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Smarter Sepsis Care Starts Here: Standardized Tools and Code Response

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Disclosure of relevant financial relationship



Tonya Jagneuax, MD, MSHI, MSA, FCCP, speaker for this educational activity, is a consultant for Cytovale.

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Learning Objectives



- Identify how standardized emergency department (ED) workflows and team structures can accelerate sepsis treatment.
- Describe how novel diagnostics and triage tools impact early sepsis detection and patient outcomes.



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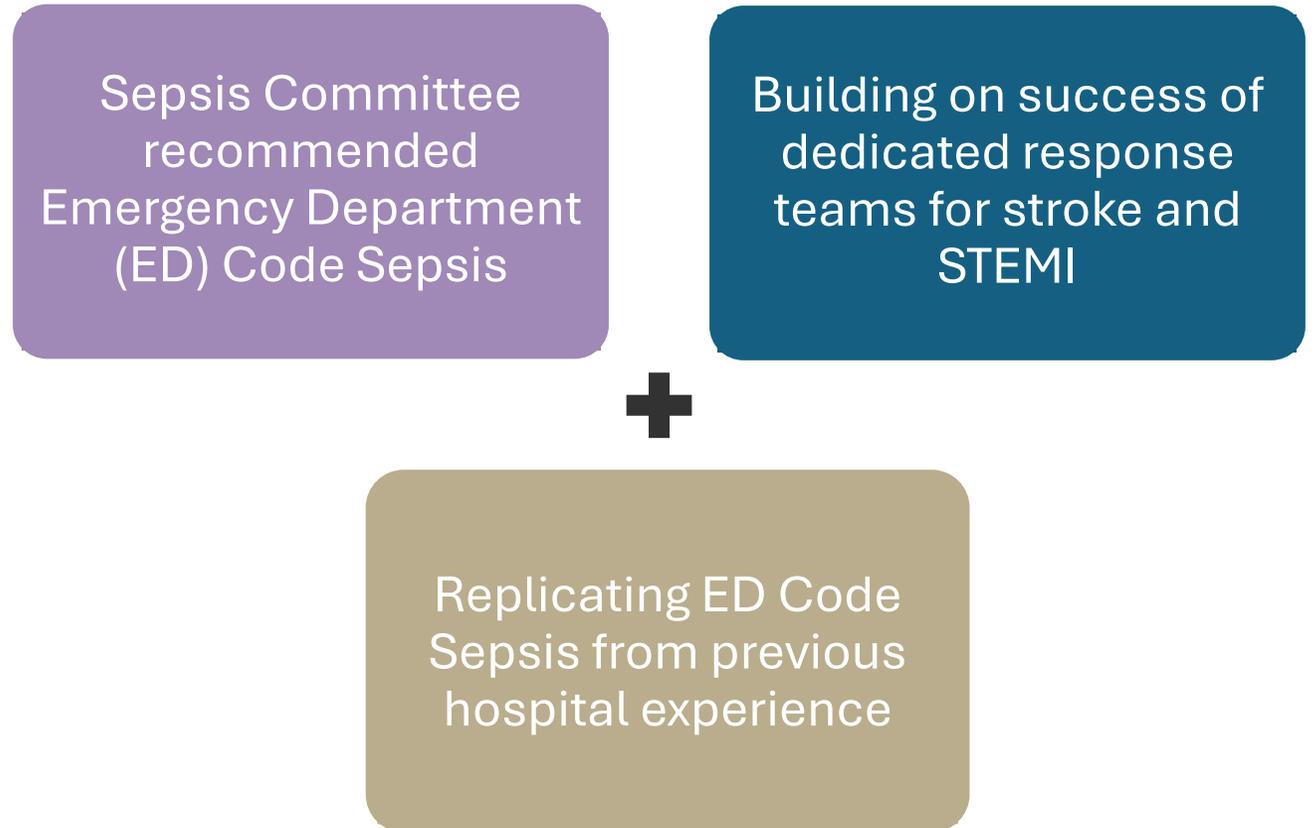
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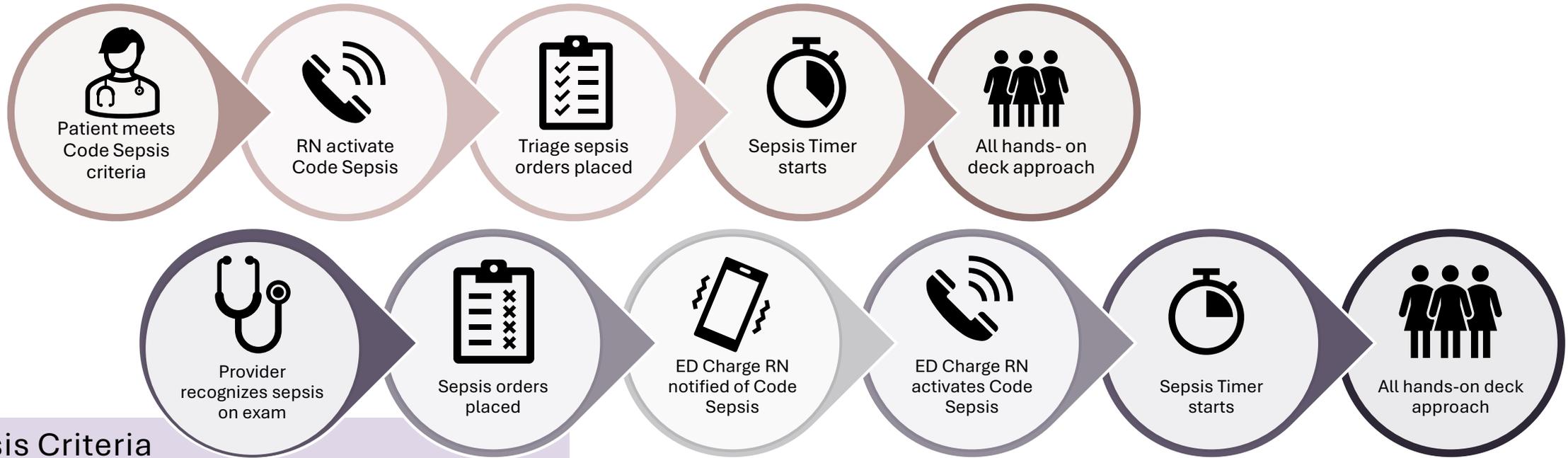
Smarter Sepsis Care Starts Here: Standardized Tools and Code Response

