

# Improving Sepsis Care- Aspirus Health's Journey

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Passion for excellence. Compassion for people.



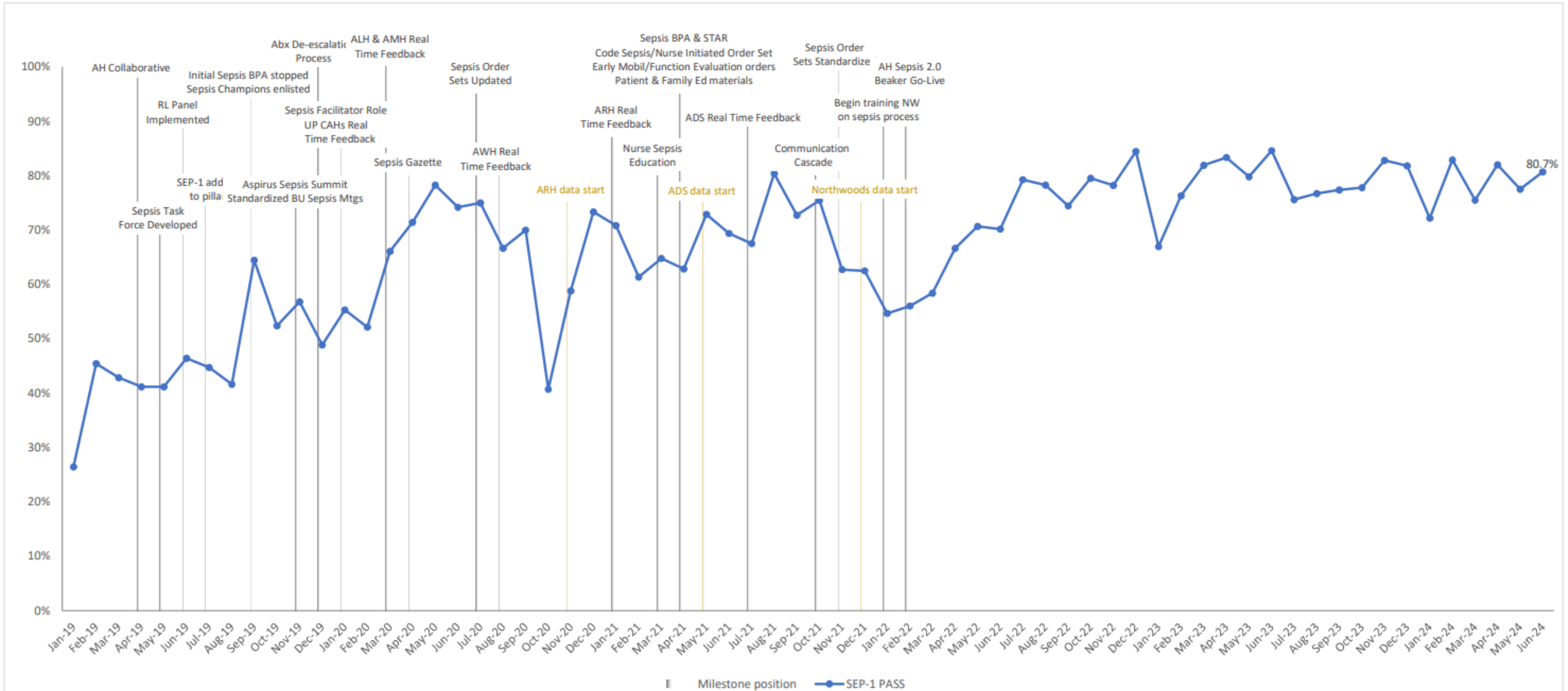
# Who We Are:

