Patient Safety: Getting Back on Course After Driving the Wrong Direction

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Disclaimer

We have no real or perceived conflicts of interest that relate to this presentation

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Hello from Cincinnati Children's Hospital!

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What Guides Us

Our Vision

To be the leader in improving child health.

Our Mission

Cincinnati Children's will improve child health and transform delivery of care through fully integrated, globally recognized research, education and innovation. For patients from our community, the nation and the world, the care we provide will achieve the best:

- Medical and quality-of-life outcomes
- Patient and family experience
- Value

Today and in the future.

Who We Are

Care drives us

Science moves us

Collaboration empowers us

Discovery inspires us

This isn't our job

It's our calling

And we answer it every day

For every family

And every child

And every future

We are **Cincinnati Children's**

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Facts & Figures

One of the top pediatric hospitals in the nation in *U.S. News & World Report*'s Best Children's Hospitals Honor Roll

Top 3 in the nation in NIH grant funding for pediatrics

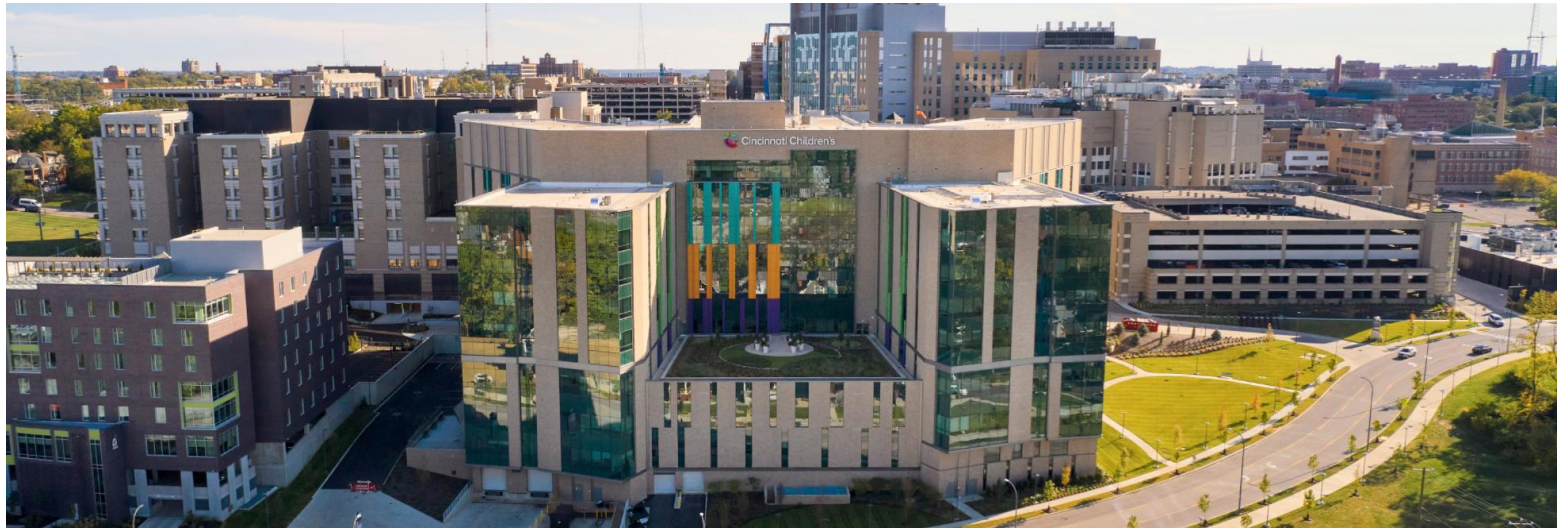
One of the **largest pediatric research facilities in the nation**, encompassing more than 1.5 million square feet of research laboratory space

Est. 1883 Full-service, nonprofit, comprehensive pediatric health system consisting of more than 50 unique locations that comprises the Department of Pediatrics, University of Cincinnati College of Medicine

Top 5 largest U.S. children's hospital with 789 registered beds (including 170 inpatient and residential psychiatric beds), treating patients from all 50 states and dozens of countries

