

2022

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ED Sepsis Care: Reducing Delays in Antibiotic Administration

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Learning Objectives

- Identify the impact of early intervention to prevent mortality in suspected sepsis patients.
- Explain the importance of including the clinician's voice in bedside quality improvement projects.
- Discuss the use of process improvement tools (A3, value stream mapping, waste walk, fishbone diagram) to identify clinical process improvement opportunities.



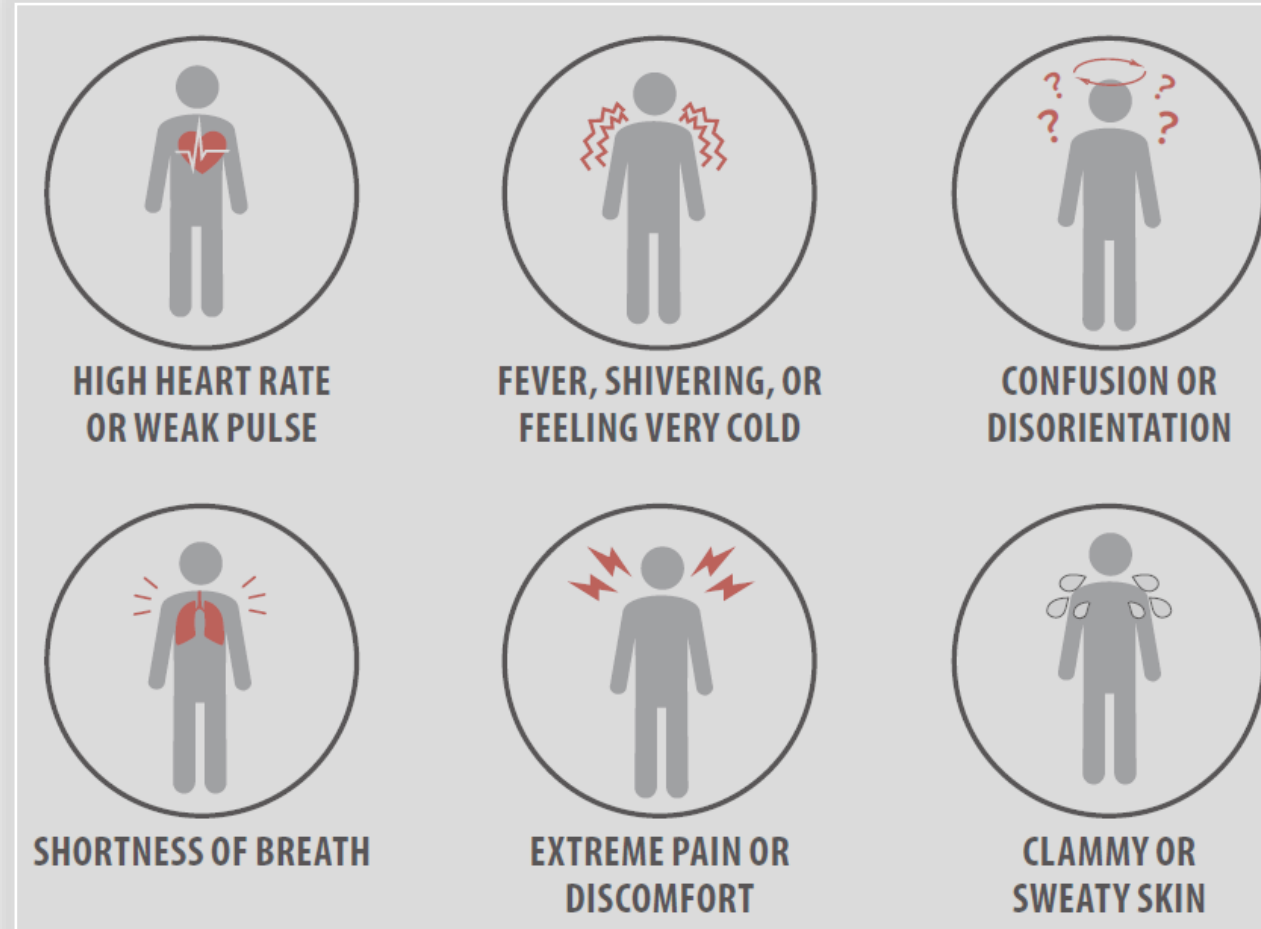
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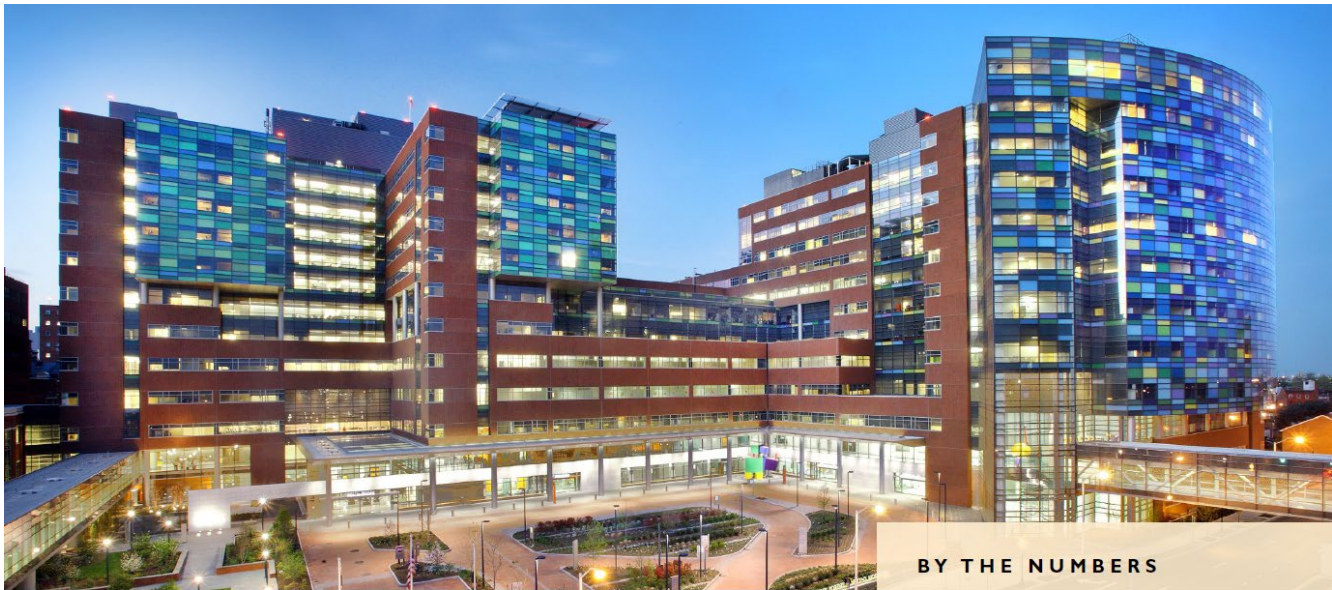
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Sepsis is Uniquely Challenging to Recognize