## Aspirus Health

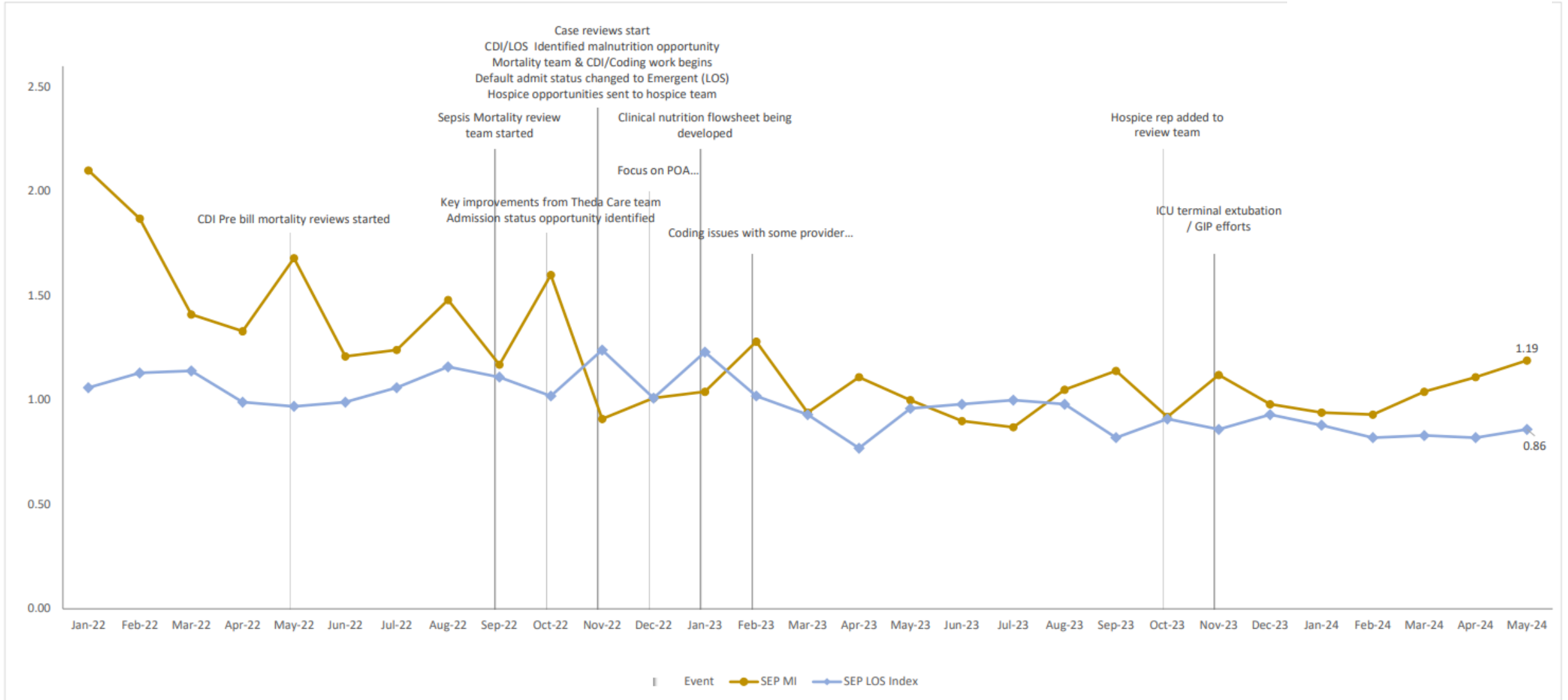
- Nonprofit, community-directed health system
  - Based in Wausau, WI
    - Northeastern MN
    - Northern & Central WI
    - Northern & Western Upper Peninsula of MI
- 18 Hospitals
- 130 Outpatient locations



# Improving Early Detection & Treatment



# Sepsis Mortality



# Key Components of Sepsis Improvement

# Leadership Commitment

- Senior Leadership Support
  - Senior Executive Sponsor- CMO sepsis champion
  - System Sepsis Steering Committee Chair-ED physician
  - System Sepsis Clinical Outcomes RN- Sepsis Facilitator
- SEP-1 Bundle Compliance is a pillar metric
  - Built into provider performance contracts at local levels
- Defined Sepsis Program Reporting Structure



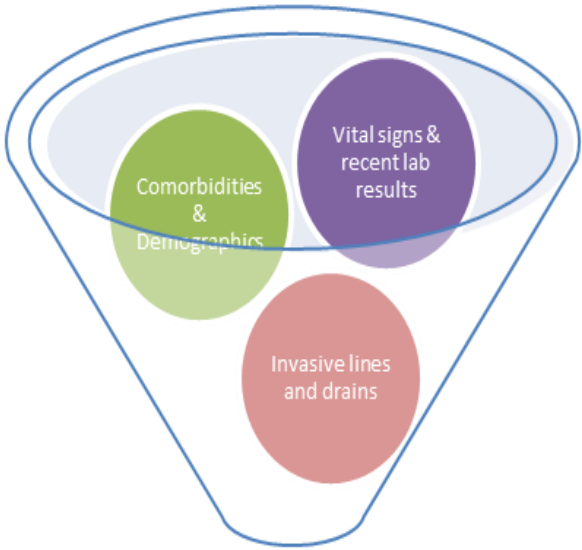
# Multidisciplinary Expertise

- System and regional multi-disciplinary teams:
  - Nursing Leaders
  - ED and Inpatient Providers
  - Nurses
  - Nurse Educators
  - Lab
  - Pharmacy
  - Infectious Disease Pharmacist
  - Quality
  - Abstractors
  - Clinical Informatics
  - IT
- All locations with designated provider and nursing sepsis champions

