

2022



STRONGER

vizient. CONNECTIONS SUMMIT

Sept. 19–21, 2022

#vizientsummit



McGovern
Medical School

Dashboarding to Action

Lactate and INR

Jeffrey Chen, MD, Hospitalist

Michelle Narat, MS, Six Sigma Master Black Belt

Bela Patel, MD, Regional Chief Medical Officer

Memorial Hermann-Texas Medical Center
UT Health McGovern Medical School, Houston, TX

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Learning Objectives

- Interpret a sample patient-level dashboard for warfarin INR and sepsis lactate.
- Discuss a multidisciplinary approach to dealing with warfarin INR and sepsis lactate fallouts.



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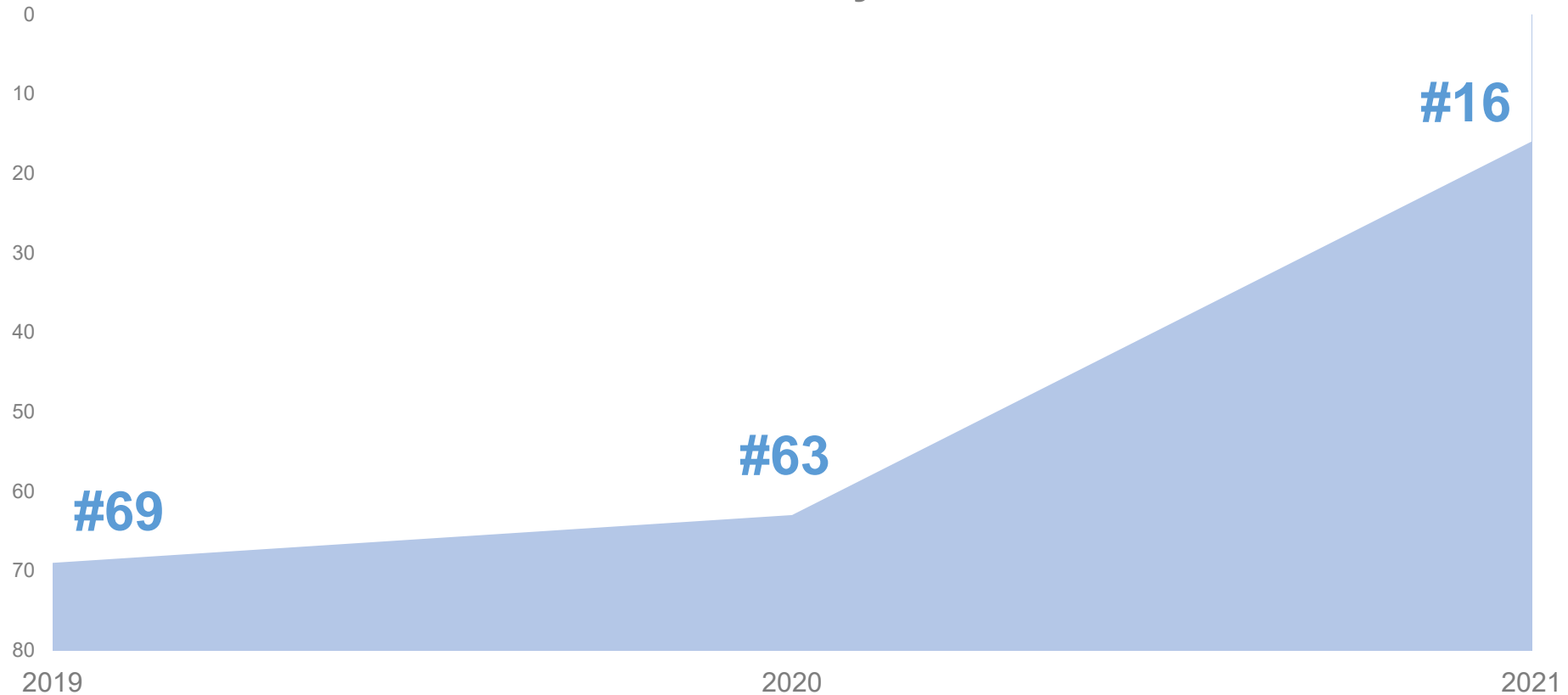
Memorial Hermann Texas Medical Center

- 38,000 Admissions
- 4,500 Deliveries
- 76,700 ER Visits
- 32,000 Surgeries
- 4,200 Life Flight® Air Ambulance Missions
- 1,215 Licensed Beds
- 6,600 Employees
- 1,800 Medical Staff
- \$2.5 B in Annual Net Patient Revenue



Safety Domain Performance

MH-TMC Vizient Safety Domain Rank



What are the metrics and why they matter?