STATISTICAL HIGHLIGHTS (JULY 1, 2024 – JUNE 30, 2025)	
Total Admissions (includes short stay)	33,996
Emergency and Urgent Care Visits	166,986
Outpatient Visits	1,550,671
Total Patient Encounters	**1,751,653**
SURGICAL PROCEDURES	
Inpatient	6,435
Outpatient	32,754
Total Surgical Hours	**50,741**
FACULTY & STAFF	
Clinical Fellows	254
Research Fellows	177
Staff Scientists	152
Residents	237
Faculty	1,185
Active Medical Staff	**1,919**
Total Employees	**19,632**
OPERATING REVENUES & EXPENSES	
Net Patient Revenue	$2.9 billion
Total Operating Revenues	$3.5 billion
Total Operating Expenses	$3.4 billion
Non-operating Gains and Losses	$141.7 million
Available to Reinvest in the Mission	$216 million

Locations



Burnet Campus

Liberty Campus

College Hill

Neighborhood Locations

OHIO

Drake
Centerville
Eastgate
Fairfield
Green Township
Kenwood
Kettering
Mason
Norwood
Oxford
Portsmouth
Washington Court House
Winslow

KENTUCKY

Ashland
Bardstown
Corbin
Crestview Hills
Danville
Elizabethtown
Florence
La Grange
Lexington
Louisville
Maysville
Mt. Vernon
Owensboro
Pikeville
Shelbyville
Somerset
Union

INDIANA

Batesville
Lawrenceburg
New Albany
Rushville
Shelbyville

Primary Care Locations

Anderson
Batesville, IN
Cold Spring, KY
Fairfield
Florence, KY
Greensburg, IN
Hopple
Hughes STEM
Kenwood Crossing
Liberty
Loveland
Mason
Rockdale Academy
South Avondale
Southgate, KY
Springdale
Union, KY
Wilmington

Session Description

Attendees will learn how Cincinnati Children's embeds situation awareness to address clinical deterioration into daily practice through

- real-time risk identification,
- structured huddles, and
- EMR embedded predictive tools.

They will understand key workflow elements, implementation strategies, and measurable safety outcomes.

Attendees will gain practical approaches to enhance teamwork, reduce patient harm, and build high-reliability systems within their own organizations.

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Learning Objectives

Describe the core components of Cincinnati Children's situational awareness framework and how they support early risk identification and prevention of unrecognized clinical deterioration.

Understand how to incorporate structured huddles and assisted clinical decision making using predictive tools to improve patient safety outcomes.

Apply key implementation strategies to enhance situational awareness practices within participants' own clinical environments.

- Outcome and process measurement of Emergency Transfers and frequency of interdisciplinary collaboration before patient escalation to higher level of care
- Leadership support models and empowerment of bedside caregiver SA champions
- How to build a multidisciplinary leadership team and system-wide learning collaborative
- Systematic event review process with opportunity for dissemination of shared learnings

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Acute Care Situation Awareness

- **Description**
  - Eliminate unrecognized deterioration through improved situation awareness in the inpatient acute care population
- **Global Aim**
  - Eliminate patient harm
- **SMART Aim**
  - Reduce Emergency Transfers from 3.4/10,000 patient days to 2.55 by June 30, 2026.
  - Increase patients made watchers before MRT or Code from 48.5% to 55% by June 30, 2026.
- **Population**
- Inpatient, acute care.

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More about our Acute Care setting

- Fifteen inpatient, non ICU units, organized by medical/surgical subspecialty
- Units support general pediatric Medical-Surgical, post-surgical, and several subspecialities including Neurology, Cardiology, Cancer and Blood disease, and airway care.
- Units are supported by Operational Excellence leadership structure
  - Partnership between clinical director nursing and physician leadership

