepsis Committee.

Course Requirements

To complete this training, you must complete the module and answer ALL questions correctly.

Questions/Concerns

For questions and concerns related to:

- reason for assignment, course content, or quiz questions/answers, contact Brian Delmonaco at bdelmonaco@samhealth.org.
- technical issues, including courses not progressing or grading correctly, contact eLearning at elearning@samhealth.org.

CONTINUE

Outcomes

At the end of this module, the learner will be able to:

- Identify the components of a MEWS score.
- Identify assessment criteria for early recognition of Sepsis and Septic Shock.
- Identify interventions and monitoring for Sepsis and Septic Shock.
- Identify which patient care team members can initiate a Sepsis Huddle.

CONTINUE

In Adults

SHS Policy to Review:

Adult Sepsis and Septic Shock Guidelines/Management Procedure - GSRMC, SAGH, SLCH, SNLH, SPCH

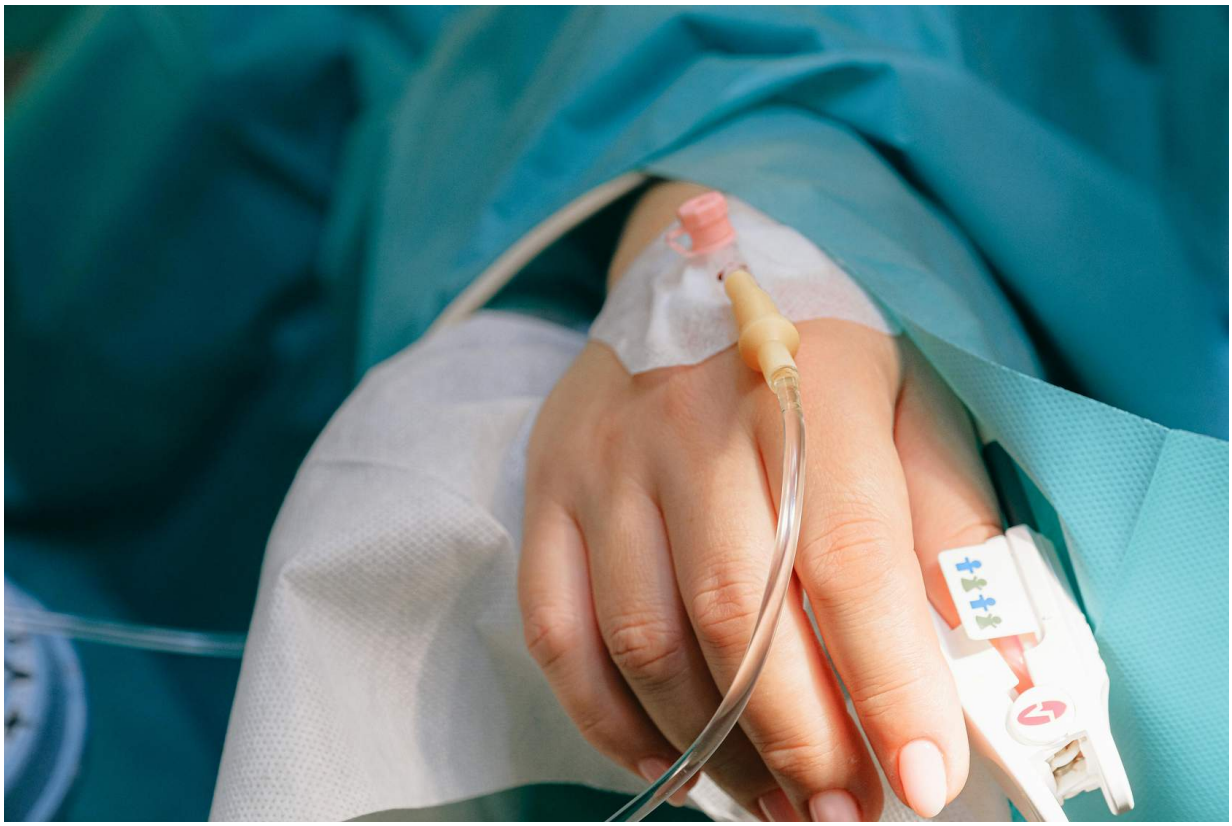
Systemic Inflammatory Response Syndrome (SIRS): *An exaggerated defense response of the body to a noxious stressor (infection, trauma, surgery, acute inflammation, ischemia/reperfusion, or malignancy, etc.) to localize and then eliminate the endogenous or exogenous source of the insult.*