Reference: CDC. Consumer fact sheet protect yourself from sepsis. It's Time to Talk about Sepsis.
https://www.cdc.gov/sepsis/pdfs/Consumer_fact-sheet_protect-yourself-from-sepsis-P.pdf. Published June 7, 2022. Accessed July 23, 2022.

About Us: The Johns Hopkins Hospital



THE JOHNS HOPKINS HOSPITAL

FOR MORE THAN 125 YEARS, the mission of The Johns Hopkins Hospital has been to lead the world in the diagnosis and treatment of disease and to train tomorrow's great physicians, nurses and scientists. Above all, we aim to provide the highest-quality health care and service to all our patients.

BY THE NUMBERS	
Licensed acute care beds	1,162
Annual inpatient admissions	39,850
Annual outpatient visits	365,868
Annual ER visits	73,305
Full-time physicians	2,447



Leadership & Integrity



Excellence & Integrity



Diversity & Inclusion



Respect & Collegiality

Adult Emergency Department

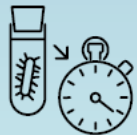



70,000+ Annual ER visits
70+ rooms spread across approximately
40,000 square feet



Early Intervention is KEY

Surviving Sepsis Campaign

Antibiotic Timing	
	 Shock is present
Sepsis is definite or probable	<input checked="" type="checkbox"/> Administer antimicrobials immediately , ideally within 1 hour of recognition.
Sepsis is possible	<input checked="" type="checkbox"/> Administer antimicrobials immediately , ideally within 1 hour of recognition.

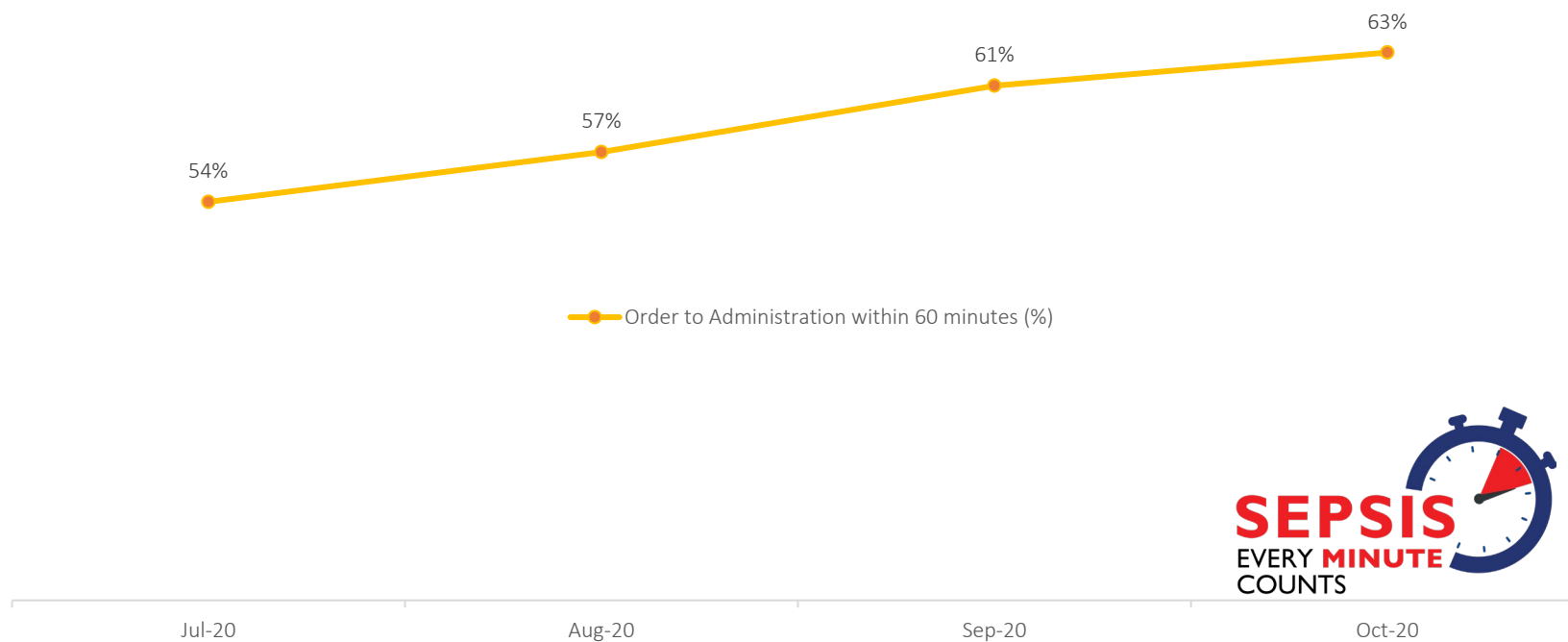
1-hour delay in antibiotics
=
35% increased risk mortality