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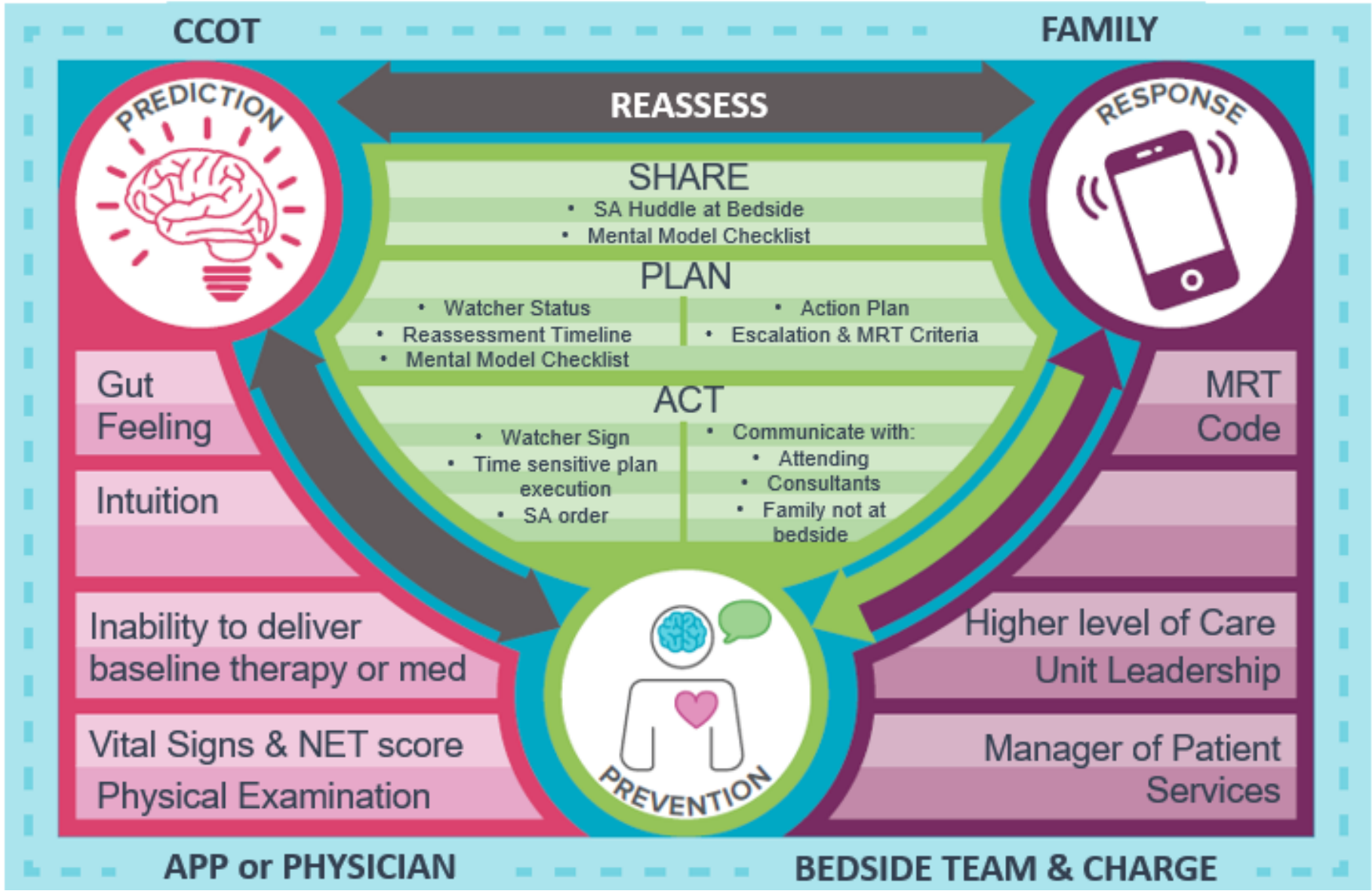