Adult SIRS Criteria:

- Temperature less than 36 C (96.8F) or greater than 38C (100.9F)
- Heart rate greater than 90 beats/min
- Respiratory rate greater 20 breaths/min

- WBC over 12,000/mm3, under 4,000/mm3, or greater than 10% immature bands

The patient must meet 2 (or more) SIRS criteria to be considered SIRS positive.



Adult SEPSIS

is a known or suspected infection accompanied with **NEW** end organ disfunction as evidenced by any **ONE** of the following:

- Systolic blood pressure less than 90 mmHg or Mean Arterial Pressure less than 65mmHg (single episode)
- Lactate greater than 2 mmol/L
- Total Bilirubin greater than 2 mg/dL (acutely)
- Altered mental status (acute onset)
- INR greater than 1.5 (acutely)
- Respiratory failure: requiring Bipap, CPAP, mechanical ventilator, or per provider
- Platelets less than 100,000 uL
- Serum Creatinine greater than 2 mg/dL (acutely)

Adult Septic Shock

is a suspected infection **PLUS** end organ dysfunction (as noted by the previous adult sepsis criteria) **AND** one of the following:

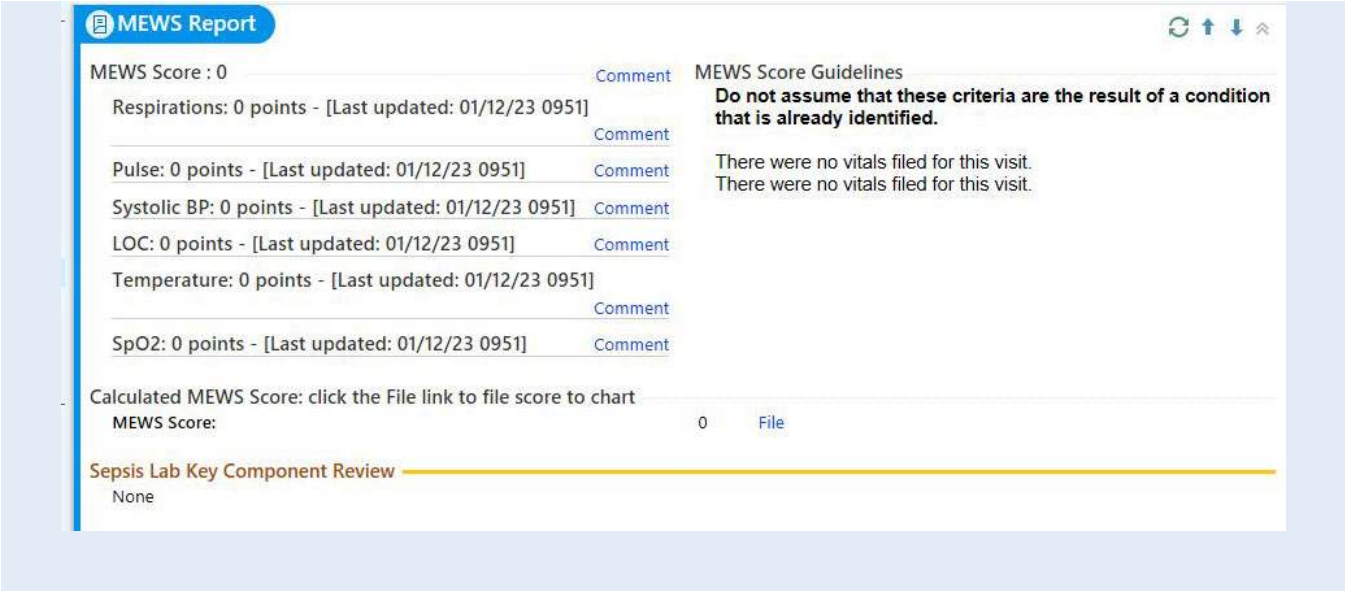
- Lactate greater than or equal to 4 mmol/L
- Hypotension x 2 occurrences in a 3-hour period: as evidenced by SBP less than 90mmHg, or MAP less than 65mmHg