References:
© 2021 Society of Critical Care Medicine and European Society of Intensive Care Medicine.
Im, Y., Kang, D., Ko, RE. et al. Time-to-antibiotics and clinical outcomes in patients with sepsis and septic shock: a prospective nationwide multicenter cohort study. Crit Care 26, 19 (2022).
<https://doi.org/10.1186/s13054-021-03883-0>

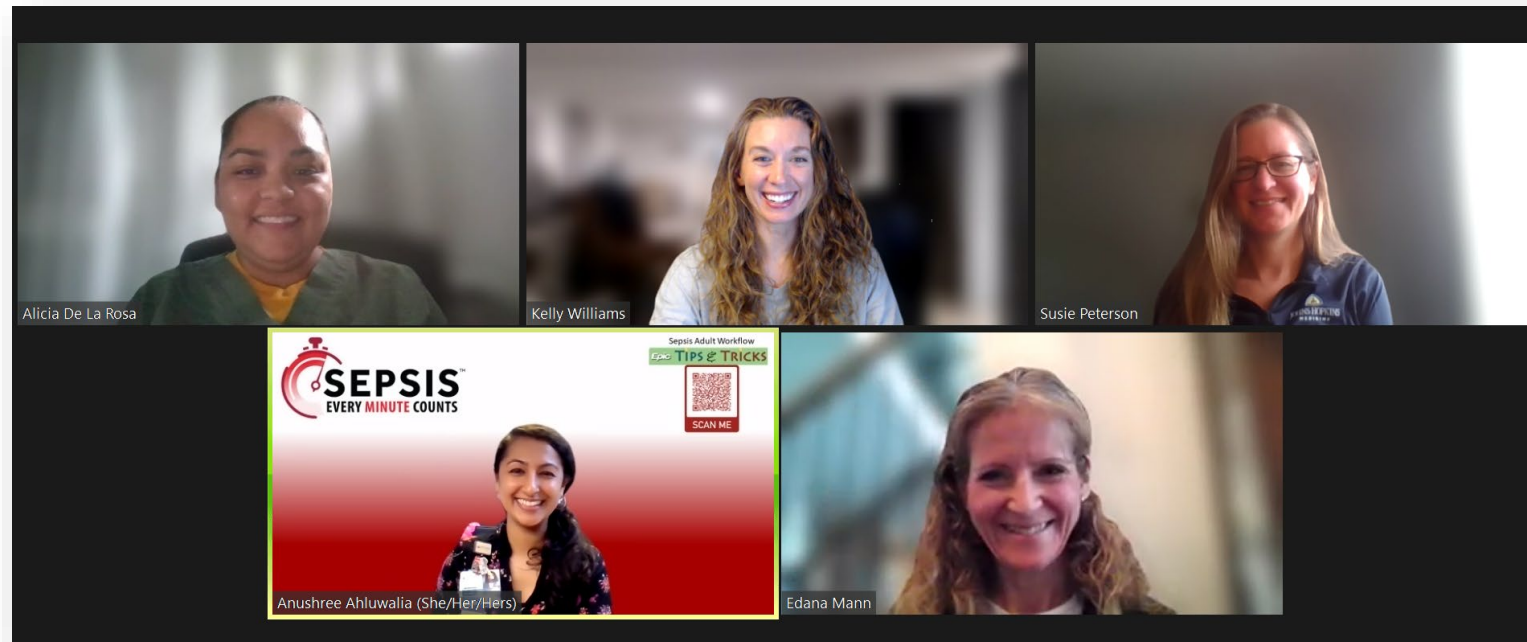
Our Problem

Goal: To increase the percentage of patients with a confirmed sepsis alert who receive antibiotics within 60 minutes of order in the Adult ED

Baseline: 58%



Addressing the WIIFM – Our Team



Pictured (L to R): A. De La Rosa, CNA (Equipment Lead); Kelly Williams, RN (Quality & Regulatory Coordinator/Sepsis Champion), S. Peterson, MD (Project Sponsor), Anushree Ahluwalia, RN, CPHQ (Quality Improvement) & Edana Mann, MD (Associate Clinical Director/Sepsis Champion)