Initiation of an ED Code Sepsis

- Goal: Reduce door to treatment timeline, improve SEP-1 compliance and patient outcomes
- Why: Every one-hour delay in antibiotics increases the risk of mortality in a patient with septic shock by 8%.



Code Sepsis Workflows



Code Sepsis Criteria

2 or more of the following:

- New or unexplained altered mental status or weakness from baseline
- SBP ≤ 90 mmHG
- Temp ≤ 96.8 or ≥ 101.5 F

OR

- Nurse/Provider discretion

Code Sepsis Tools



1 Suspected Sepsis Protocol

Notification: Sepsis timer started

Lactated ringers IV bolus 1,000 mL
1,000 mL, Administer over 61 Minutes, Intravenous, EVERY HOUR, First dose today at 1200, 1 dose, Last dose today at 1200

EMS IV NS infusion
999 mL/hr, Intravenous

Intake and output
STAT, EVERY SHIFT, First occurrence today at 1155

CBC W/DIFF
STAT LAB, today at 1155, For 1 occurrence, Lab Collect
Release to patient: Immediate

Comprehensive Metabolic Panel
STAT LAB, today at 1155, For 1 occurrence, Lab Collect
Release to patient: Immediate

Lactate sepsis with 4 hour reflex
STAT LAB, today at 1155, For 1 occurrence, Lab Collect
Release to patient: Immediate

INR (PT)
Add to specimen collected 12h ago?
STAT LAB, today at 1155, For 1 occurrence, Lab Collect
New collection
Release to patient: Immediate

Blood Cultures X2
 Blood Culture - Peripheral - STAT
 Blood Culture - Peripheral and Central Line

Urinalysis W/ Culture Reflex
STAT LAB, today at 1155, For 1 occurrence, Unit Collect
Release to patient: Immediate

Telemetry monitoring-Adult
ASAP, CONTINUOUS, Starting today at 1155, Until Specified
Reason for monitoring: Other
Other - Please Specify: possible sepsis
Notify attending service for sustained tachy- or brady- arrhythmias, STAT 12-lead EKG. If order is set to expire anytime from 1700-0730, do NOT notify the attending provider until after 0730.

Telemetry monitoring-Pediatric
CONTINUOUS, Possible sepsis

EKG 12-Lead
STAT, ONE TIME - TODAY, today at 1155, For 1 occurrence
Patch Placement Technique: Normal
Release to patient: Immediate

2

Sepsis: Active (01:18)

Isolation: None

⚠ Patient has PONV risk factors

⚠ Allergies Not Reviewed

🧪 Research Participant

No assigned Attending

Allergies: Not on File

ACTIVE TREATMENTS

👉 AMB - CLINICAL TRIAL - A171901 - OLDER NON-...

3

Sepsis Care [Sepsis Sidebar](#)

Time Since Activation
01h 18m
Activated at 07/29/25 13:43

Early Treatment Tasks

❌ Blood Cultures: Not Ordered

⚠ Initial Lactate: Not Collected

✅ Antibiotics: Given

❌ Fluids: Not Ordered

Sepsis Care

Time Since Activation
01h 21m
Refresh this section to update the timer.

Early Treatment Tasks

❌ Blood Cultures: Not Ordered

⚠ Initial Lactate: Not Collected

✅ Antibiotics: Given

❌ Fluids: Not Ordered

Sepsis Goals

Within 30 minutes:

- Blood cultures x2, prior to antibiotics
- 2 large bore IV's
- Lactic acid with reflex
- Begin rapid administration of 30mL/kg fluid bolus
 - Give IVF per pressure bag or lifeflow until MAP > 65, then 500mL boluses q 15 minutes until 30mL/kg or ordered amount complete. (Do not use IV pump)

Within 60 minutes:

- IV antibiotic therapy initiated
- Initiate pressor therapy if hypotensive during or after fluid resuscitation to maintain MAP > 65 mm Hg.