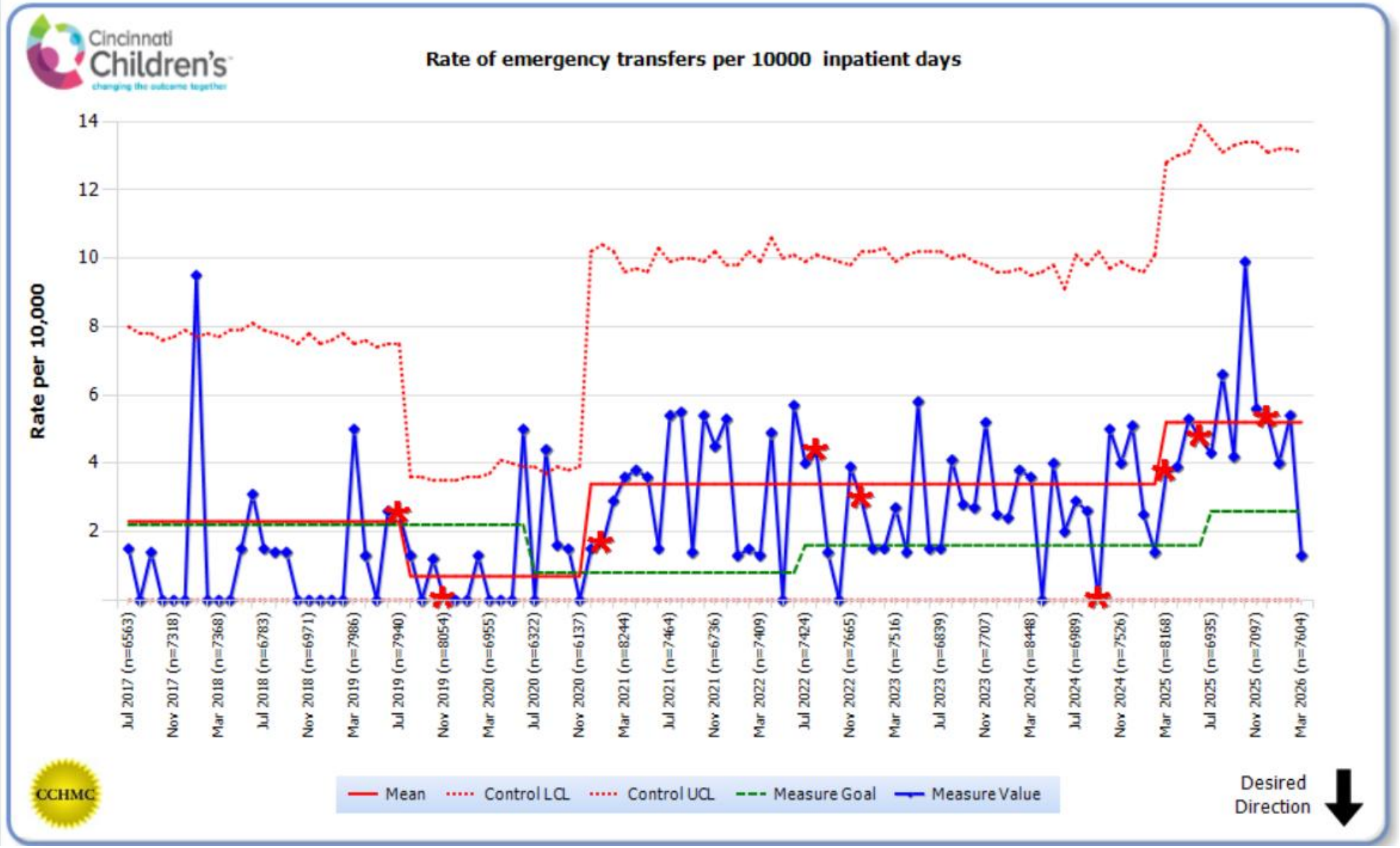
ACUTE CARE SITUATION AWARENESS MODEL FOR CLINICAL DETERIORATION





