



# Knox Community HOSPITAL

## Inpatient Sepsis Process Improvement

Inpatient sepsis mortality was significantly higher than industry targets for all of 2022. Our goal was identified to reduce sepsis mortality to <15% by focusing on controllable factors.



# Inpatient Sepsis Process Improvement

## BACKGROUND AND PURPOSE

**We noticed that inpatient sepsis mortality was significantly higher than industry targets for all of 2022.**

- Early diagnosis and treatment, along with utilization of screening tools such as SIRS (Systemic Inflammatory Response System) and Organ Failure Assessment, has shown to improve outcomes and decrease overall mortality and length of stay for patients.
- Best practices and bundles are available from Joint Commission, Ohio Hospital Association, and commercial payer sources.

**The Goal** was identified to reduce Sepsis mortality to <15% by focusing on controllable factors.

## PLANNING TEAM

- In 2022, a performance team convened to complete an A3 (Lean Process Improvement Tool) to address the gap in the quality of care.
- Collaborative work began with other departments, including several different medical specialties, to standardize and sustain inpatient sepsis improvement processes, including:
  - Improvement of key quality indicators incidence, mortality, readmissions, length of stay, core measures, and order set utilization.

## ANALYSIS

- Utilized a gap analysis tool to demonstrate our greatest's opportunities for improvement from the current state to best practice and a management action plan (MAP) to complete interventions.
- Literature research conducted relevant to sepsis within the last five years identified interventions needed to achieve current best practice.

## INTERVENTIONS

- Worked with Clinical Information Systems to update hospital-wide sepsis screening tool within our EMR utilizing the SIRS and Organ Failure Assessment. (Figure A)
- Created a standardized sepsis checklist as a guideline for bundle compliance and as a handoff for oncoming frontline staff.
- Added sepsis screening tool/checklist to Rapid Response forms to improve compliance with 60 min bundle.
- Set sepsis screening standards for documentation as daily, change in condition, and transfer
- Updated order sets to reflect current best practices with cardiology collaboration for septic shock patients.
- Created an educational visual sepsis pathway for ED and all inpatient units. (Figure B)
- Yearly and Hospital-wide education for nurses and physicians and new staff



# Figure A

If at any time patient has suspected infection and 2 or more SIRS criteria and No Organ Dysfunction: **STOP**

Notify the Provider of suspicion of sepsis, and continue to monitor symptoms.    
Signs/symptoms of Organ Dysfunction

## Clinical Suspicion of Infection

- Yes
- No
- PT already being treated for severe sepsis/shock
- Other (right click to explain)

## Two or more Systemic Inflammatory Response Syndrome (SIRS) criteria

- Temperature greater than 38.3 or less than 36 degrees Celsius (>100.9F or <96.8F)
- Pulse greater than 90 bpm
- Respiratory rate more than 20 per minute
- WBC count greater than 12,000 or less than 4,000 or 10% bands

## Organ dysfunction, evidenced by any one of the following

(not related to any chronic conditions or medication and values that are different from baseline)

- SBP < 90 mmHg MAP < 65 mmHG
- Acute respiratory failure as evidence by new need invasive ventilation
- Acute respiratory failure as evidence by new need for non-invasive mechanical ventilation
- Creatinine >2.0
- Urine out-put <0.5 mL/kg/hour for 2 hours
- Bilirubin > 2mhVL
- Platelet count <100,000
- INR > 1.5
- aPTT > 60 seconds
- Lactate > 2 mmVL (18.0 mg/gL)
- Altered level of consciousness

If at any time patient has suspected infection and 2 or more SIRS criteria AND organ dysfunction

Notify the Provider for severe sepsis CPOE order set

Begin severe sepsis Checklist (NS-6248) used for hand-off communication, not part of patient medical record