Within 180 minutes

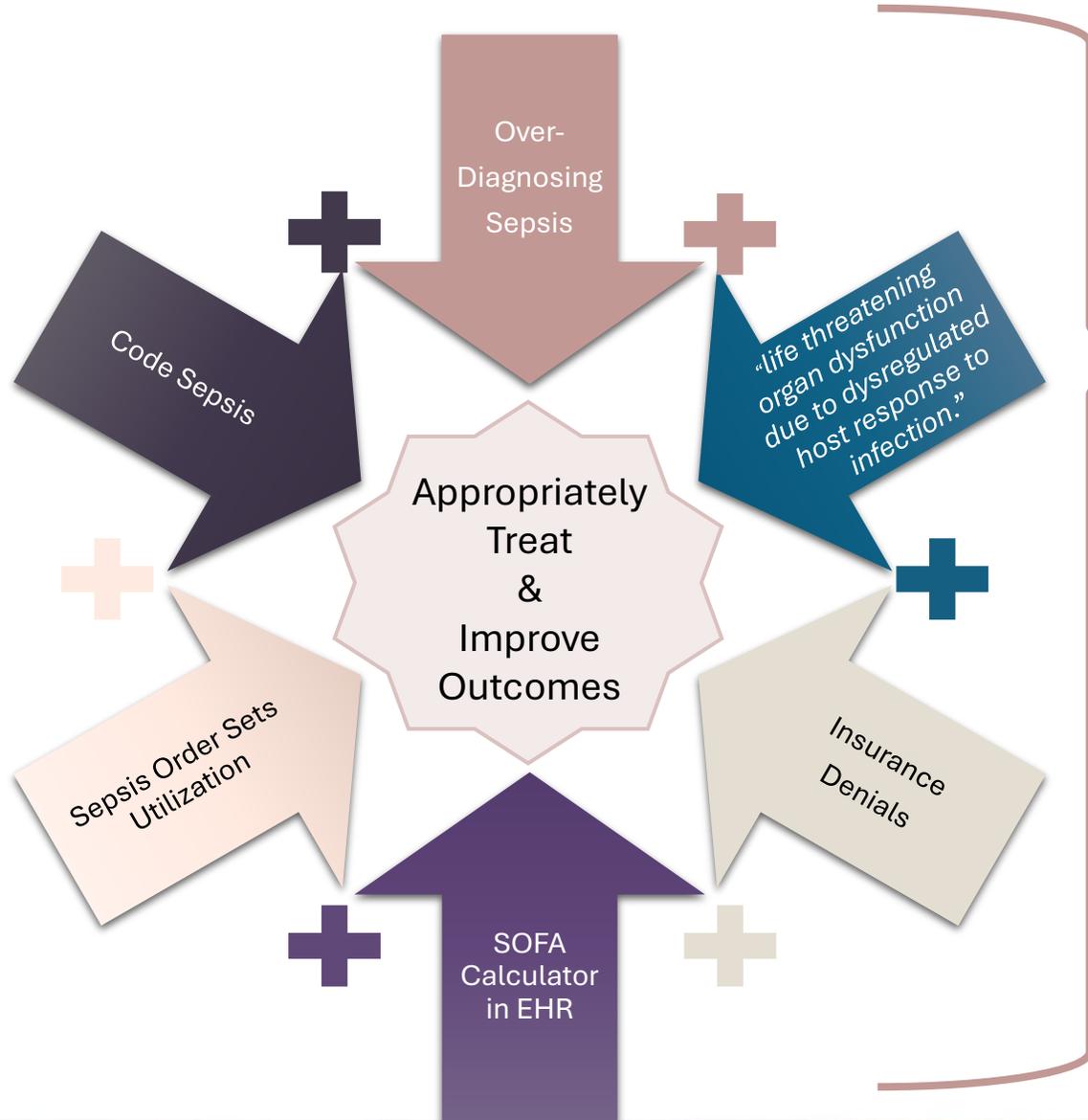
- Completion of IV fluids
 - For hypotension or Lactic $\geq 4.0\text{mmol/L}$ or other provider ordered volume (when 30mL/kg is contraindicated)
- Repeat lactic drawn 30-60 minutes after IV fluid bolus completed or within 4 hours of initial lactic level of 2.0 or greater.

ED Code Sepsis Results



	Prior to Code Sepsis	6 Months Post-Code Sepsis
Antibiotic	58 minutes	28 minutes ↓
Blood Culture	28 minutes	7 minutes ↓
Lactate	13 minutes	7 minutes ↓
SEP-1 Bundle	65.85%	75.56% ↓
Mortality	0.90	0.58 ↓

Transition to SEP-3: Improve Outcomes



- Focus on infection induced organ dysfunction
- Treat the sickest patients aggressively
- Mild sepsis patients fall out of definition
 - Bundle Compliance Improvement
 - Mortality Improvement
 - Decrease in denials

Lessons Learned

- Implementing ED Code Sepsis yielded increase adherence to evidence-based guidelines, leading to improved patient outcomes
- Increased teamwork
- Leveraging healthcare analytics platform resources facilitated the acceleration of results
- Mindful of alert fatigue- overuse of screening tools can desensitize teams causing delays in care

Key Takeaways



- Foster ownership - include the team in workflow design
- Embrace positivity - share data and wins with ED team
- Strive to improve - address next steps, fix breaks, and look to optimize