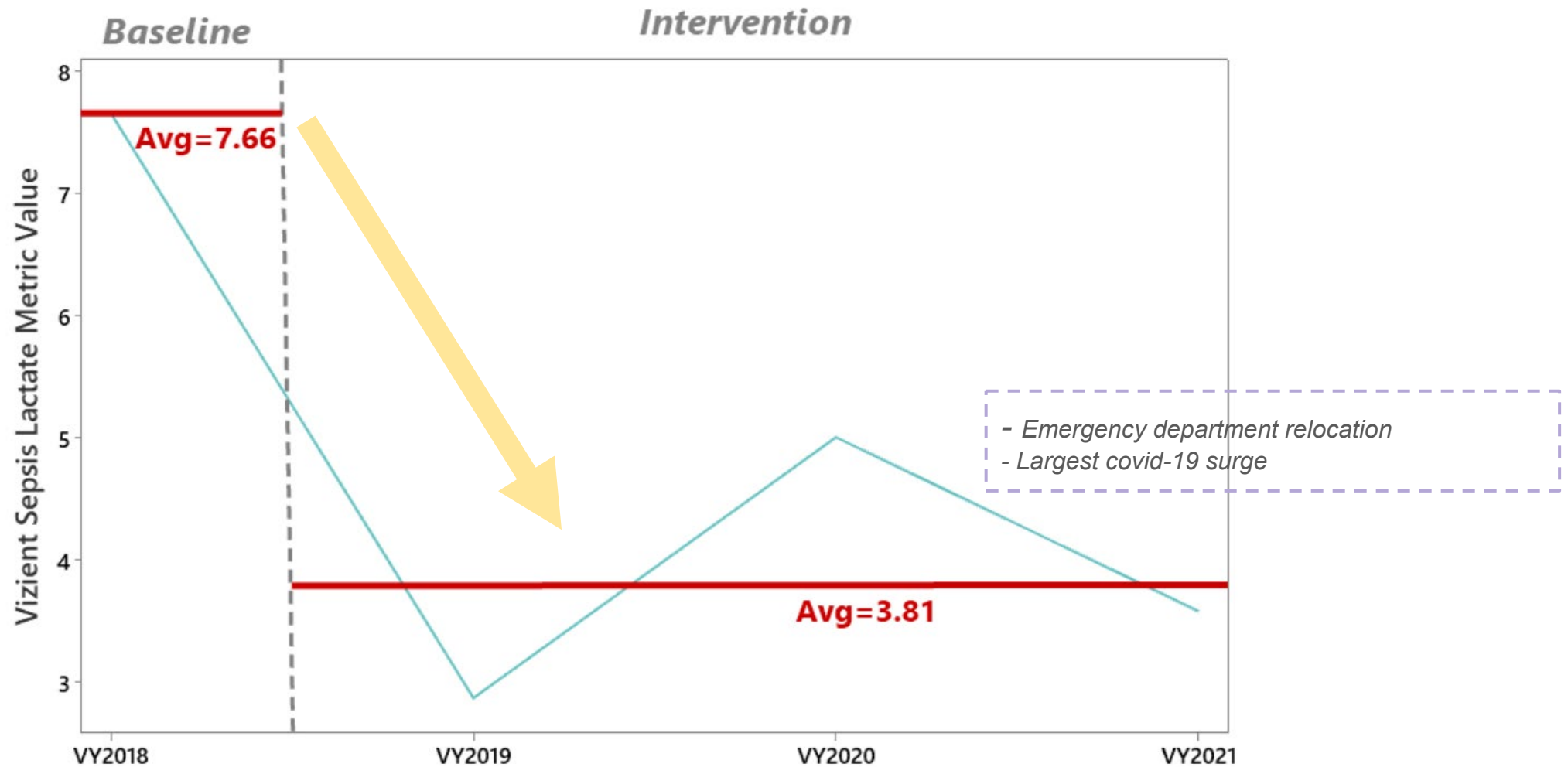
Sepsis Lactate

- Effectiveness domain
- Patients with sepsis without a lactate drawn within the first 12 hours of initial labs

Warfarin INR

- Safety domain
- Patients on warfarin with an INR greater than 5

Sepsis Lactate Data



3R's of a Continuous Healthcare Learning Micro-system



ED Arrival & Triage



Inpatient Admit



Frontline Team Review



Systematic Review and Continuous Performance Improvement

1 **RELEVANT**
Information
at
2 **RIGHT** Time

! **Code 1 Sepsis**

! **Severe Sepsis Alert**



Individual Pt-Level Dashboards to ED

- 7-day lookback
- ED to all units
- Patient level snapshots to bedside providers and ED review team for continuous feedback on sepsis performance