MEWS: *Modified Early Warning Score*

MEWS is a score calculated by EPIC using points associated with each **SIRS Criteria** to identify patients who are at risk for clinical deterioration and may require higher levels of intervention.

SIRS criteria:

- Respirations
- Pulse
- Systolic BP
- Level of Consciousness (LOC)
- Temperature
- SpO2



MEWS Intervention Guide

***Note:** follow trending of MEWS scores for early indication of Sepsis.

Total Score 0-4 and
Individual Scores less than 3

Total Score 5+
OR
An Individual Score of 3

Total Score of 7+

Reset

CONTINUE

In Children

SHS Policy to Review:

Pediatric Care Standard Work - GSRMC, SAGH, SLCH, SPCH, SNLH

Pediatric SEPSIS

is a suspected/confirmed infection **PLUS** two (or more) positive **SIRS** criteria (one **MUST** include abnormal temperature or WBC).

Pediatric SIRS criteria includes:

- Core Temp greater than 38 C or less than 36 C
- Leukocyte elevated or depressed
- Tachycardia
- Tachypnea
- Altered mental status
- Decreased urine output
- Delayed capillary refill or bounding capillary refill
- LATE stages: Hypotension

Pediatric Septic Shock

is defined as a known infection **WITH** any of the following:

- Hyper/hypothermia
- Persistent Tachycardia

- Altered Mental Status (Inconsolable or sleepy)

***In addition to ONE (or more) of the following:**

- Decreased peripheral pulses compared with central pulses.
- **COLD** shock - capillary refill greater than 2 seconds, decreased pulses, mottled/cool extremities, SCvO2 greater than 70.
- **WARM** shock - brisk capillary refill, bounding pulses, wide pulse pressure, SCvO2 greater than 70. (This is where you may typically see hypotension present, which is a late stage of shock).
- Decreased Urine output.

PEWS: *Pediatric Early Warning Score*

PEWS is a score calculated by EPIC using points associated with each **SIRS Criteria** to identify pediatric patients who are at risk for clinical deterioration and may require higher levels of intervention.

PEWS Algorithm/Scoring Guidelines

TOTAL 0-2	TOTAL 3-4	TOTAL 5-6	TOTAL GREATER THAN/EQUAL TO 7	A CATE OF TOT

GOOD

- Re-score at the next routine assessment.

TOTAL 0-2	TOTAL 3-4	TOTAL 5-6	TOTAL GREATER THAN/EQUAL TO 7	A CATE OF TOT

WARNING

- Notify charge nurse.
- Re-score every 2-4 hrs as assessment indicates.*

TOTAL 0-2	TOTAL 3-4	TOTAL 5-6	TOTAL GREATER THAN/EQUAL TO 7	A CATE OF TOT

DANGER

- Notify charge nurse & attending to assess.
- Implement any intervention.

- Consider peds consult & Ped RRT.
- Re-score (every 1-2 hrs)* as indicated.

[*ED note: Candidate for transfer/admit to GSRMC with improvement, otherwise transfer to PICU.*]

TOTAL 0-2	TOTAL 3-4	TOTAL 5-6	TOTAL GREATER THAN/EQUAL TO 7	A CATE OF TOT

EXTREME DANGER

- Immediate Ped-RRT.
- Notify charge nurse, attending, & consult peds.
- Consider Pediatric CODE 99.
- Re-score every 30 mins & PRN.