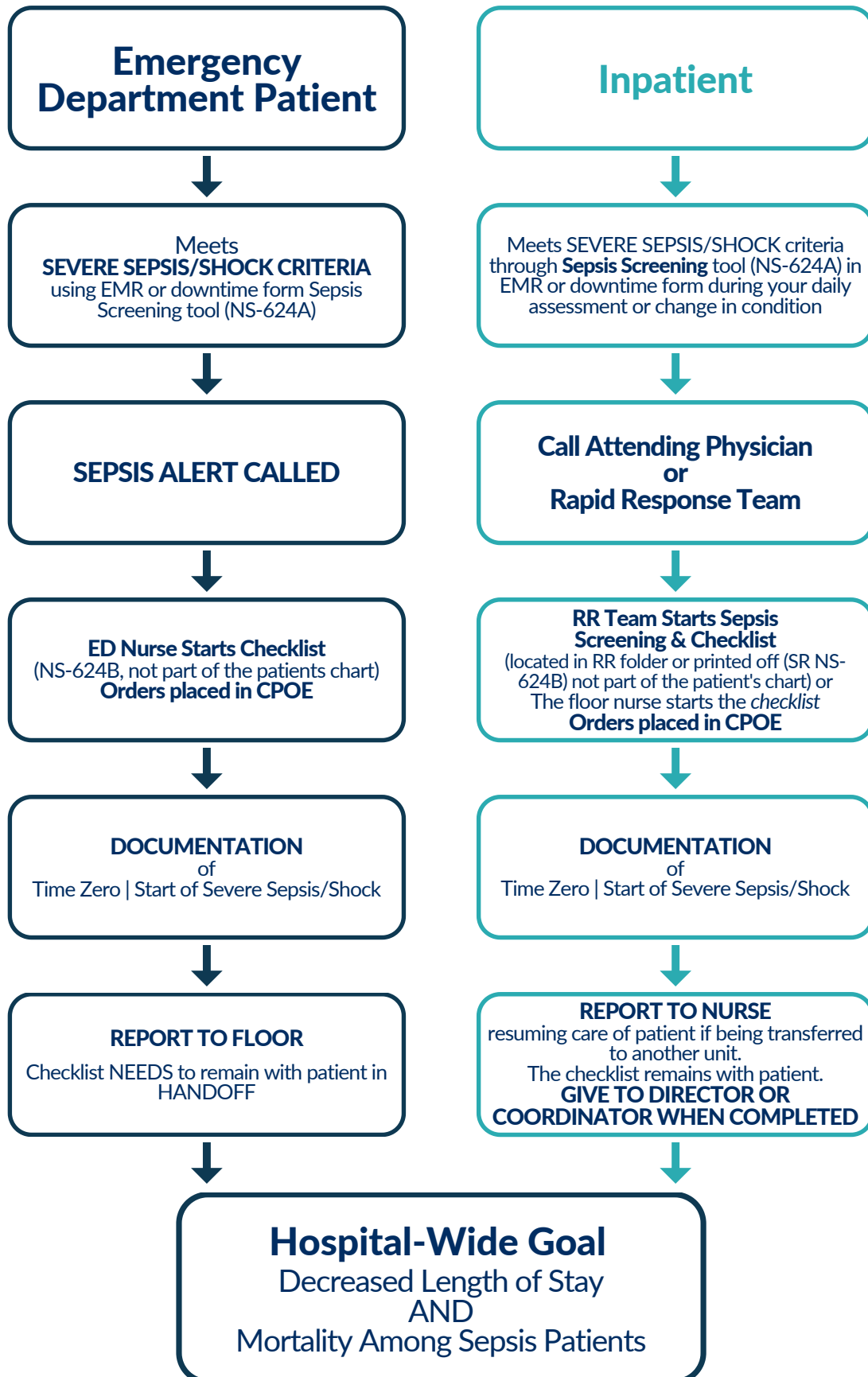
## Rapid Response Called

- Yes
- No

## Rapid Response Notified Date/Time

00/00/0000 00:00

# Figure B





# Monitoring and Figure C

## MONITORING TEAM

- Process improvement form created for data collection and adherence to best practices. (Figure C)
- Report data findings routinely to review for compliance and process improvements in patient safety.

## Severe Sepsis/Shock Process Improvement



Patient  
 Visit ID  
 Admission Date  
 Location of Admission  
 Hospice or Palliative care on Admission?  
 Did the patient present with sepsis?  
 Date sepsis was identified  
 Sepsis screen positive date and time  
 Organism cultured

### Patient 1


## 3-hour bundle - highlighted items key NQF process measures

1. Sepsis screen completed on change of condition/triage/admission?
2. Serial sepsis screen completed on the patient admitted with infection?
3. Serum lactate completed?
4. Blood culture prior to antibiotic administration?
5. Broad spectrum antibiotic administered within 3 hours?
6. Patient systolic blood pressure higher than 90mmHG?
7. Delivered an initial amount of 30mL/kg IVF as fast as possible?
8. If so, did MAP increase > 65mmHG after fluid resuscitation?