Hospital Sepsis Committee Monthly Review

- 30-day lookback
- ED to MICU
- Track ED Arrival (“time zero”) to Antibiotics, Fluids, Blood Cultures, Lactate, Vasopressors



Safety & Lab Metrics Monthly Huddle

- 45-day lookback
- Review Vizient fallouts

3 Shared amongst **RESPONSIBLE** groups

Bedside Care Providers
Physicians, Residents
RNs

ED Physicians – Med Director
ED Nursing Leadership
ED Pt Safety Fellow
Bedside Care Providers
Physicians, Residents
RNs

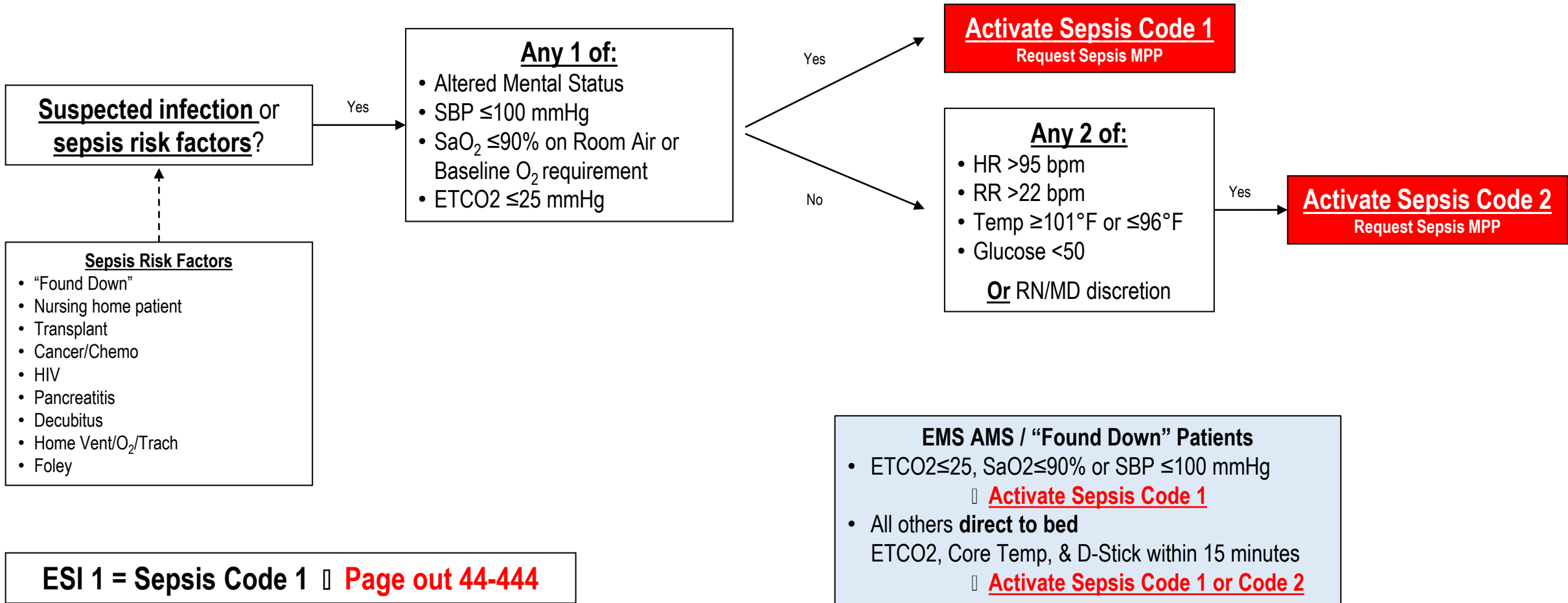
ED Physicians – Med Director
ED Nursing Leadership
ED Pt Safety Fellow
CMO
IM Quality Team

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Code 1 Sepsis Activation in the ED

Use your judgment. If in doubt, activate a Sepsis Code.