Operational Definition

Within 60 minutes of arrival to ICU, a patient receives:

- 3 or more fluid boluses (including blood products)
- Inotropes
- Intubation

Centerline: 5.3/10,000 pt days

Goal FY26: 2.55

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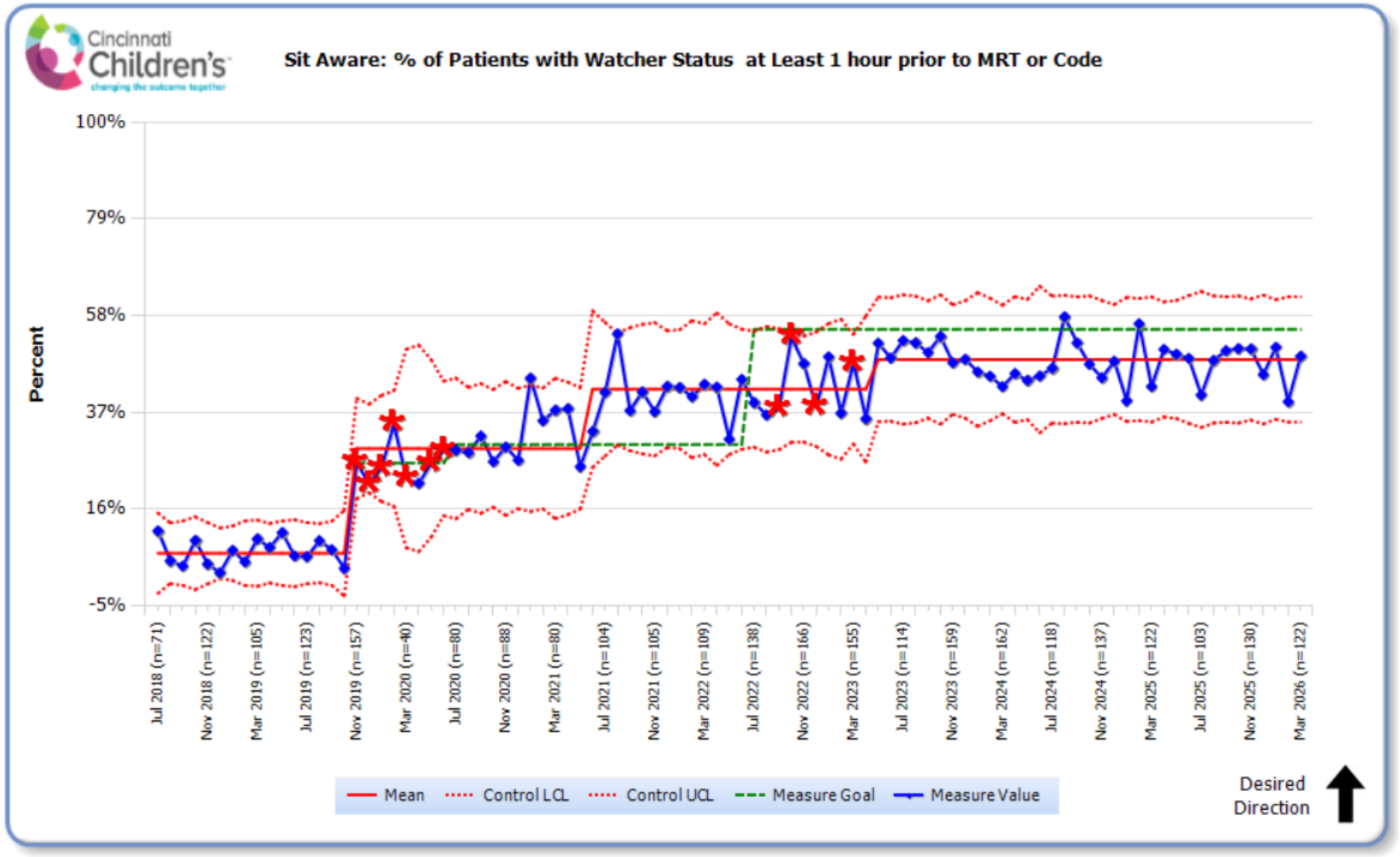

Process Measure

Answers the question: Are we recognizing patient deterioration and developing mitigation plans for patients deemed at risk?
i.e., how reliably are we doing the "predict" step?