[*ED note: Candidate for transfer to PICU.*]

TOTAL 0-2	TOTAL 3-4	TOTAL 5-6	TOTAL GREATER THAN/EQUAL TO 7	A CATE OF TOT

- Notify charge nurse & attending to assess.
- Implement any intervention.
- Consider Peds consult & Ped-RRT.
- Re-score in 30 min-1hr & if unchanged, call Ped RRT and prepare for potential transfer.*

[*ED note: Candidate for transfer to PICU.*]

***Vital Signs may need to be performed MORE often than PEWS scoring requirements.**

(*Pediatric Early Warning Scoring [PEWS] Policy*)

CONTINUE

Sepsis Criteria

Lactate Levels

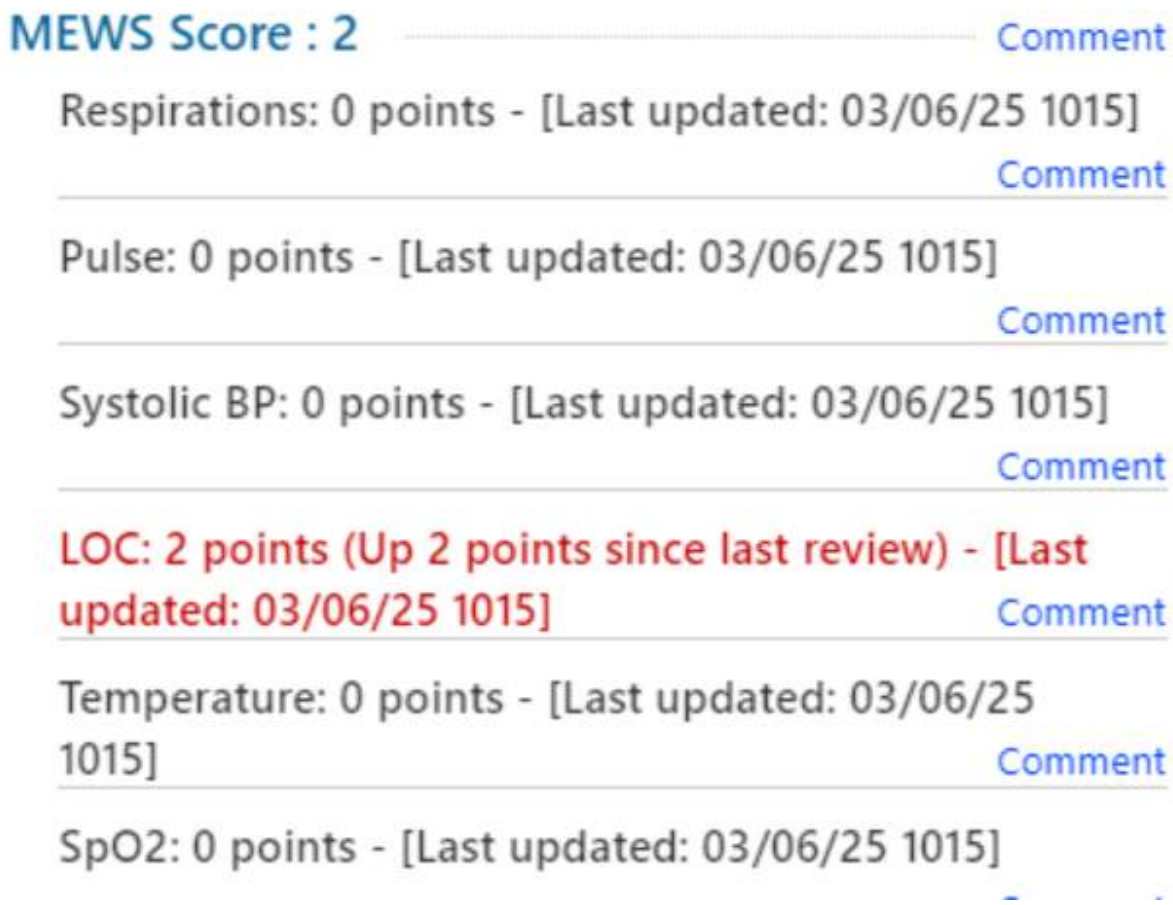
- Lactate level greater than 2-3.9 mmol/L indicates acute organ dysfunction in **Sepsis**.
- Lactate level 4 mmol/L or greater indicates serious organ dysfunction in **Septic Shock**.