Sepsis Adult ≥18 years



3R's of a Continuous Healthcare Learning Micro-system

 *ED Arrival & Triage*

 *Inpatient Admit*


 *Frontline Team Review*


 *Systematic Review and Continuous Performance Improvement*


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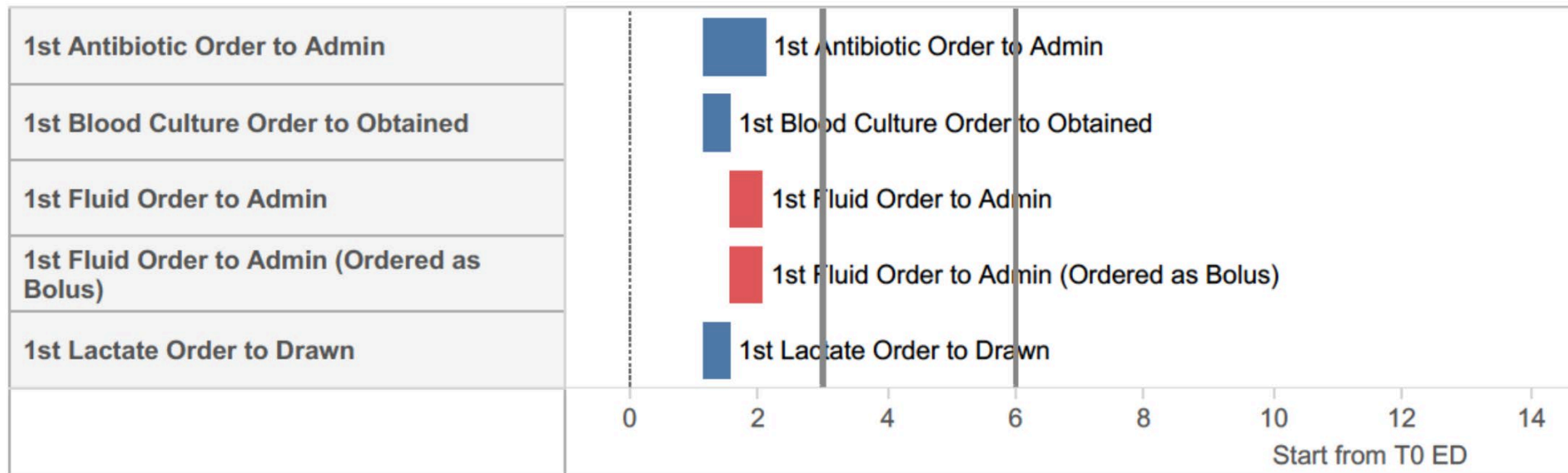
Sepsis Dashboard Components

Sepsis Patient Dashboard

ED Arrival Date: 9/21/2022 7:55:58 PM

1st UNIT Arrival Date: 9/22/2022 6:18:00 AM

Age 80 Sex(Female)



The dates/times and names have been altered for demonstration of the dashboard

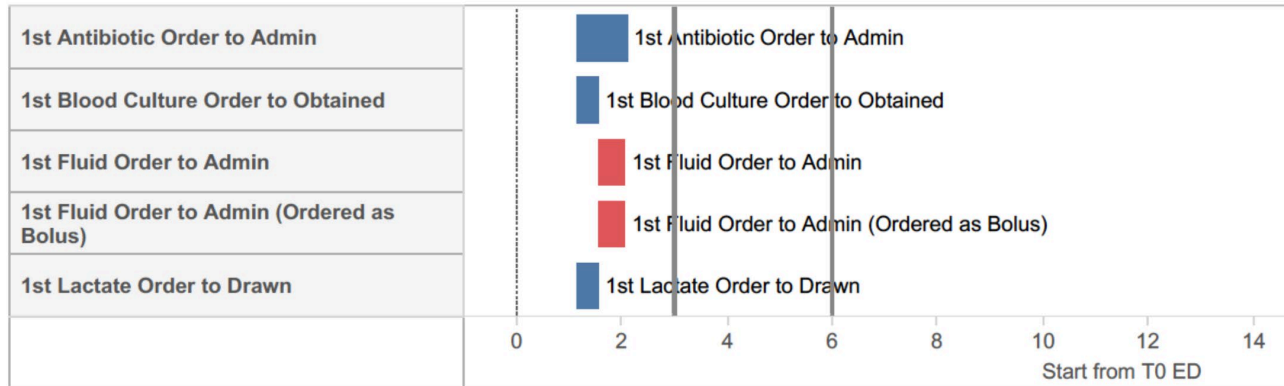
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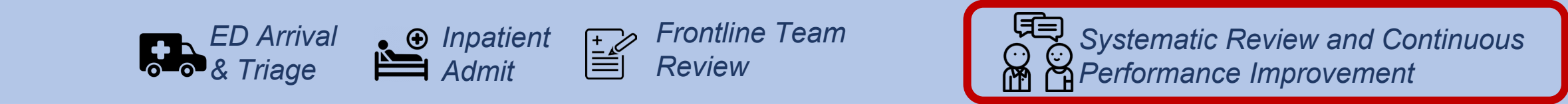
Ordering Provider