Goal will never be 100%, not all MRT/Code events are predictable

Centerline: 48.5%

Goal FY26: 55%

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Acute Care Situation Awareness Model for Clinical Deterioration Key Driver Diagram (KDD)

Revision Date: *415/26 (v#22)*
Project Leaders: Laura Brower, Wendy Ungard, Laura Hatcher, Katy Bedinghaus, Jenny Carmichael, Emily Hoff, John Forbes, Amy Mattingly, Colleen Pater, Michelle Coleman, Rae Becker, Britany Frakes, Heidi Salyer, Angela Emanuel

Global Aim

Predict and prevent clinical deterioration in pediatric patients to decrease morbidity and mortality

SMART Aim

Decrease the Rate of Emergency Transfers from *3.46* to 2.55 by June 30, 2026

Population

Hospitalized pediatric patients outside of the intensive care unit

Key Drivers

- Clear, bidirectional communication with escalations to ICUs & ED
- In-person communication
- Early and appropriate use of escalation pathways
- Engaged SA Champions
- Early identification of Patients at risk

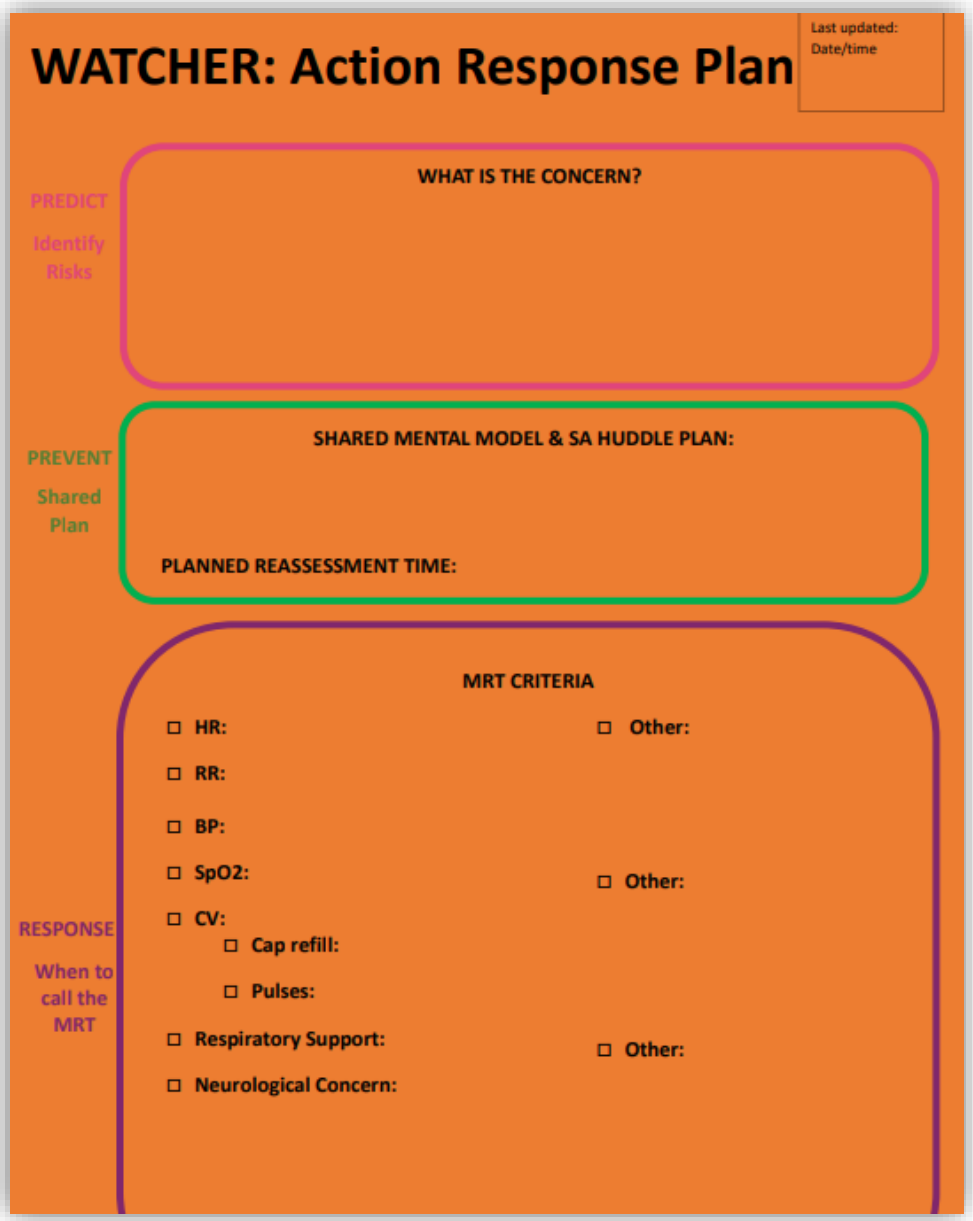
Interventions (LOR #)