Team members not pictured above: M. Mendez, PharmD (Pharmacist); R. Harris, CNA (Clinical Technician); A. Bunker, RN (Nurse) Z. Arciaga, RN (Assistant Nurse Manager), & T. Kaszmetskie (Business Intelligence Developer)

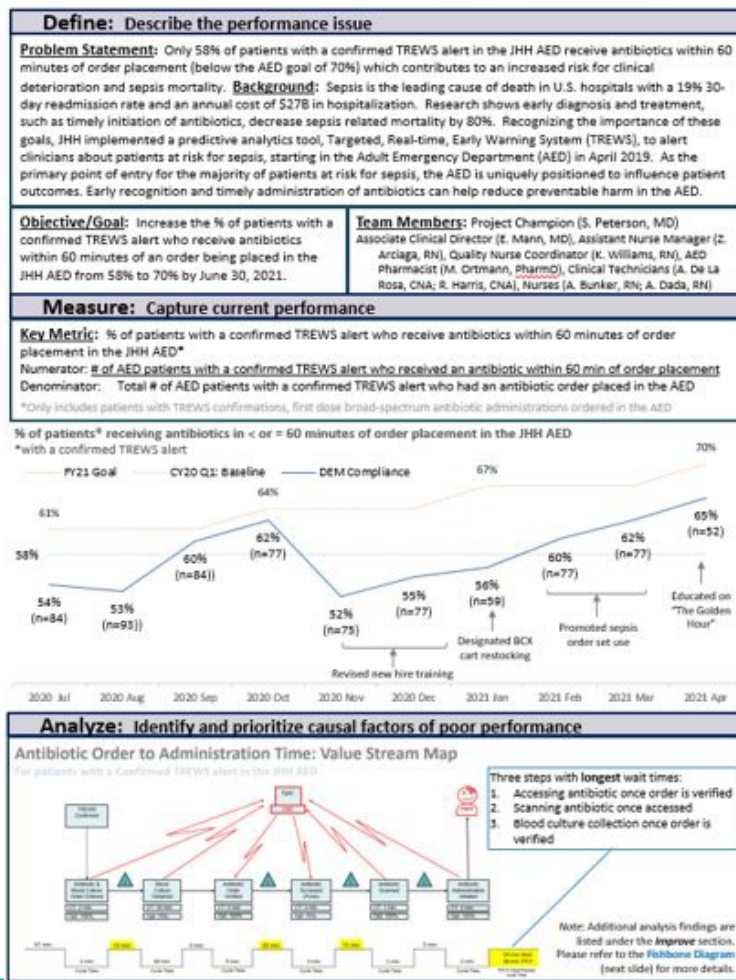
Sharing Data & Checking In



Organizing with an A3

Time to Antibiotic Administration in the JHH AED

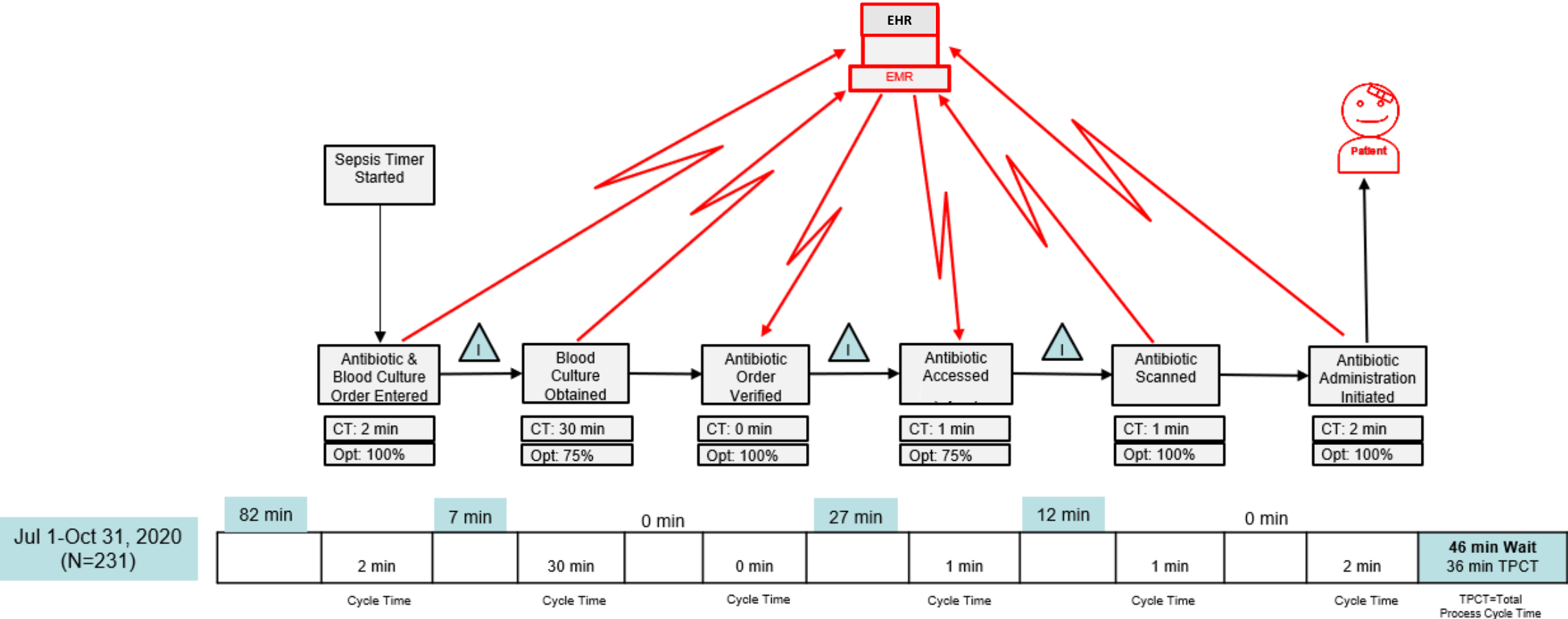
A3 Owner: Anushree Ahluwalia
Revision Date: 5/20/2021