1st Antibiotic Order to Admin	Chen, Jeff MD	9/21/2022 9:05:43 PM
1st Blood Culture Order to Obtained	Chen, Jeff MD	9/21/2022 9:05:42 PM
1st Fluid Order to Admin	Chen, Jeff MD	9/21/2022 9:05:42 PM
1st Fluid Order to Admin (Ordered as Bolus)	Chen, Jeff MD	9/21/2022 9:59:40 PM
1st Lactate Order to Drawn	Chen, Jeff MD	9/21/2022 9:05:42 PM

Performing Personnel

1st Antibiotic Order to Admin	Smith, Eric RN	9/21/2022 10:03:00 PM
1st Blood Culture Order to Obtained	Smith, Eric RN	9/21/2022 9:30:00 PM
1st Fluid Order to Admin	Smith, Eric RN	9/21/2022 9:30:00 PM
1st Fluid Order to Admin (Ordered as Bolus)	Smith, Eric RN	9/21/2022 9:30:00 PM
1st Lactate Order to Drawn	Smith, Eric RN	9/21/2022 9:30:00 PM

3R's of a Continuous Healthcare Learning Micro-system



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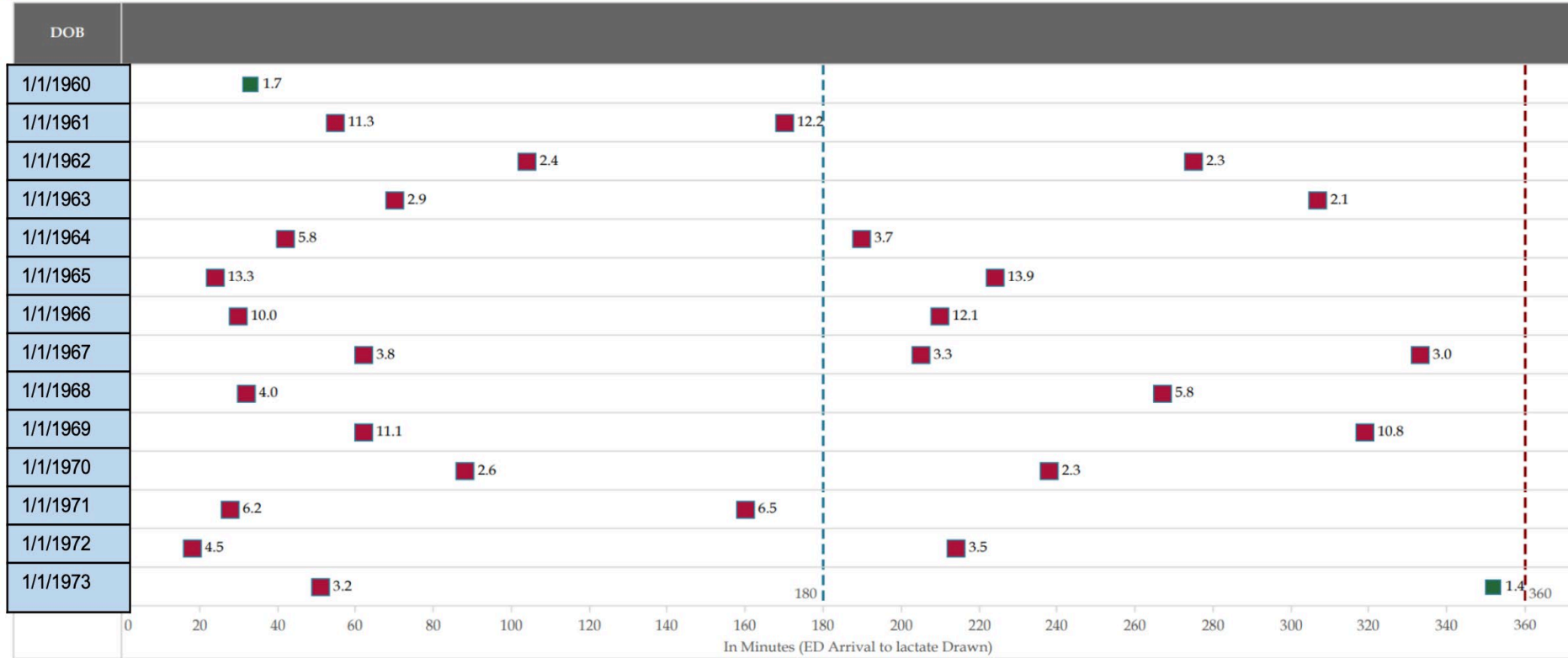
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Time to Initial Lactate and Repeat Lactate

UT Health - Texas Center of Healthcare Quality Innovation - at Memorial Hermann TMC



How did we do this month?