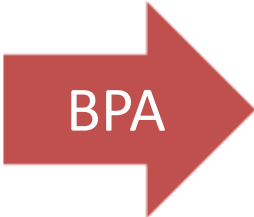


# Integrated EHR & Standardized Protocols

## Predictive Analytics Tool



RISK OF SEPSIS= 9 or greater



**Warning: This patient's early detection of sepsis score indicates a high risk.**

**!! This patient meets Early Detection of Sepsis criteria !!**

Complete the Sepsis Screening below **OR** select an acknowledge reason for why you didn't screen.

State:	09/22/1978	06/21/1988	08/12/1988	09/12/1978
BP:	110/50		110	110
Pulse:	100	110	110	110
Resp:	28	30	30	30
Temp:	(T) 102.8 °F (39.3 °C)	(T) 33.8 °F (1 °C)	(T) 103 °F (39.4 °C)	(T) 103 °F (39.4 °C)
SpO2:	92%			

No results found for: WBC, MBAN, LAC, APCO

Dashboard | Do Not Document | Document Screening OR Acknowledge | [Collapse](#)

### Sepsis Screening

Does the patient have 2 or more SIRS criteria?

Yes No

2 or more of the following:  
Temp > 38.3 C (101 F) or < 36.0C (96.8 F).  
Altered mental status.  
HR > 90 bpm, Resp > 20/min,  
glucose > 140 mg/dL in the absence of diabetes.  
WBC > 12 k/wcL, WBC < 4 k/wcL,  
WBC count > 10% bands

### Signs of Infection

Does the patient have one or more signs of infection?

Yes No

Sources include but not limited to: Pneumonia, UTI, Meningitis, Bone/joint, CLABS, implantable device, Acute abdominal, Skin/soft tissue, Wound infections, Endocarditis.

- Are there shivering/chills present?
- Hypothermia less than 36 C (96.8 F)
- Hyperthermia greater than 38.3 C (101.0 F)

If you answer YES to both questions, contact provider to discuss a positive sepsis screening.

[Will contact provider](#) [Negative sepsis screen](#)

If your patient meets sepsis criteria, notify provider and document the sepsis huddle.

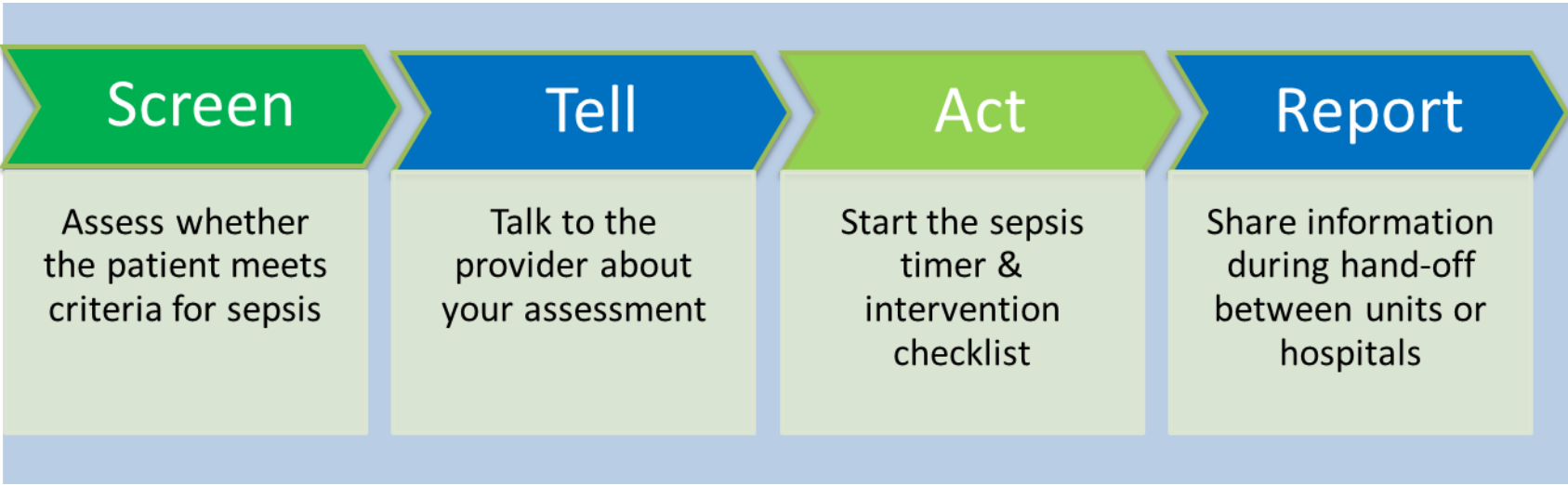
**Acknowledge Reason**

Hospice or Comfort Care | Trauma | Treating COVID-19 | Sepsis already diagnosed | Remind Me in Five Minutes



# Integrated EHR & Standardized Protocols

## Screening



# Integrated EHR & Standardized Protocols

## Sepsis Timer & Checklist

**SEP-1 Compliance:** The % of patients meeting severe sepsis or septic shock CMS criteria that met all appropriate bundle intervention elements.