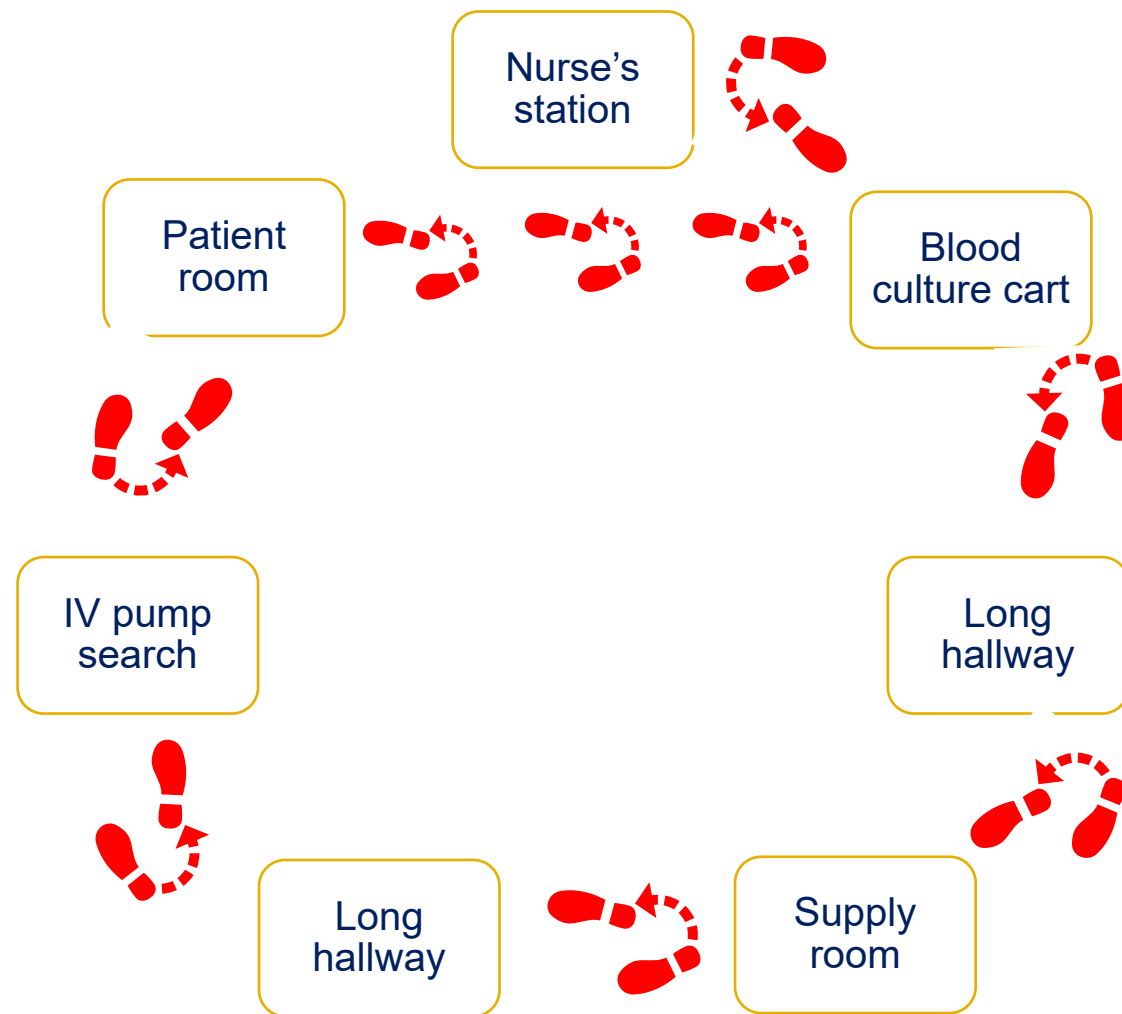
Improve: Pilot interventions and evaluate effectiveness			
Contributing Factors with the greatest impact	Interventions Status-- Blue: Complete; Yellow: In progress	Person(s) Responsible	
Inconsistent Communication/ Knowledge/Skills gap	<ul style="list-style-type: none">Educate staff: importance of timely intervention/"The Golden Hour".One-page flyer created and disseminated to staff; ongoing discussion in huddles/staff meetings.	A. Dada	
	<ul style="list-style-type: none">Utilize Secure Chat: standard method to notify that cultures were collected and/or to escalate concern if unable to collect.	K. Williams/ S. Peterson	
	<ul style="list-style-type: none">Establish group Secure Chat to notify trauma nurse, Clin Tech, and nursing supervisor when support is needed to care for Level 2 SAT/suspected sepsis patients.	A. Bunker	
	<ul style="list-style-type: none">Embed updated education, expectations, and new workflows in new hire orientation and preceptor development training.	K. Williams/ T. Colburn	
Search for supplies	<ul style="list-style-type: none">Identify designated personnel to restock blood culture carts.North Clin Tech 1 assigned to restock carts.	K. Williams	
Staffing Shortage: Ultrasound Guided IV (USGIV) trained staff	<ul style="list-style-type: none">Increase the number of available resources in the USGIV-trained nurse and Clin Tech roles.Added nine USGIV trained staff, bringing resource pool total to 27 trained staff.Clinical Equipment Technician conducts rounds to ensure access to USGIV supplies/carts.	K. Williams/ Z. Arclaga	
	<ul style="list-style-type: none">Educate providers (resident/APP/attending): use order sets, initiate broad-spectrum antibiotics early (when patient is most likely septic).Ongoing messaging to providers during faculty meetings, resident conferences, and APP meetings.	E. Mann/ M. Ortmann	
Lack of visual cue to show urgency/timeliness of intervention	<ul style="list-style-type: none">Create a "clock" in Epic to serve as a sepsis timer as a countdown for time left to administer antibiotics.Create a BPA as a reminder to initiate timely care.Initial request aligns with JHHS implementation of Epic's sepsis tools on 6/24/2021.	E. Mann/ K. Williams/ S. Peterson	