- 11 of 14 (79%) patients had the initial lactate drawn within 1 hour of ED arrival
- 14 of 14 (100%) patients had the initial lactate drawn within 3 hours of ED arrival
- 13 of those 14 (93%) patients had the initial lactate elevated (>2)
- 12 of those 13 (86%) had a repeat lactate within 6 hours of ED arrival

Lactate Color Legend

- Lactate Drawn (Elevated >2)
- Lactate Drawn (Not elevated)

The dates/times and data have been altered for demonstration of the dashboard

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Sepsis Lactate Dashboard

Lactate Fallouts Year 2022 (2021-07 to Current)

Metric: time between first common lab and first lactate result \geq 12 hours

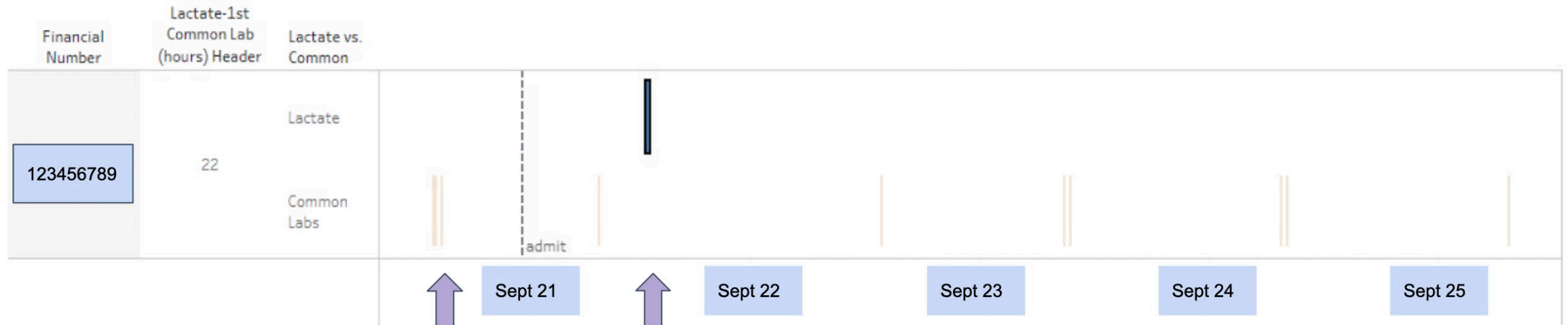
Financial Number	Admit Source	Transfer Status	Time Between 1st Lactate-1st Common Lab (hours)	First Common Lab DateTime	First Lactate DateTime	Admit DateTime Fixed
123456789	Emergency Room		22			
	Emergency Room		21			
	Emergency Room		21			
	Emergency Room		20			
	Physician Referral		19			
	Emergency Room		16			
			16			
			15			
			15			
			14			
			14			
	Emergency Room		14			
	Emergency Room		13			
	Emergency Room		13			
	Clinic or Physician Office Referral		13			

Click on an individual patient medical record number for more details (next slide)

The dates/times and data have been altered for demonstration of the dashboard

Sepsis Lactate Dashboard- Individual Patient

Sepsis POA and Common Lab Timeline



Common Labs
Clinical Event Performed Date/Time: 9/21/2022 2:21:44 PM
Time Between 1st Lactate-1st Common Lab (hours): 22

Lactate
Clinical Event Performed Date/Time: 9/22/2022 12:50:03 PM
Time Between 1st Lactate-1st Common Lab (hours): 22

The dates/times and data have been altered for demonstration of the dashboard

Resulting Opportunities for Improvement

Delays in lactate measurement in covid-19 septic patients on non-invasive ventilation