***Lactate levels should trend downward with effective fluid resuscitation.**

Sepsis Screening:

1. **Enter the patient vital signs and assess the MEWS/PEWS score.**

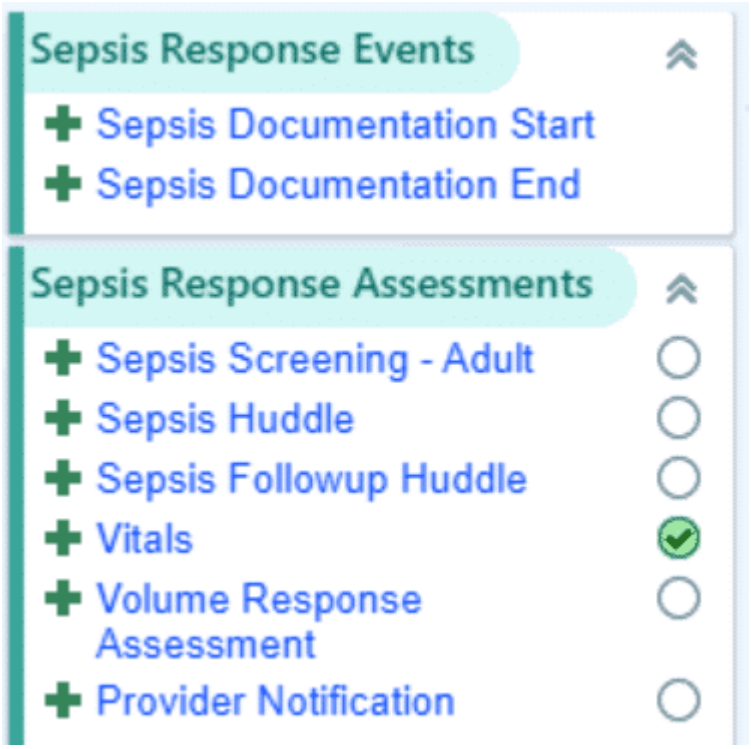
If the MEWS/PEWS score is elevated, initiate Sepsis Screening.

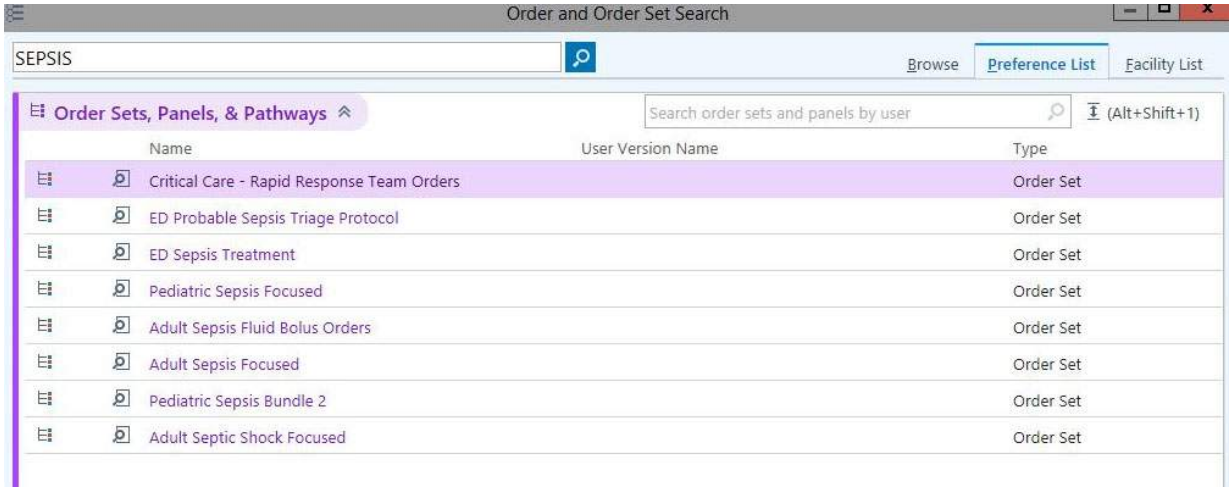


2. **Use Sepsis Narrator & Sepsis Checklist to start the sepsis clock & document Sepsis Huddle.**

ED: If Sepsis criteria are met, initiate **Probable Sepsis Triage Protocol.**

Inpatient: Order for other care areas will be per Provider.