Control: Methods and monitoring to sustain the improvement				
KPI/ Supporting Metrics	Control Target	Documentation	Frequency/ Responsible	Reaction Plan
% of patients with a confirmed TREWS alert who receive antibiotics within 60 minutes of order placement in the JHH AED	≥ 70% of patients will receive antibiotics within 60 minutes from the time an order is entered	AED TTA Excel file, tab- OtsA Time on OneDrive	Monthly/ QITL & AED Quality Nurse	Quality Nurse or QITL will call huddle if AED is unable to meet target for two consecutive months
% of blood cultures collected within 60 minutes of order placement in the JHH AED	>75% of blood cultures will be collected within 60 minutes of order entry	AED BCX Graphs Excel file on OneDrive	Monthly/ AED Quality Nurse	Quality Nurse will call a huddle if AED is unable to meet target for > 1 month

Sketching with a Value Stream Map



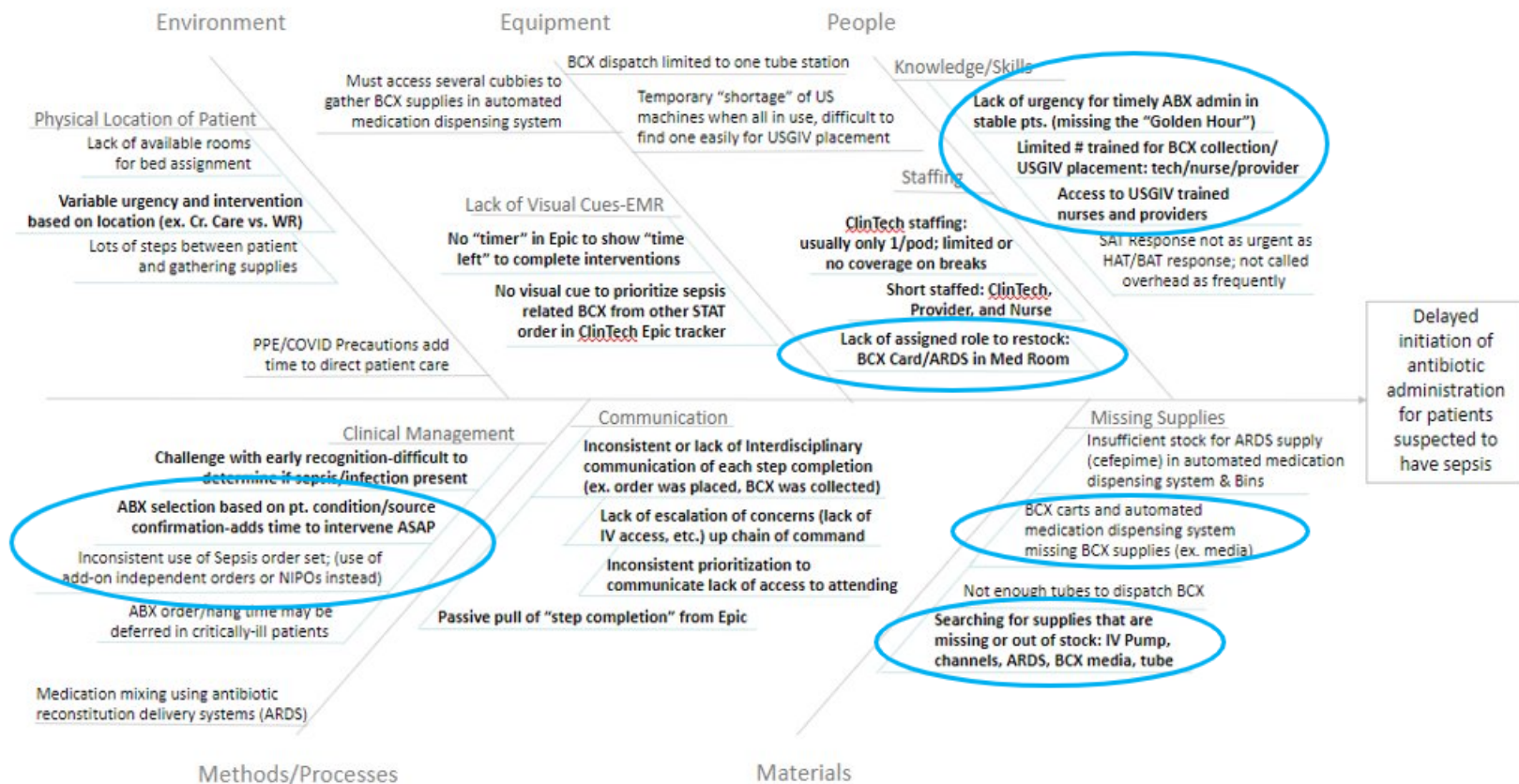
Going to the Gemba on a Waste Walk



Fishbone (Ishikawa) Diagram

JHH AED Time to Antibiotics: Fishbone Diagram

Key: ABX (Antibiotic) BCX (Blood Culture); ARDS (Antibiotic Reconstitution Delivery Systems); USGIV (Ultrasound Guided IV)