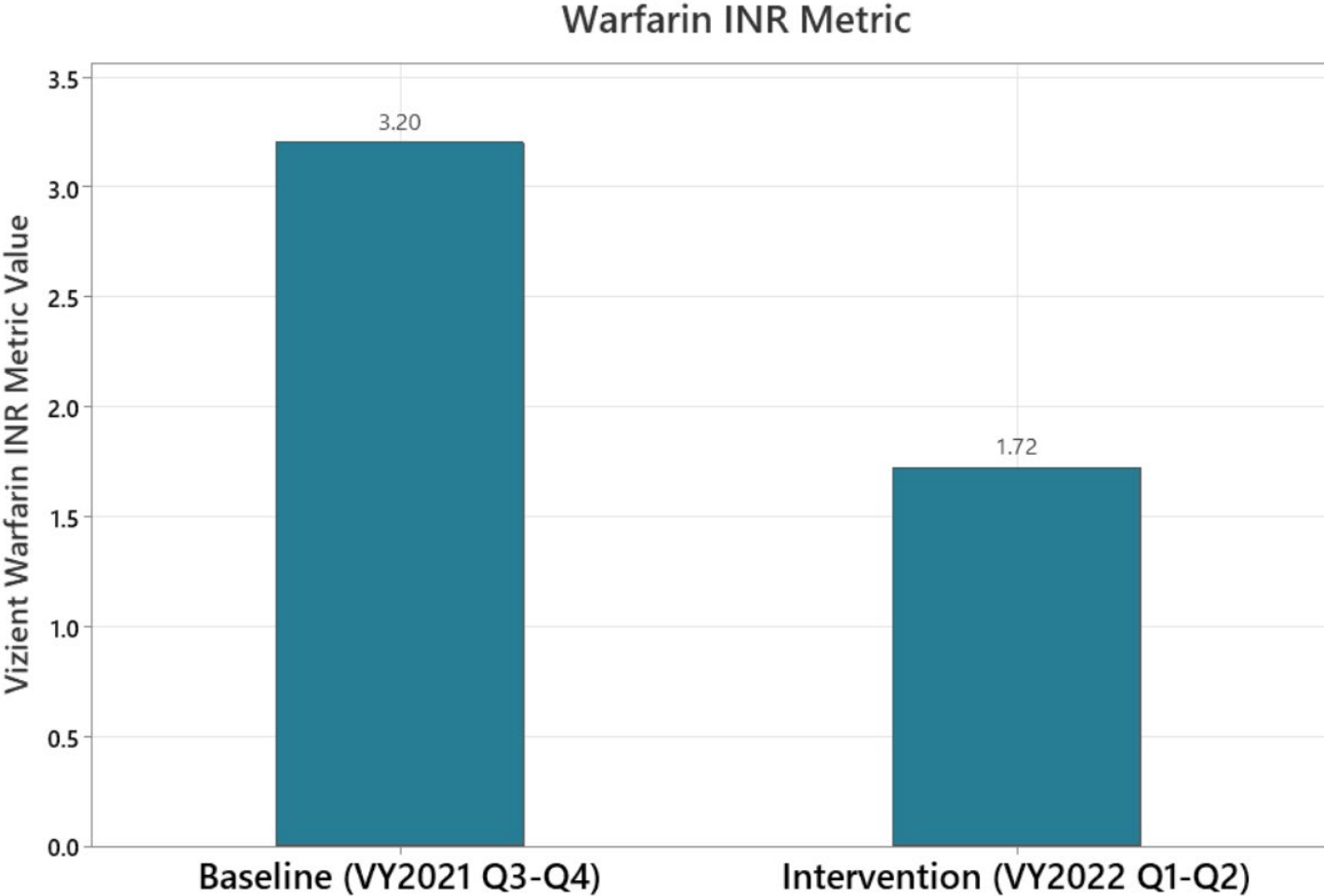
Remind APPs/residents to use the sepsis MPP