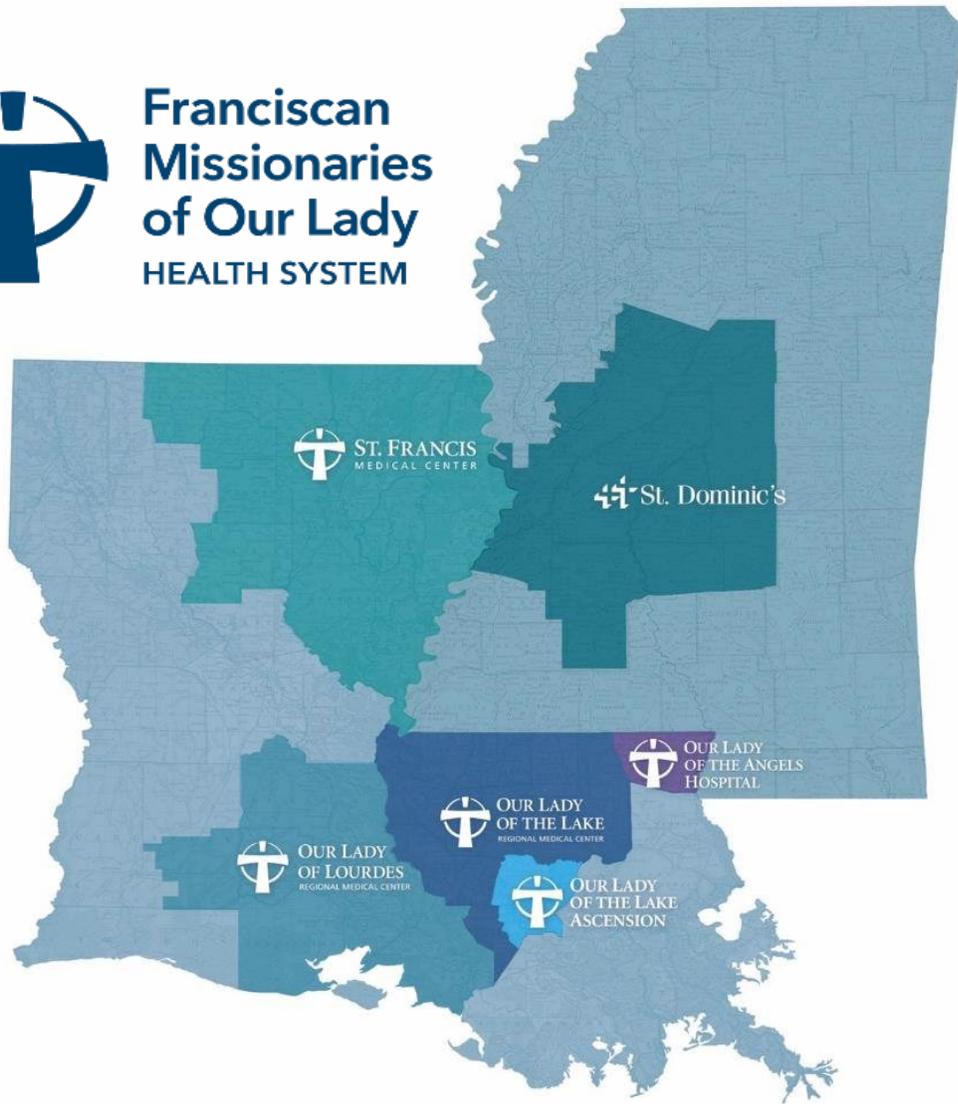
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Level 1 Trauma



Comprehensive Stroke Center



Quaternary Academic Medical Center



94,000 ED Visits Annually at OLORMC



158,000 Market ED Visits Annually



Average ESI 2.8



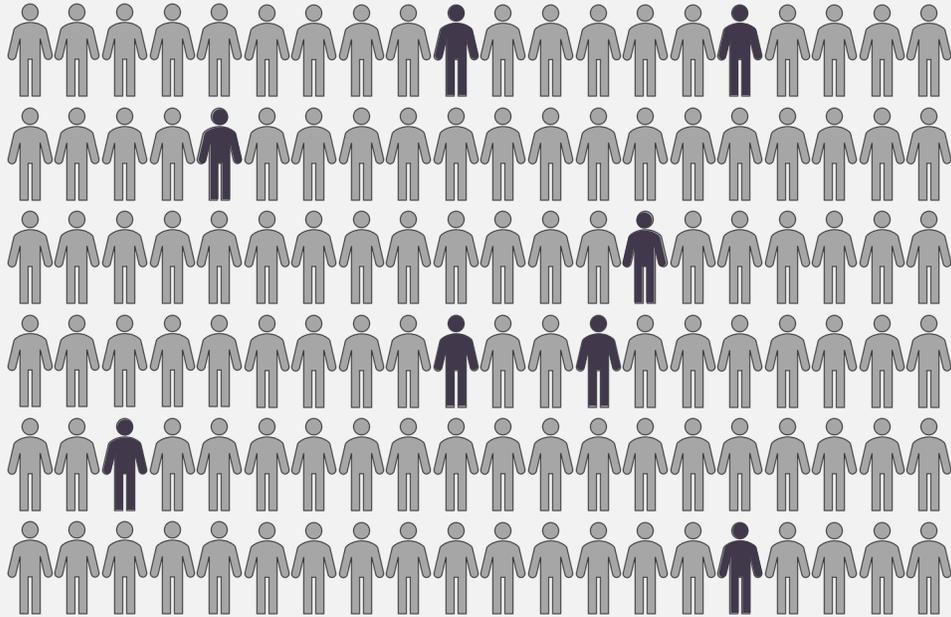
Sepsis Learning Health Began in
2022

The Overarching Challenge of Sepsis Screening

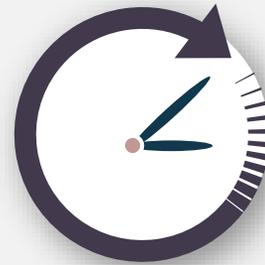


80% of Sepsis Patients Present to the ED¹

Search for a Solution



However, true sepsis patients are surrounded by a larger cohort of infected-without-sepsis and non-septic patients



ED Quandary
Limited Information
+
Limited Time

- How do we achieve true patient-centered metrics vs quality metrics?
- Can people and process create diagnostic pivots?
- Do we have a TEAM based model that already works?
- Is diagnostic anchoring without risk?