### Within 3 hours of presentation of severe sepsis:

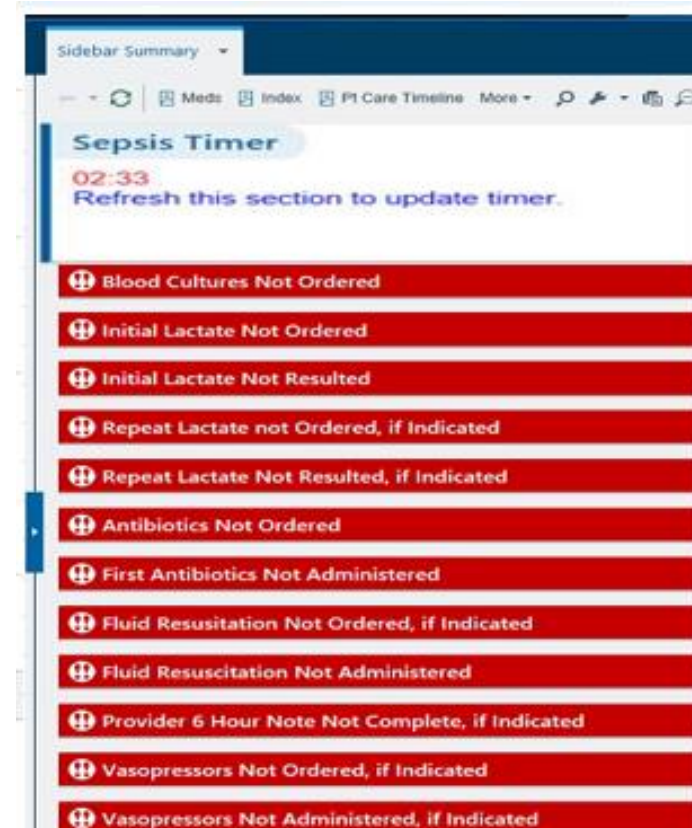
- Collect initial lactate
- Obtain blood cultures prior to antibiotics being administered
- Administer IV Broad Spectrum Antibiotics
- IV Fluid bolus (if patient is hypotensive, initial lactate is > 4, or diagnosed with septic shock)

### Within 6 hours of presentation:

- Collect repeat lactate if the initial lactate is >2

### Within 6 hours of Septic shock presentation: (initial lactate >4, SBP <90 after IVF bolus)

- Provider-Repeat volume status and tissue perfusion assessment (focused exam)
- Administer Vasopressor for persistent hypotension



# Integrated EHR & Standardized Protocols

## Order Set & Dot Phrases

- Sepsis order set built to ensure:

- ➔ Repeat lactate automatically ordered in 3hrs if lactate >2
- ➔ Auto-calculation of fluid volume based on pt. weight or BMI
- ➔ Nurse practice alert to check b/p following fluids
- ➔ Early mobilization

Dot Phrases:

- ➔ .sepsisfluidexclusion
- ➔ .sepsisreassessment

The screenshot displays an EHR interface for a Sepsis Reassessment. At the top, there are tabs for 'Abbrev' and 'Expansion'. Below this, the order set is identified as 'SEPSISREASSESSMENT' with the expansion 'Severe Sepsis 6-hour Focused Reassessment'. The main section is titled 'Sepsis-Repeat Focused Exam' and shows a 'Current Risk of Sepsis Score: 2'. A table of vitals is displayed with columns for dates and times: 01/13/19 1000, 01/13/19 1400, 01/14/19 1015, and 01/15/19 1000. The vitals table includes BP, Pulse, Resp, Temp, and SpO2. Below the vitals table, there is a 'Focused Exam' section with red annotations pointing to specific findings. The findings include 'Cardiac Rhythm: [CARDIAC 22548]', 'Peripheral Pulses: [Peripheral Pulses 25607]', 'Capillary Refill: [Capillary Refill 26608]', 'Skin Condition: [Skin Condition 26609]', and 'Skin Color: [Skin Color 26610]'. The 'Other Findings' section is empty. The 'Plan/Recommendations' section is also empty. A legend at the bottom right explains the color coding for findings: Blue (Normal), Yellow (Abnormal), and Red (Abnormal with potential for action).