Key Interventions

Clinical Decision
Support Tools

Ultrasound Guided
IV Trained Nurses

Blood Culture Pilot

Clinician Training

Antibiotic
Accessibility

Barriers to Success



Staffing shortages

Workflow changes

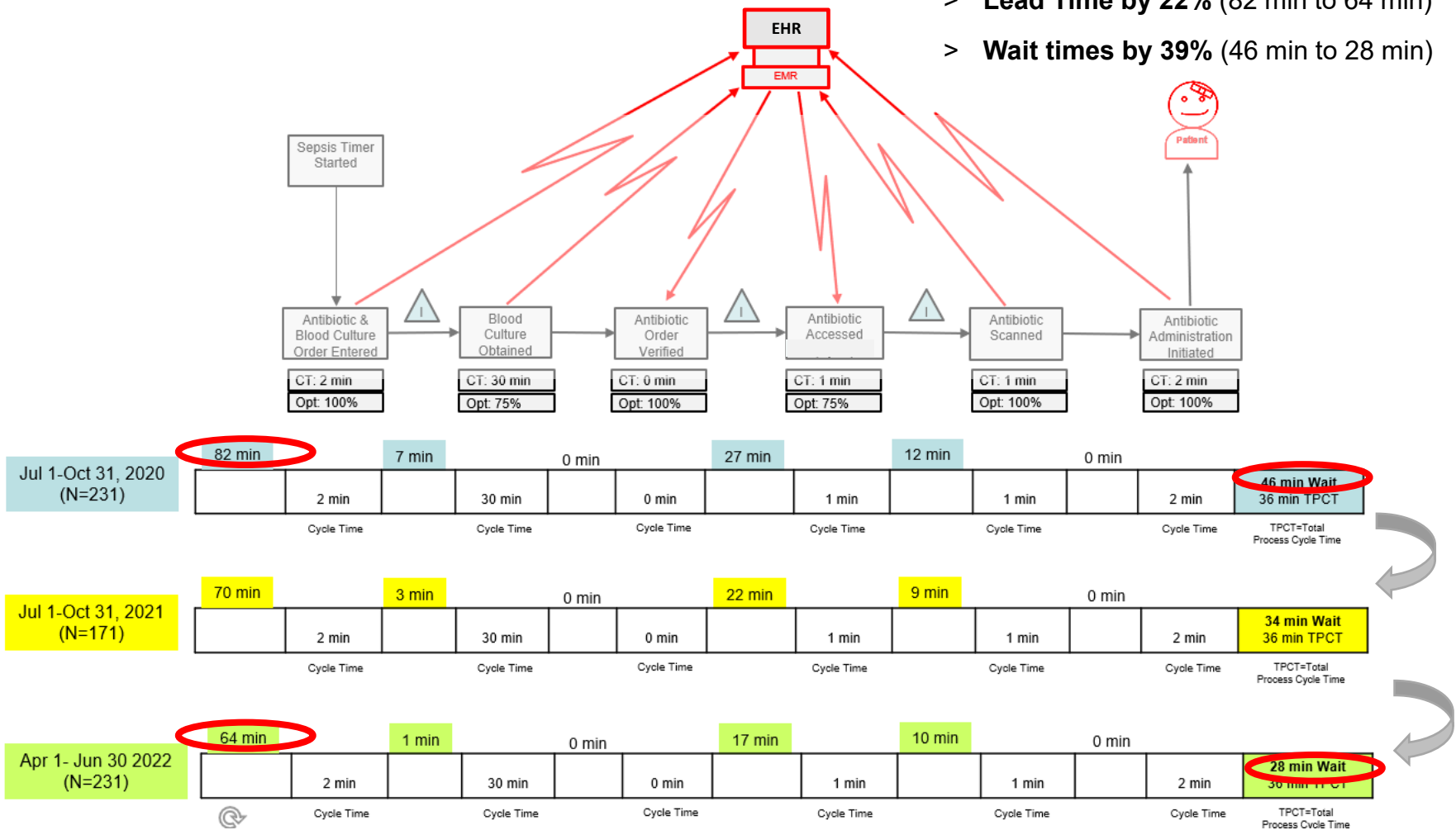
Sepsis and COVID-19 infection

Population acuity

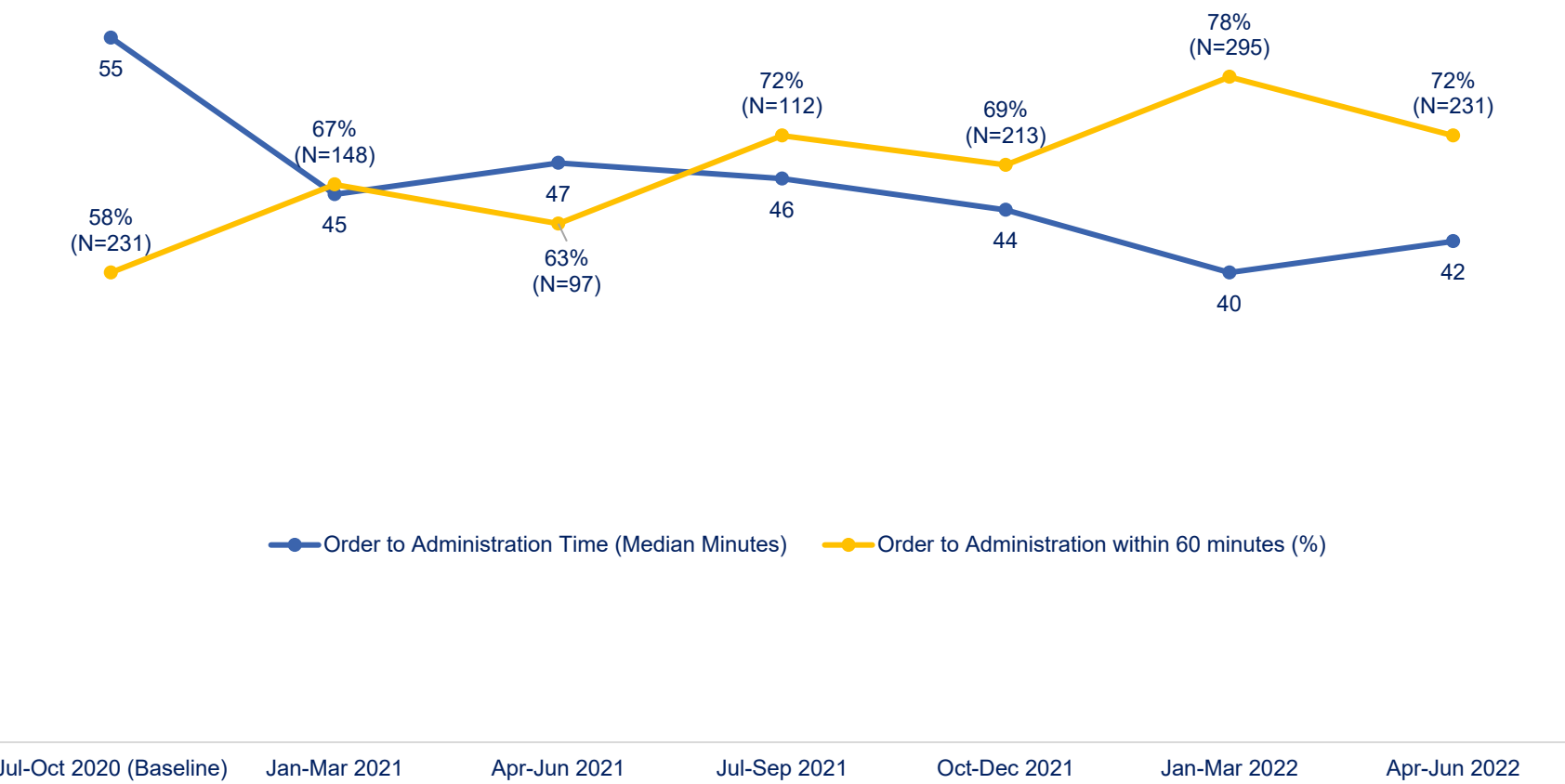
Staying the Course

Between July 2020 and June 2022, we reduced:

- > **Lead Time by 22%** (82 min to 64 min)
- > **Wait times by 39%** (46 min to 28 min)



Order-to-Administration Gains Over Time



Lessons Learned



1. Leadership alignment is key
2. Clinicians **must** help guide efforts
3. Seeing is believing
4. Be flexible always

Key Takeaways

- Early intervention can decrease mortality in suspected sepsis patients
- Clinician engagement is crucial to quality improvement
- Standard process improvement tools can help discover the actual problem

Thank you

Edana Mann, MD, FACEP

Associate Clinical Director, Department of Emergency Medicine

Special Thanks



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**The Armstrong Institute for Patient
Safety and Quality Patient Safety and
Quality Leadership Academy**

Questions?



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