1. Geron, L. W. (2023). The Slippery Slope of Sepsis. Open Journal of Emergency Medicine, 11, 126–154.

Emergency Department Sepsis Workflow

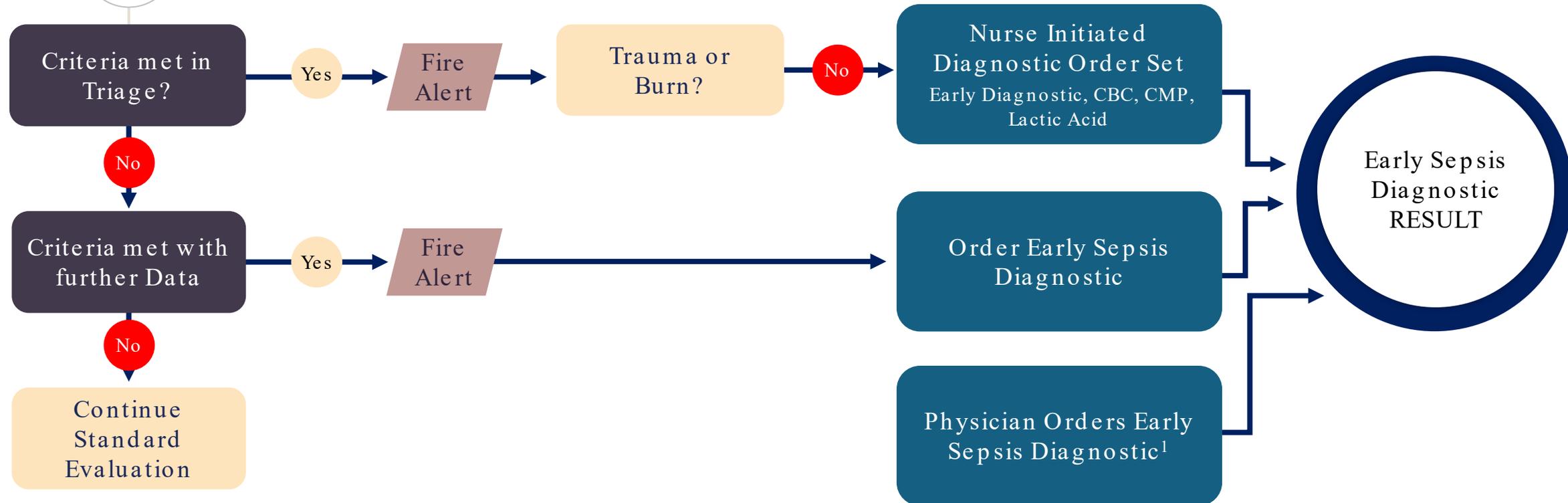


Nurse Screen for Suspected Infection, Age ≥ 18



Logic-based combinations of the following metrics/questions trigger alert:

- Systolic Blood Pressure < 90 mmHG
- Mean Arterial Pressure < 60 mmHg
- 2+ Vitals: Temp < 96.8 or > 101, HR > 100, RR ≥ 22
- Suspicion of Infection
- Altered Mentation from Baseline



1. Physician ordering outside of alert mechanism was not available during the study period. This component of the process was introduced in August 2024 and remains part of the early sepsis diagnostic workflow today.

FMOLHS Early Diagnostic Results Clinical Interpretation



Band 1 – Low Risk/Sepsis Unlikely

Band 2 – Sepsis Possible

Band 3 – High Risk/Sepsis Probable

Suggested Approach

- ✓ Consider alternative, non-infectious diagnosis
- ✓ Antibiotic Delivery: Guideline-directed therapy
- ✓ Blood Cultures: Order only if risk factors for primary BSI or high suspicion for bacteremia

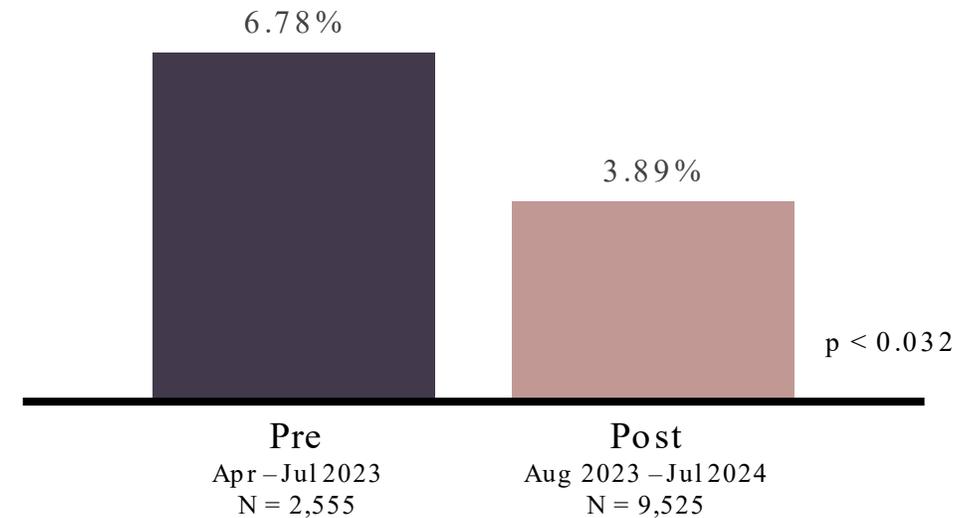
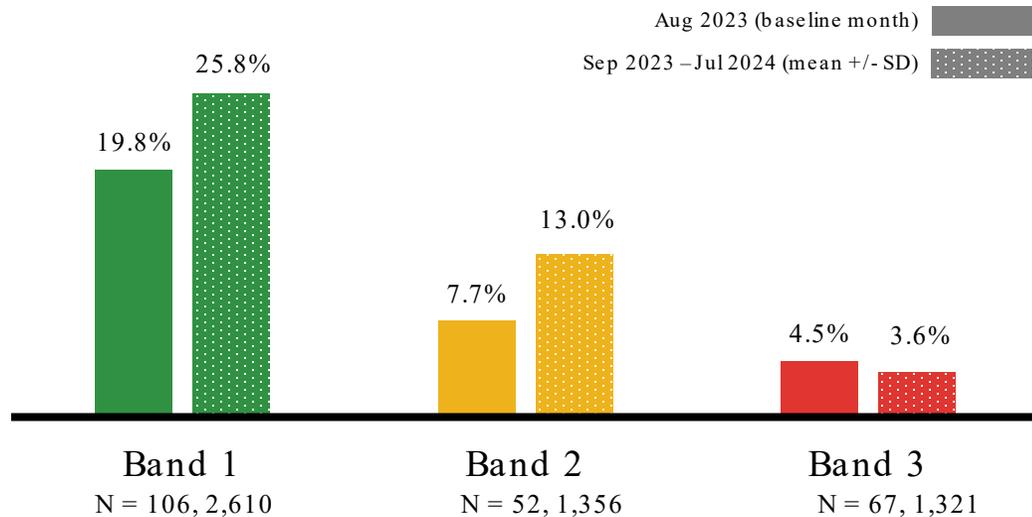
Suggested Approach