Vitals:	01/13/19 1000	01/13/19 1400	01/14/19 1015	01/15/19 1000
BP:				
Pulse:	92	(I) 124	(I) 124	100
Resp:	24	24	24	24
Temp:	100.3 °F (37.9 °C)	(I) 101.7 °F (38.7 °C)	(I) 101.7 °F (38.7 °C)	(I) 100 °F (38.4 °C)
SpO2:				



# Education

- Sepsis Awareness Campaign
- Training Programs- Regular workshops, training, team meetings
- Onboarding- Include Sepsis training in both provider and nursing orientation
- Resources

- o Handbooks
- o Provider Quick Guide
- o Tip Sheets
- o Badge Buddies
- o Bolus Stickers- B/P required
- o Case Studies
- o Sepsis Jeopardy
- o Sepsis Gazette



### SEP-1 Sepsis Protocol

Broad Spectrum Antibiotics	• Approved antibiotics need to be administered within 3 hours of severe sepsis
Blood Cultures Drawn	• Need to be drawn prior to antibiotics within 3 hrs of severe sepsis
Initial Lactate	• This needs to be drawn within 3 hrs of severe sepsis.
Repeat Lactate	• If the initial lactate is >2.0 mmol/L, a repeat lactate needs to be drawn within 6 hours of severe sepsis time
Crystalloid Fluids 30ml/kg	• Initiation of crystalloid fluids prior to, at the time of, or after the presentation of Initial Hypotension, or Initial Lactate Level Result >=4 mmol/L, or provider documentation of Septic Shock
Repeat Focus Exam	• Repeat volume status and tissue perfusion assessment must be performed to assess the patient's response to the administration of crystalloid fluids within 6 hours following septic shock • Using...sepsisreassessment ensures all components are met
Vasopressors for Persistent Hypotension	• If 1 hr after the initial fluid resuscitation is complete, hypotension persists, then a vasopressor is required

- Use of the Aspirus System Sepsis Order Sets will help ensure compliance, auto-repeat lactate:
  - Aspirus ED provider adult sepsis orders
  - Aspirus IP provider adult sepsis orders

**Sepsis Bolus**  
 30mL/Kg= \_\_\_\_\_ mLs total volume  
 IBW= \_\_\_\_\_ mLs total volume (if >30 BMI)  
 End Time of Total Volume \_\_\_\_\_ am/pm  
**B/P required following fluids!**  
 (If systolic <90, MAP<65, or systolic decreased more than 40 from baseline due to infection/sepsis and not other reasons, recheck and notify provider as vasopressor is required if persists in the hour following fluids.)

**Sepsis Handbook- ED Nurse**  
 A comprehensive guide to:  
 • Understanding sepsis workflows  
 • Setting up your workspace  
 • Using the new sepsis tools  
 Go-Live April 18, 2021

**SEPSIS JEOPARDY**

Better "lactate" than Never	Sepsis Charting	CMS SEP-1 BUNDLES	Sepsis in Action	Sepsis BPA
100	100	100	100	100
200	200	200	200	200
300	300	300	300	300

# Education

## Patient & Family

**Education**

Assessment | **Education**

Clear Selections | **Active** | All

- Sepsis
  - What is Sepsis?
  - What can increase your risk ...
  - Signs & Symptoms of Sepsis
  - How we Diagnose Sepsis
  - How we Treat Sepsis
  - After Care
  - Long Term Effects of Sepsis
  - Prevention
  - Advanced Care Planning

**Sepsis**

**Title Points for Sepsis**

**What is Sepsis?**

Explanation of what sepsis is and how the body reacts.

Not started

**What can increase your risk of Sepsis**

List of risk factors that increase the risk of developing sepsis.

Not started

**Signs & Symptoms of Sepsis**

Signs & symptoms that you may experience if you have sep

Not started

**How we Diagnose Sepsis**

Diagnoses tests & procedures that may be used to diagnose sepsis.

# Sepsis

### Signs of infection and sepsis at home

Common infections can sometimes lead to sepsis. Sepsis is a deadly response to an infection.