Sepsis Response Events
Sepsis Documentation Start
Sepsis Documentation End
Sepsis Response Assessments
Sepsis Screening - Adult
Sepsis Huddle
Sepsis Followup Huddle
Vitals
Volume Response Assessment
Provider Notification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Type
Critical Care - Rapid Response Team Orders
Order Set
ED Probable Sepsis Triage Protocol
Order Set
ED Sepsis Treatment
Order Set
Pediatric Sepsis Focused
Order Set
Adult Sepsis Fluid Bolus Orders
Order Set
Adult Sepsis Focused
Order Set
Pediatric Sepsis Bundle 2
Order Set
Adult Septic Shock Focused
Order Set

CONTINUE

Alert Process

Sepsis Huddle

Complete in EPIC to alert all members of the care team to the sepsis patients' status:

SEPSIS ALERT

Sepsis Alert

Patient has sepsis and may have septic shock - VS every 15 minutes and hourly temps until next follow up huddle or as ordered.

SEPSIS WATCH

Sepsis Watch

Patient may not have sepsis/septic shock but still requires monitoring or waiting on labs for provider to rule out sepsis, VS every 30 minutes and hourly temperatures x 4 hours or until next follow up huddle or as ordered.

CONTINUE ROUTINE CARE

Continue Routine Care

Sepsis is not suspected; nursing may end the sepsis narrator and continue routine care.

Any member of the care team may initiate a sepsis huddle.

FOR GSRMC STAFF ONLY:

Medical Alert Sepsis

- Septic Shock is a medical emergency and has a hospital mortality rate of 30-50%.
- Additional resources are available at GSRMC to assist with the care of patients experiencing Septic Shock. The Medical Alert Sepsis will bring together additional staff (ICU Resource RN, Lab, and IV therapy) in a coordinated, rapid response to join the care teams taking care of septic patients.
- The care of patients with sepsis includes bundled elements such as administering an IV fluid bolus, drawing blood cultures, and infusing IV antibiotics. The Sepsis Alert will help to administer all necessary treatments quickly, which has been shown to improve patient outcomes.

Emergency Department

- A Medical Alert Sepsis may be utilized any time additional resources are needed to care for a septic patient and is encouraged every time a patient has SIRS and suspected infections, plus any one or more of the following:
    - 1 episode of hypotension (documented pressures at SHS)

- Initial lactate equal to or greater than 4
- Septic shock

- Overhead page - **“Medical Alert + Sepsis + Location”**

Inpatient Areas

- A **Rapid Response** is used as the initial response to obtain additional resources. A Rapid Response may be activated for patients with signs or symptoms of hemodynamic instability including:
  - Systolic BP less than 90 MAP or less than 65
  - Acute neurological change
  - Two SIRS criteria met
  - MEWS score of 7 or more
  - Suspected sepsis
  - Septic shock

- The Rapid Response team will assess the patient and activate a **Medical Alert Sepsis** as needed.
- Overhead page - **“Medical Alert + Rapid Response Team + Location”**

CONTINUE

Volume Responsiveness Testing

Volume responsiveness testing: used to determine if additional fluids should be given, and/or if vasopressors should be initiated.

Perform Fluid Volume Response Testing: initiate protocol per physician order after the administration of 30ml/kg fluid bolus if the patient progresses toward or remains in septic shock.