- ✓ Antibiotic Delivery: Guideline-directed therapy
- ✓ Blood Cultures: Order if IV antibiotics administered
- ✓ Reassessment: Increased evaluations upon floor admission

Suggested Approach

- ✓ Initiate “Code Sepsis”
- ✓ Antibiotic Delivery: Urgent administration of broad-spectrum antibiotics
- ✓ Collect Blood Cultures
- ✓ Resuscitation: Balanced fluids in clinically indicated

Increased Efficiency Coupled to Decreased ED Revisits

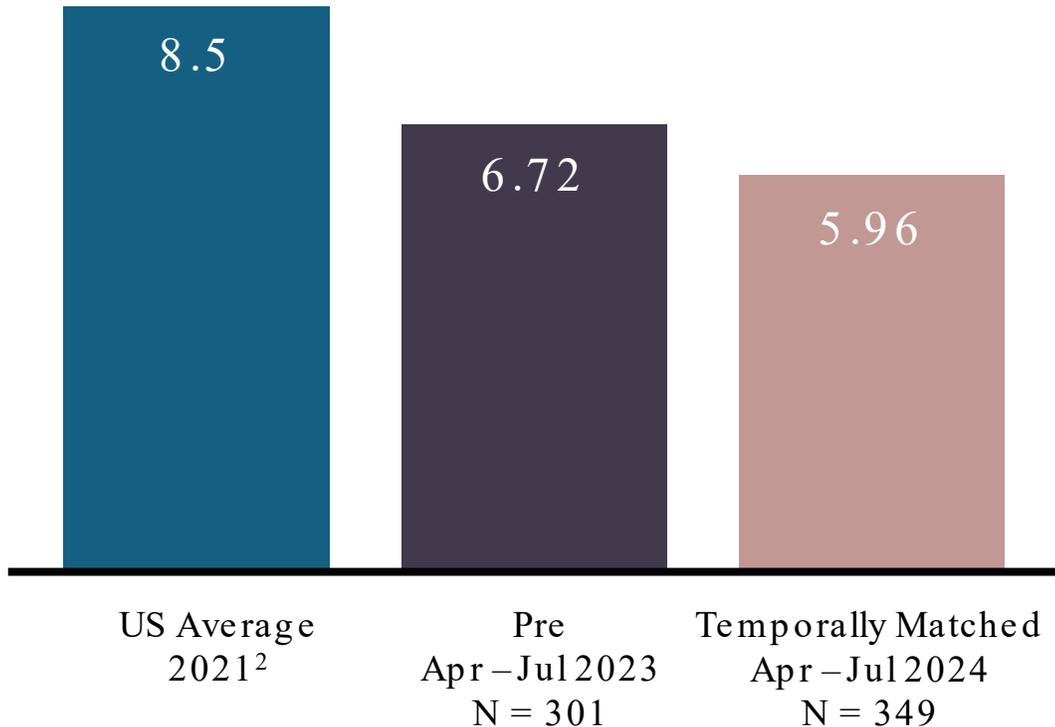


1. Thomas CB, Wyler B, D'Antonio CM, Laperouse M, et al. Impact of a Sepsis Quality Improvement Initiative on Clinical and Operational Outcomes. *Healthcare*. 2025; 13(11):1273

Patient Centered Outcomes: Improved Length of Stay



Hospital LOS for Sepsis Patients¹



Patient Population¹

- All adult patients presenting to the Emergency Department who received an alert for high risk of sepsis

Key Result for Sepsis Patients¹

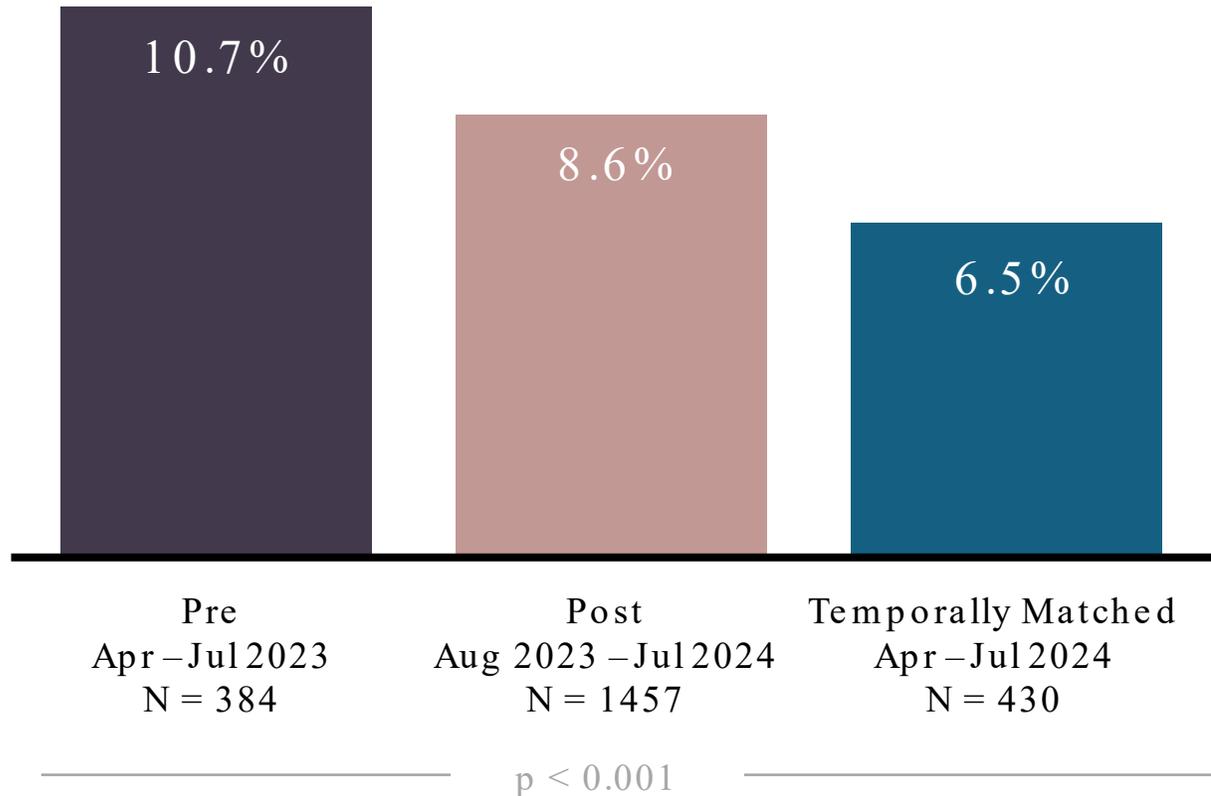
- Statistically significant reduction in LOS, $p < 0.048$
- **0.76 day** Reduction in LOS
- **11%** Relative reduction in LOS