	<b>Green Zone</b> No signs of infection.	<b>Yellow Zone</b> Take action today.	<b>Red Zone</b> Take action now!
Are there changes in my heartbeat or breathing?	<ul style="list-style-type: none"> <li>My heartbeat is as usual.</li> <li>Breathing is normal for me.</li> </ul>	<ul style="list-style-type: none"> <li>Heartbeat is faster than usual.</li> <li>Breathing is a bit more difficult and faster than usual.</li> </ul>	<ul style="list-style-type: none"> <li>Heartbeat is very fast.</li> <li>Breathing is very fast.</li> </ul>
I have not had a fever (24 hours not taking for a fever).	I have not had a fever (24 hours not taking for a fever).	Fever between 100°F to 101.4°F.	Fever is 105°F or greater.
I feel cold.	I feel cold and cannot get warm.	I am shivering or my teeth are chattering.	Temperature is below 96.8°F.
My energy level is as usual.	I am too tired to do most of my usual activities.	I am very tired.	I cannot do any of my usual activities.
My thinking is clear.	Thinking feels slow or not right.	My caregivers tell me I am not making sense.	
I feel well.	<ul style="list-style-type: none"> <li>I do not feel well.</li> <li>I have a bad cough.</li> <li>My wound or IV site looks different.</li> <li>I have not urinated (peed) for 5 or more hours. When I do urinate (pee), it burns, is cloudy or smells bad.</li> </ul>	<ul style="list-style-type: none"> <li>I feel sick.</li> <li>My wound or IV site is painful, red, smells or has pus.</li> </ul>	

### 4 WAYS TO GET AHEAD OF SEPSIS

Anyone can get an infection, and almost any infection can lead to sepsis.

- 1 PREVENT INFECTIONS**  
Take your best care to prevent infections.
- 2 PRACTICE GOOD HYGIENE**  
Remember to wash your hands and keep cuts clean and covered until healed.
- 3 KNOW THE SYMPTOMS**  
Symptoms of sepsis can include any one or a combination of these.
- 4 ACT FAST**  
Get medical care IMMEDIATELY if you suspect sepsis or have an infection that's not getting better or is getting worse.

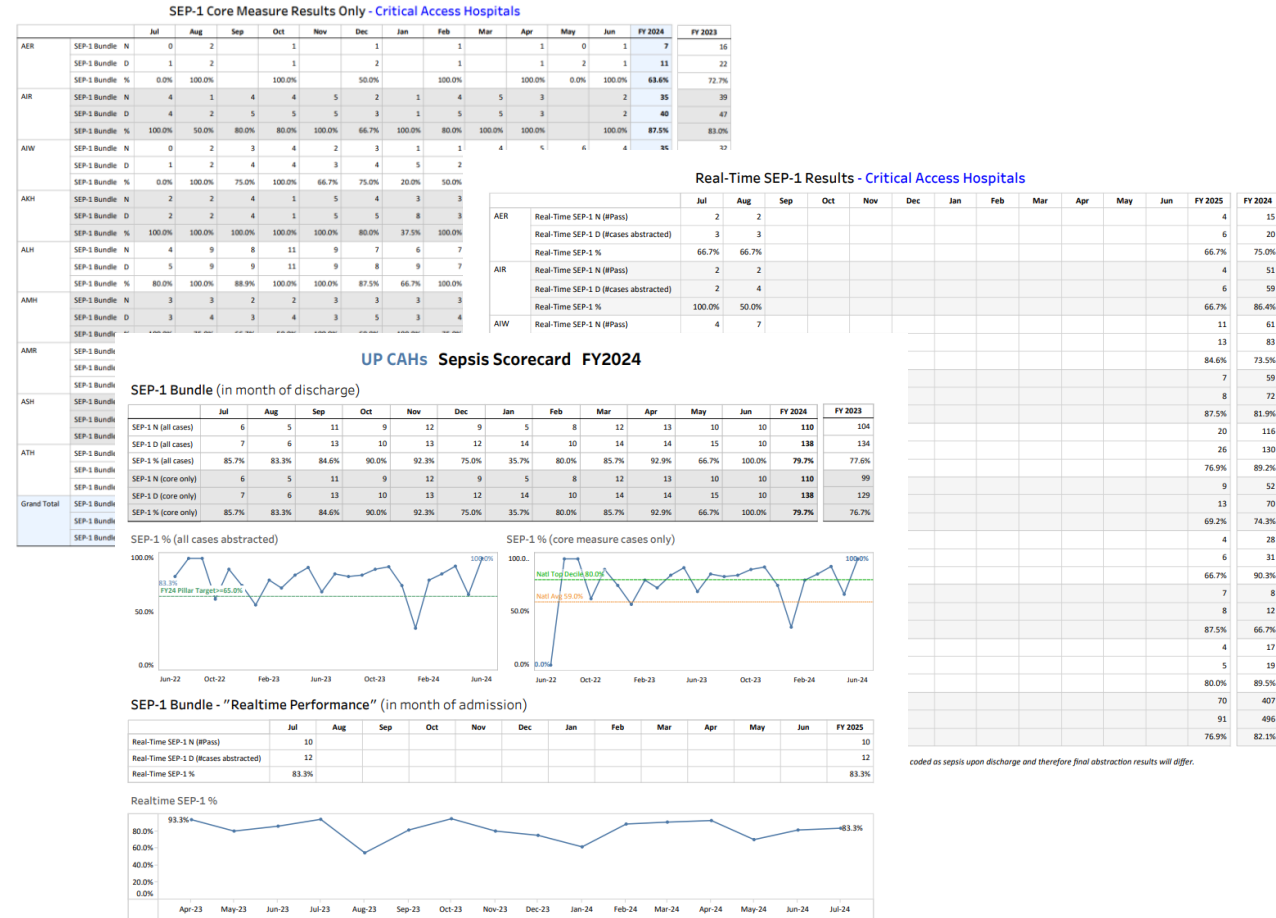
**Sepsis is a medical emergency. Time matters.**