- For more information, review the SHS policy: *Volume Responsiveness Testing with Passive Leg Raise Standard Work - GSRMC, SAGH, SLCH*

CONTINUE

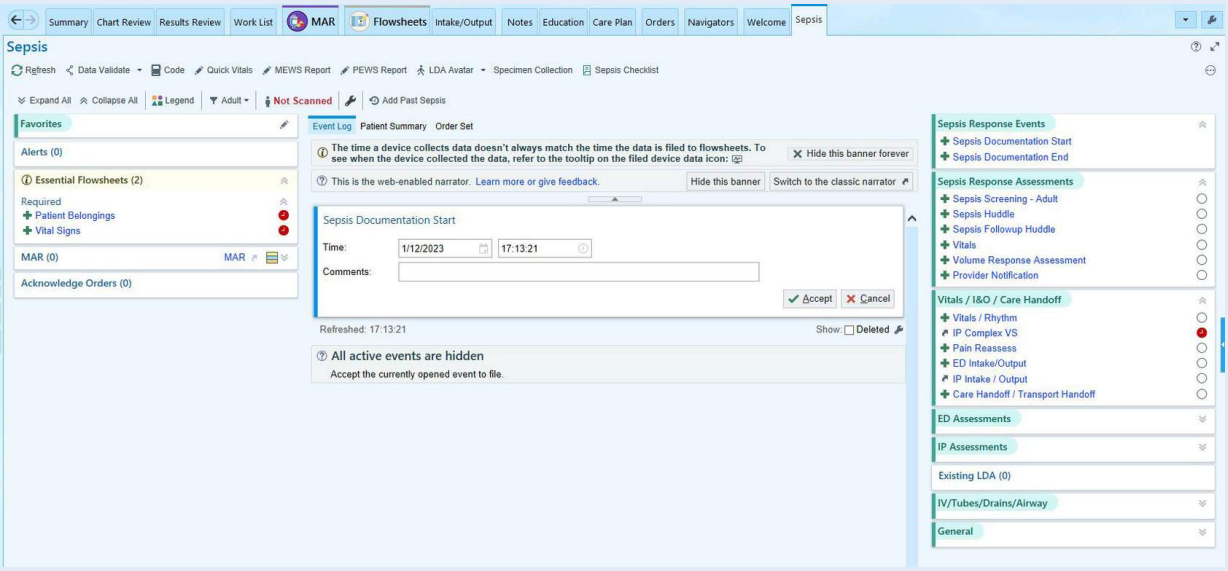
Managing Sepsis Patients

Preparing for Admission or Transfer

- Complete I&O before patient is transferred.
- Notify receiving RN that the Sepsis Narrator has been started, including the total volume of fluid infused.

- Do **NOT** end the Sepsis Narrator.
- Confirm MEWS/PEWS is filed along with a full set of Vital Signs and Glasgow Coma Scale (GCS) in EPIC.