1. Thomas CB, Wyler B, D'Antonio CM, Laperouse M, et al. Impact of a Sepsis Quality Improvement Initiative on Clinical and Operational Outcomes. *Healthcare*. 2025; 13(11):1273.

Patient Centered Outcomes: Significant Reduction in Mortality



30-Day Sepsis Associated Mortality Rate¹



Key Findings for Sepsis Patients¹

- **39%** Relative Risk Reduction
- **115** Number needed to test to prevent one death
- Estimated **1 life per week saved** from sepsis

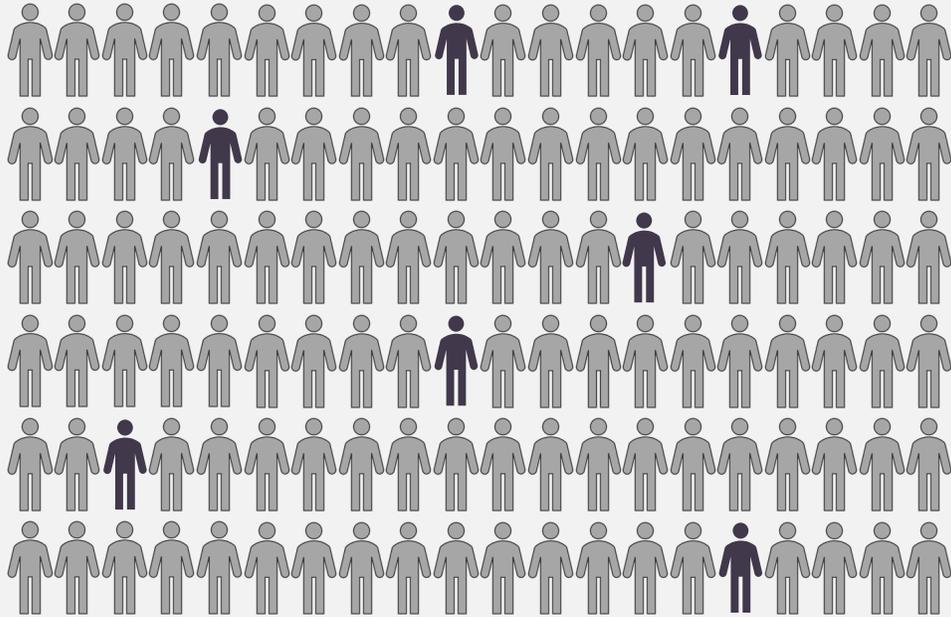
1. Thomas CB, Wyler B, D'Antonio CM, Laperouse M, et al. Impact of a Sepsis Quality Improvement Initiative on Clinical and Operational Outcomes. *Healthcare*. 2025; 13(11):1273.