### Yes/No

No
No
Yes
No
Yes
Yes
Yes
Yes

## 6-hour bundle

9. Was a vasopressor used for hypotension to maintain MAP > 65mmHG?
10. Central line inserted?
11. ECHO ordered?
12. Re-measure lactate if initial lactate is elevated > 2mmol/L??
13. Transferred to ICU?

### Yes/No

Yes
Yes
No
Yes
Yes

## RCA Factors

14. Was equipment availability a factor?
15. Was staff training a factor?
16. Was the correct laboratory testing available?
17. Were antibiotics available at the proper time?
18. Was there a delay in diagnosis?
19. Was communication a factor?
20. Was the Rapid Response Team Called?

### Yes/No

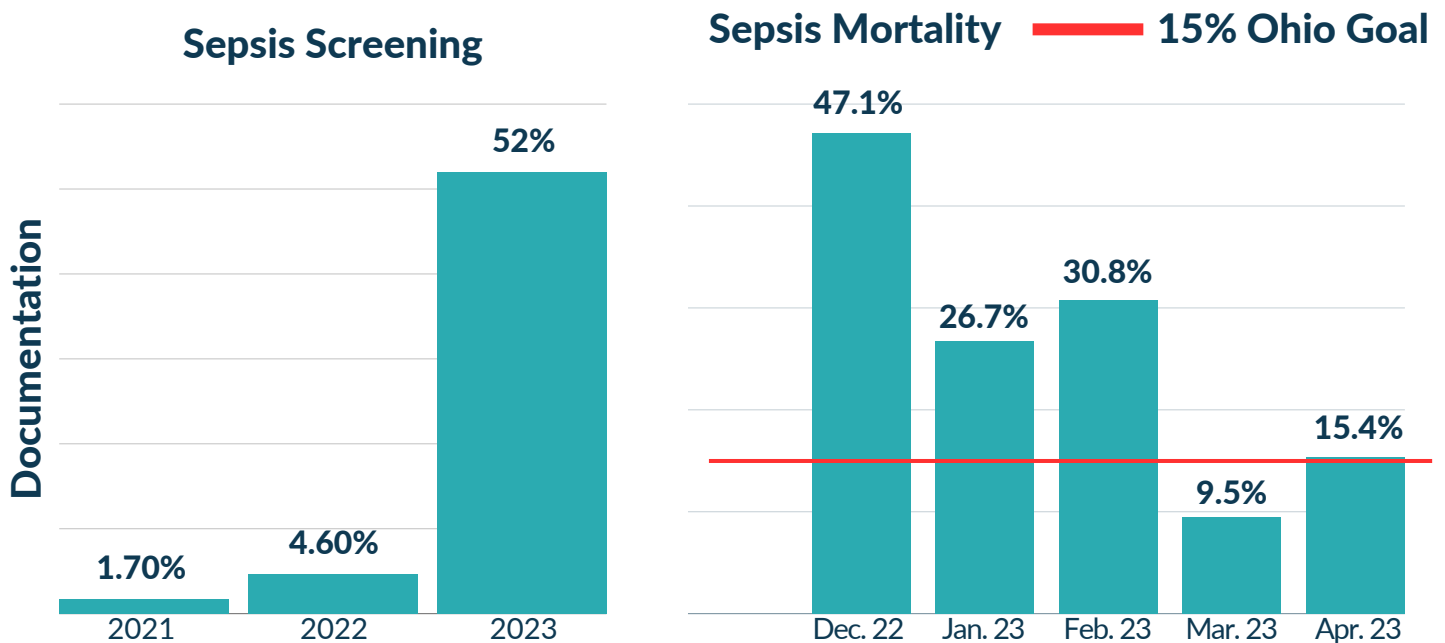
No
Yes
Yes
Yes
No
No
No

# Lessons Learned and Future Implications

## LESSONS LEARNED AND FUTURE IMPLICATIONS

- Feedback to clinical staff individually and via group settings to celebrate success and troubleshoot barriers post-implementation has demonstrated improved screening compliance and provider notification.
- To maintain results at a target of 15% or less of Ohio's goal for sepsis mortality.
- To achieve a target of 100% of patients admitted and screened daily for sepsis.
- Continue to monitor and collect data and adhere to best practices for all inpatient Sepsis by reporting monthly to Hospital Medicine Meeting.

## RESULTS



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# Knox Community HOSPITAL

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Knox Community Hospital is a community-owned, 99-bed, not-for-profit hospital located in Mount Vernon, Ohio (approximately 40 miles north east of Columbus). Knox Community Hospital is accredited by The Joint Commission.

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