Higher surge volumes increased compliance while the opposite occurred post surge

Delays in lactate measurement in elderly patients with neurological impairment



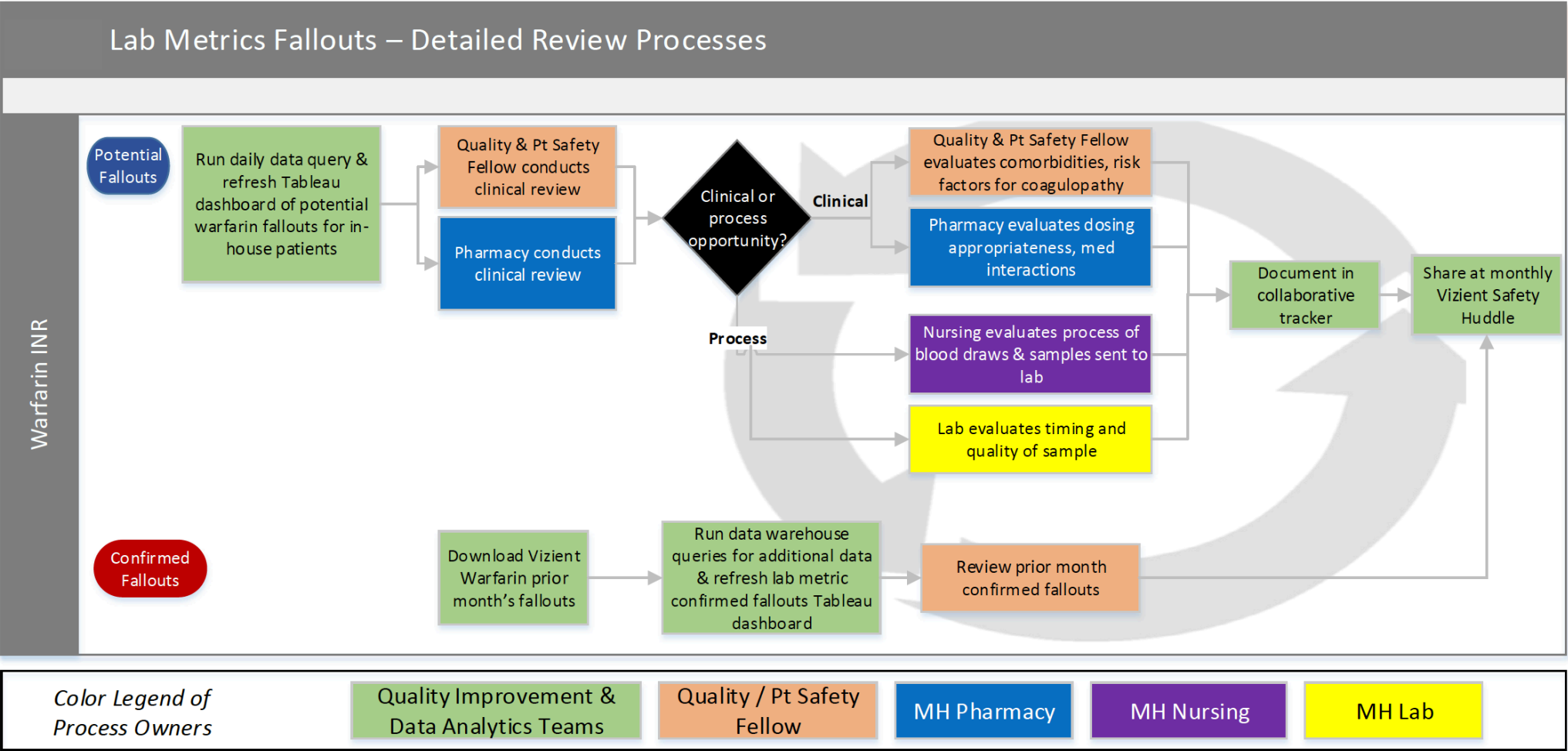
Warfarin INR Data



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Warfarin INR Dashboard

Warfarin - INR Data

TMC Documentation Coding Improvement

Person Location- Nurse Unit (Curr)
(All)

INR Dt
(None)

Click on dropdown menu to choose an individual date, multiple dates, or all dates

Warfarin - INR

Person Location-Facility (Curr)	Financial Number ^{1,2}	INR Date and Time	Admit Date	Discharge Date
HH HERMANN	123456789	9/24/2022 12:06:00 PM	9/20/2022	9/30/2022
	234567890	10/24/2022 4:45:00 AM	10/22/2022	11/22/2022
	345678901	11/24/2022 10:45:00 AM	11/20/2022	12/20/2022

Click on an individual patient to open up INR trend

Date/Time when INR > 5

The dates/times and data have been altered for demonstration of the dashboard

Warfarin INR Dashboard

Financial Number (All INR)

123456789

9/21/2022 4:20:00 PM	1.49	
9/22/2022 12:55:00 AM	1.42	
9/22/2022 06:38:00 AM	1.41	
9/23/2022 03:08:00 AM	1.25	
9/23/2022 09:44:00 AM	1.20	
9/23/2022 5:41:00 PM	1.15	
9/24/2022 4:02:00 AM	1.20	
9/24/2022 12:06:00 PM	>10	
9/24/2022 12:39:00 PM	1.95	
9/24/2022 1:16:00 PM	2.03	INR value that was > 5

Continuous Healthcare Learning Micro-system

- Warfarin INR Dashboard
- Reviewers
 - QI fellow
 - Pharmacy
 - Nursing
 - Lab
- Feedback loop

The dates/times and data have been altered for demonstration of the dashboard

Lessons Learned

- Measuring and monitoring variability helps us identify improvement opportunities
- Dashboards can be an efficient tool in a larger workflow for continuous improvement
- Our continuous learning environment allows for real time feedback and process changes

Key Takeaways

- Look at your Sepsis Lactate and Warfarin INR rates
- Consider creating a dashboard to plot metrics of interest
- Build a dedicated learning response team to continuously evaluate for opportunities and to rapidly redesign or create new processes

A Special *Thank You* to Our Support Team Members!

**Memorial Hermann Executive Team
University of Texas at Houston Health Intelligence Platform (UTHIP)
University of Texas at Houston Innovation Team
University of Texas at Houston Emergency Department Quality Team
Memorial Hermann Transformation Hub
Memorial Hermann Comparative Analytics Team
Memorial Hermann Quality Team
Memorial Hermann Pharmacy**

Questions?

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