To learn more about sepsis and how to prevent infections, visit [www.cdc.gov/sepsis](http://www.cdc.gov/sepsis).

# Evaluating & Scaling Success

## Data Reporting-Sepsis Scorecards

- Real time sepsis data (pre-coded)
  - o Cases that meet CMS SEP-1 criteria for severe sepsis and/or septic shock
  - o Shared with quality leaders
  - o Feedback letters sent to involved providers
  - o Weekly performance summary to BU leaders
- Monthly sepsis data (coded)
- Inpatient Quality Pillar



coded as sepsis upon discharge and therefore final abstraction results will differ.

# Real-time Monitoring Feedback Letters

## Nursing

Confidential

Date: \*\*\*

To: \*\*\*

RE: Sepsis Care

As part of Aspirus' ongoing effort to improve sepsis care, we would like to offer you feedback regarding the care of your patient with severe sepsis or septic shock. Nurses play an important role in the identification of sepsis, performing assessments and carrying out physician treatment orders. Please review the care interventions that were achieved as well as the opportunities that are outlined below.

MRN: \*\*\*

Admission date: \*\*\*

Intervention*	Intervention achieved in this case (Y/N)	Suggestions to meet intervention in future
Identification of sepsis		Accurately identify SIRS criteria
Sepsis sheet started		Once criteria is met, or you suspect sepsis, a sepsis sheet must be initiated
Provider Huddle		Huddle with Provider immediately if patient meets SIRS criteria or you suspect sepsis
Following treatment orders for:		
Ensuring blood culture collection prior to antibiotics		Collect blood culture before administering abx.
Ensuring collection of repeat lactate or cancelling if <2.0		If the initial lactate is <2.0, please cancel the 2 <sup>nd</sup> lactate as it is not required
Timely delivery of broad-spectrum antibiotics		Approved antibiotics need to be administered within 3 hours of severe sepsis
Timely delivery IVF for initial hypotension/shock		Required when initial hypotension (SBP<90), initial lactate >=4, or septic shock documented
Vasopressors started for persistent Hypotension		If 1 hr. after target crystalloid fluid complete, hypotension persists, then a vasopressor is required
Repeat Focus Exam Completed w/in 6 hours after fluid bolus		Repeat volume status & tissue perfusion assessment must be performed to assess the patient's response to the administration of crystalloid fluids within 6 hours following septic shock Use: sepsisreassessment
RN Handoff completed		Handoff discussion and sheet exchange takes place at patient bedside
Sepsis sheet completed & sent to Quality		Completed forms are sent to Quality Dept

Sincerely,

## Provider

Confidential

Date: \*\*\*

To: \*\*\*

RE: SEP-1 Bundle Fallout

As part of Aspirus' ongoing effort to improve sepsis care, we would like to offer you feedback regarding the care of your patient with severe sepsis or septic shock. Evidence-based practice, comprised of seven time-sensitive interventions that reduce risk of mortality, is used to review the sepsis cases. The interventions in which you had **direct involvement** are detailed below.

MRN: \*\*\*

Admission date: \*\*\*

Required Intervention*	Intervention achieved in this case (Y/N)	Reason for fallout
Blood cultures prior to antibiotics	Choose an item.	Choose an item.
Broad spectrum antibiotics	Choose an item.	Choose an item.
Initial lactic acid	Choose an item.	Choose an item.
Repeat lactic acid if initial is >2	Choose an item.	Choose an item.
IVF for initial hypotension/shock	Choose an item.	Choose an item.
Vasopressors	Choose an item.	Choose an item.
Sepsis <a href="#">repeat</a> focus exam	Choose an item.	Choose an item.