Inpatient Sepsis

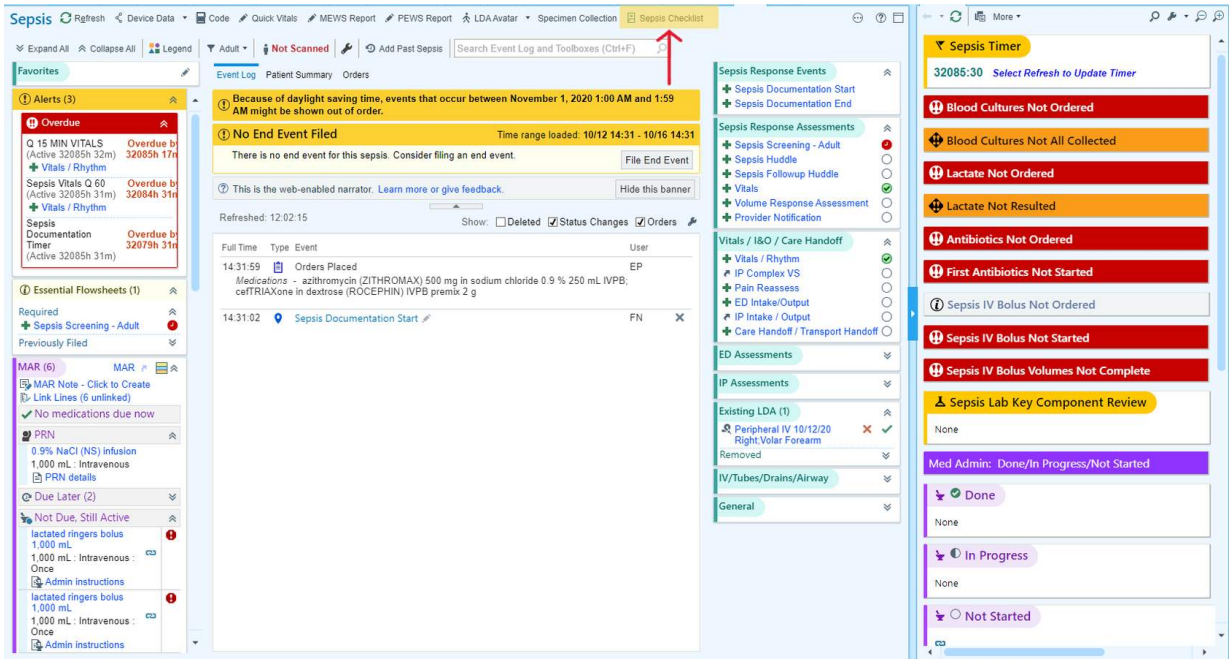


- Consider Rapid Response Team for worsening MEWS/PEWS score or deterioration of patient condition.
- Initiate Sepsis Huddle with attending Physician and Charge Nurse.

- Initiate Sepsis Narrator & complete “Sepsis Screening."

Sepsis Checklist

- Step 1 - Start **Sepsis Narrator**.
- Step 2 - Use **Sepsis Checklist**.



EPIC Sepsis Narrator & Sepsis Checklist

- Can be initiated at any time symptoms are identified.
- Narrator and Checklist prompt care steps.

Ending the Sepsis Narrator

The Nurse may **End Sepsis Narrator** approximately 6 hours after the Sepsis Narrator is started **IF** the following criteria are met:

- Vital signs are stable.
- Repeat lactate is less than 2 mmol/L (or trending down).
- Patient is at baseline mental status.
- No other reasons to continue sepsis Alert/Watch.

CONTINUE

Quiz

To pass the training, you must answer ALL quiz questions correctly. You will be able to retake the quiz if you don't pass.

Question

01/04

How is the MEWS score created?

- From the patient's chief complaint.
- By assigning points to each SIRS criteria based on patient vital signs & level of consciousness.
- By dividing the stroke volume by the cardiac output.

Question

02/04

Which lactate level meets Septic Shock criteria?

- ○ 2.0 mmol/L
- ○ 3.1 mmol/L
- ○ Greater than or equal to 4.0 mmol/L

Question

03/04

When is it necessary to complete fluid volume responsiveness testing?
(select all that apply)

- [ ] After an initial 30ml/kg fluid bolus.
- [ ] If the patient remains hemodynamically unstable.
- [ ] Per physician order.
- [ ] Per patient request.

Question

04/04

Which members of the patient care team can initiate a Sepsis Huddle?
(select all that apply)

- [ ] Charge Nurse
- [ ] Primary Nurse
- [ ] Primary Physician

References and Conclusion

Click this button to exit the module

EXIT

Click this button to restart the module

RESTART

References

Chakraborty, R., & Burns, B. (2021). *Systemic inflammatory response syndrome*. PubMed. https://pubmed.ncbi.nlm.nih.gov/31613449/

Samaritan Health Services. (2024) *Adult Sepsis and Septic Shock Guidelines/Management Procedure - GSRMC, SAGH, SLCH, SNLH, SPCH*. https://samaritanhealthservices.navexone.com/content/docview/?app=pt&source=unspecified&docid=11260

Samaritan Health Services. (2024) *Volume Responsive Testing with Passive Leg Raise Standard Work - GSRMC, SAGH, SLCH*. https://samaritanhealthservices.navexone.com/content/docview/?

app=pt&source=unspecified&docid=12639

Samaritan Health Services (SHS). (2020) Epic screenshots: Sepsis narrator.

Samaritan Health Services (SHS). (2022) Epic screenshots: Sepsis narrator.