Non-Septic Patients Experienced Significant Reduction in Mortality

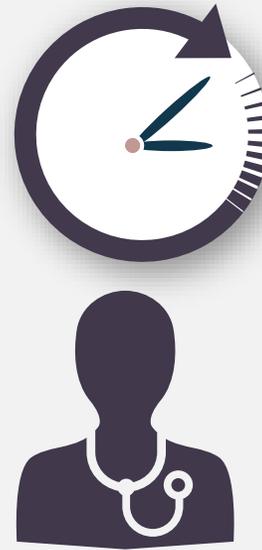


80% of Sepsis Patients Present to the ED¹

Non-Sepsis Mortality Relative Reduction = 30%²

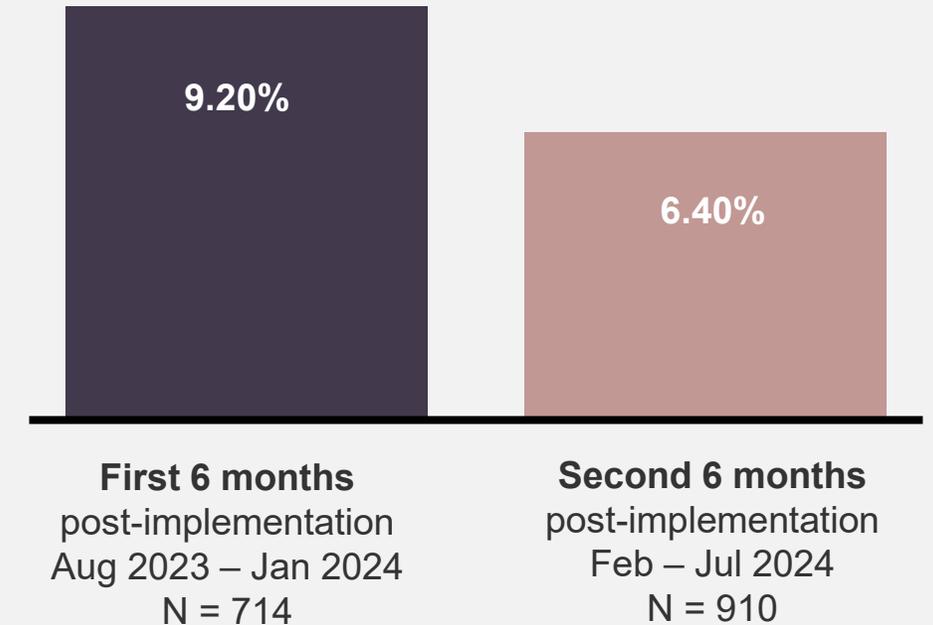


However, true **sepsis** patients are surrounded by a larger cohort of infected-without-sepsis and **non-septic patients**



ED Quandary
Limited Information
+
Limited Time

30-Day In-Hospital Mortality Rate Band 1 Patients



1. Gernon, L. W. (2023). The Slippery Slope of Sepsis. *Open Journal of Emergency Medicine*, 11, 126–154

2. Thomas CB, Wylar B, D'Antonio CM, Laperouse M, et al. Impact of a Sepsis Quality Improvement Initiative on Clinical and Operational Outcomes. *Healthcare*. 2025; 13(11):1273

Lessons Learned



- Utilization of early diagnostics in sepsis management is key to avoiding the consequences of diagnostic anchoring
- A focus on true patient centered outcomes creates a pathway to meeting metric results

Key Takeaways



- Early, accurate diagnostics are the future of standard sepsis management.
- Incorporation of new technology requires thoughtful implementation and adherence to performance improvement principles.
- An outcomes-oriented feedback loop promotes team member engagement and innovation

Questions?



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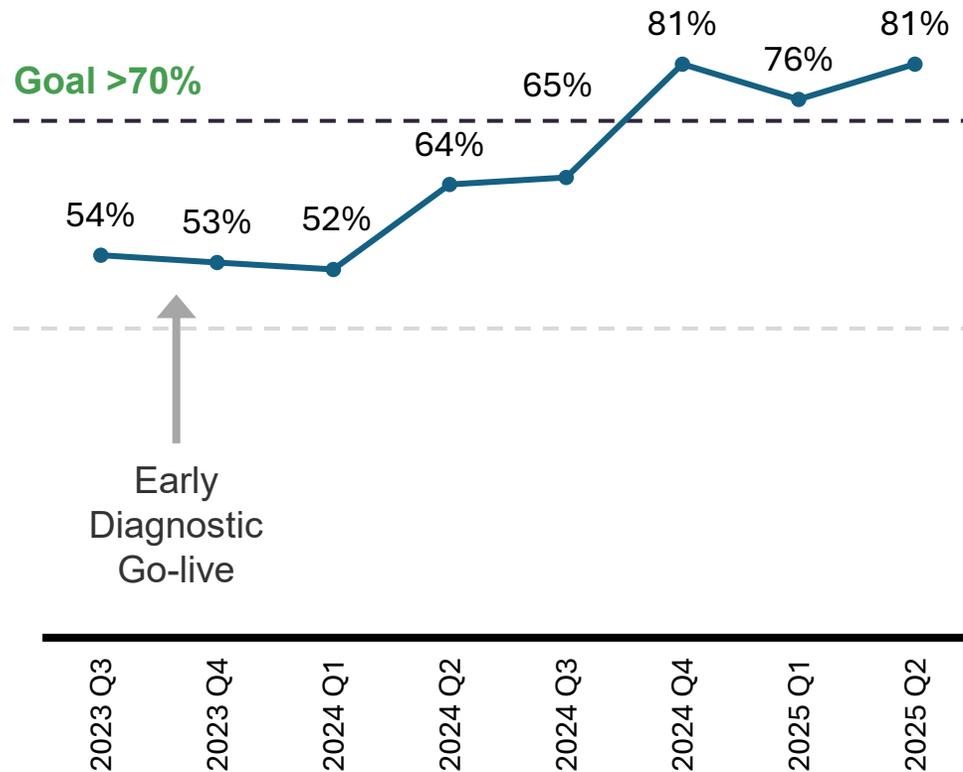
Tonya Jagneaux, Tonya.Jagneaux@fmolhs.org

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Improved Metric Compliance Follows Patient Centered Results



SEP-1 Compliance



Key Findings

- **30% improvement** in SEP-1 compliance (Q3 2023 – Q2 2025)
- Early sepsis diagnostic risk stratification aids in appropriate care delivery and accurate discharge documentation and coding
- Facilitated collaboration between quality/coding/CDI

Early Intervention Begins at Triage



Chest Pain

Possible Acute
Coronary Event

Chest Pain
Evaluation
(including EKG)

EKG
RESULT

ST
Elevation

STEMI:
STEMI Alert!

NS ST-T
Changes

**Unstable Angina /
NSTEMI:**
Further Diagnostic Evaluation
+/- Treatment

Normal

Low Risk Evaluation:
Consider other etiologies

Early Sepsis Detection Begins at Triage



Triage/Nursing Sepsis
Screen Age ≥ 18

Suspected
Infection with High-
Risk Features

Initiate Sepsis Labs
and Order Set



BAND
3

High Risk: Code Sepsis &
Sepsis Protocol

~25% of Patients Tested

BAND
2

Sepsis Possible:
Time-dependent Evaluation

~25% of Patients Tested

BAND
1

Sepsis Unlikely:
Localized or No Infection Pathway

~50% of Patients Tested