\*Definition document attached for your reference.

We recognize that individual clinical situations exist that may necessitate deviation from application of best practice principles. There may also be system and process issues that impact the delivery of timely care. We were not able to find evidence of these factors in this case. Please provide [us](#) a written response to the physicians listed below detailing the reason for the missed intervention within 5 business days.

Thank you for your attention to this matter. If you have any questions, please contact any of the physicians listed below.

Sincerely,



# Real Time Monitoring

- Sepsis risk score can be monitored from:
  - ED manager
  - Story board
  - Patient list

Admitting Team	Risk of Sepsis	Blood Cultures Ordered?	Lactate Ordered?	Lactate Resulted?	Repeat Lactate Resulted?	Antibiotics Ordered?	First Antibiotics Administered?	Fluid Resuscitation Ordered?	Fluid Resuscitation Administered?	IP Sevi Hour Not Comp
1, Nicole, mitting -265-6121...	0	✗	✓	✓	✗	✗	✗	✓	✓	✓
1, Nicole, mitting -265-6121...	3	✗	✗	✗	✗	✗	✗	✗	✗	✗
1, Nicole, mitting -265-6121...	2	✗	✗	✗	✗	✗	✗	✓	✓	✗
ov, Mikhail, Imitting -932-2525...	3	✗	✗	✗	✗	✗	✓	✗	✗	✗
ov, Mikhail, Imitting -932-2525...	4	✗	✗	✗	✗	✗	✓	✗	✗	✗
imothy Admitting -932-2525...	1	✗	✗	✗	✗	✗	✗	✗	✗	✗
ova, Olga,										

ED Manager (Aspirus Wausau Hospital)

Care Area (13 of 18 occupied)

Bed	VS Patient	CC	A	Time	Sepsis	Unac RN	PANP MD	Trans	Reg
ED...	Sepsis, Tobias S...	Cough, Fever	2	237:05	2	Y			N
ED...									
ED...									
ED...	Expected, Edwar...	SOB, Coug...		240:46	1	Y			Y
ED...	Joan, Julie (27 Y...	Cough, Fever	3	1029:48	1		DB		N
ED...	Mikeis, Hunting (...	Fever; UTI		1487:41	2				N
ED...									
ED...	Nurse, Brad (120...	Fever	2	4051:20	1				N
ED...	AWHLAB, Status...	Fever; Cough	3	3071:31	1		CR		N
ED...	Mouse, Mickey *...	Covid-19		237:50	1				N
ED1...	Refusal, PTBloo...	Laceration		1913:57	1				N
ED1...	Alh, Female...			408:28	1				N
ED1...	Gender, Rob (40...	Pain; Coug...		2183:33	1	Y			N

TS

ED 1-01

**Tobias S. Sepsis**  
 Male, 66 Y, 11/19/1954  
 MRN: 4010625  
 Enterprise ID: E4664100  
 CSN: 1000024877  
 Total Time: 237:06

Adv Dir: None  
 Code: Not on file (no ACP docs)  
 HCA-POA: None  
 Code Status: None on file  
 HCA-POA: None

LMP: None  
 CrCl/Lab: No successful lab value found.  
 Next Appointment: None  
 GA/EDD: None  
 No assigned Attending  
 COVID-19: Unknown

**ALLERGIES**  
 Strawberries

Last BMI/Weight, Last Weight: None, 220 lb (99.8 kg)  
 Last Height: 6' (1.829 m)  
 Risk of Sepsis: 2

**CHIEF COMPLAINT**  
 Cough, Fever

BP 110/66 Temp 103 °F ! Pulse 110



# Celebrating Success

## Sepsis Star Award

- Way to recognize nurses or providers for their high level of care provided to patients with sepsis.
- Sepsis star winners receive a certificate and sepsis pin for their achievements.



Announcing the newest **Sepsis Star Award** Recipients  
Celebrating Excellence in Sepsis Care!



Celia Utzman, RN

Aspirus Keweenaw Hospital awarded Celia Utzman, RN for “her consistent early recognition of sepsis and timely communication with physicians.” Thank you Celia for your dedication to providing excellent patient care & being a role model to others around you!



# Conclusion

- In our journey to improve sepsis care, collaboration, leadership support, and a commitment to consistency have been critical to our success. Through multidisciplinary teamwork and the integration of best practice tools and protocols, we have enhanced early detection and treatment, ultimately saving lives. Continuous education, real-time auditing, and ongoing improvements help us sustain these advancements.

Thank you.