- MRT survey revisions (LOR1)
- *VRT evaluation & review*
- Code Stroke Processes
- Text v. Call Algorithm (Acute Care Shared Gov) (LOR 1)
- Voalte SA champion (Heme Onc) (LOR 2)
- Event Review Process Best Practices
  Shared Document, QR Code
- RN Champions definition, worksheet, round robin reporting (LOR 1)
- Watcher Sign – IV presence – (TCC) (LOR 2)
- SA – K Card (HemeOnc)
- Scale & Spread Uncertain Diagnosis Flag
- *NET Spread: Heme/Onc, ACCU (LOR 2)*
- FOCUS: Complex Condition Baseline + Note (LOR 1)

Legend	
Active Intervention	Adopted Intervention
Potential Intervention	Abandoned Intervention

Note: LOR # = Level of Reliability Number, e.g., (LOR 1)

Structured Huddles



WATCHER: Action Response Plan

Last updated: Date/time

PREDICT
Identify Risks

WHAT IS THE CONCERN?

PREVENT
Shared Plan

SHARED MENTAL MODEL & SA HUDDLE PLAN:

PLANNED REASSESSMENT TIME:

RESPONSE
When to call the MRT

MRT CRITERIA

- ☐ HR:
- ☐ RR:
- ☐ BP:
- ☐ SpO2:
- ☐ CV:
  - ☐ Cap refill:
  - ☐ Pulses:
- ☐ Respiratory Support:
- ☐ Neurological Concern:
- ☐ Other:
- ☐ Other:
- ☐ Other:

"Watcher" Patients

- Concern for acute deterioration
- Task for clinical team to:
  - assemble at bedside,
  - review clinical concern,
  - share mental model and plan of action, and
  - then define objective and measurable criteria in which to escalate concerns to the ICU (MRT: Medical Response Team)

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Structured Huddles

Mental Model (M2) Checklist
"SAFER TOGETHER"

Use checklist at end of huddles to ensure care team and family understanding.

- ☐ We know the concern(s)
- ☐ We know the next steps
- ☐ We know when and how to escalate
- ☐ We discussed ideas, questions, and concerns

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Updated 1/30/2025

Credit: Dr. Megan Fanta,
Prior versions: Dr. Mary Sitterding, Dr. Tina Sosa

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Real Time identification

Making a Patient a Watcher

A3N – Automatic Watcher Criteria

- Intra-op concern from operating team post-op recovery, need for specific monitoring (blood loss)
- Patient designated a watcher in PACU
- NET score > 7 or > 5 x2
- Sepsis algorithm activated
- MRT based on abnormal vital signs in past 12 hours
- Post-op disposition changed from PICU to floor (ortho only)

Bedside Evaluation and Team Decision-Making:

- Tachycardia in absence of fever or sustained ≥ 1 hour after intervention
- Fluid boluses > 2 (40 mL/kg) within 12 hours
- Sustained increased respiratory support
- Patient admitted with an uncertain diagnosis
- Staff or family concern

A4N – Automatic Watcher Criteria

- Intra-op concern from operating team about post-op recovery or need for specific monitoring (blood loss)
- Patient designated a watcher in PACU
- NET score > 7, or > 5 x2
- Sepsis algorithm activated
- MRT or PICU evaluation within previous 24 hours

Bedside Evaluation and Team Decision-Making:

- Tachycardia in absence of fever or sustained ≥ 1 hour after an intervention
- Fluid boluses > 2 (40 mL/kg) within 12 hours
- Patient admitted with an uncertain diagnosis
- Staff or family concern
- Other/any other concern

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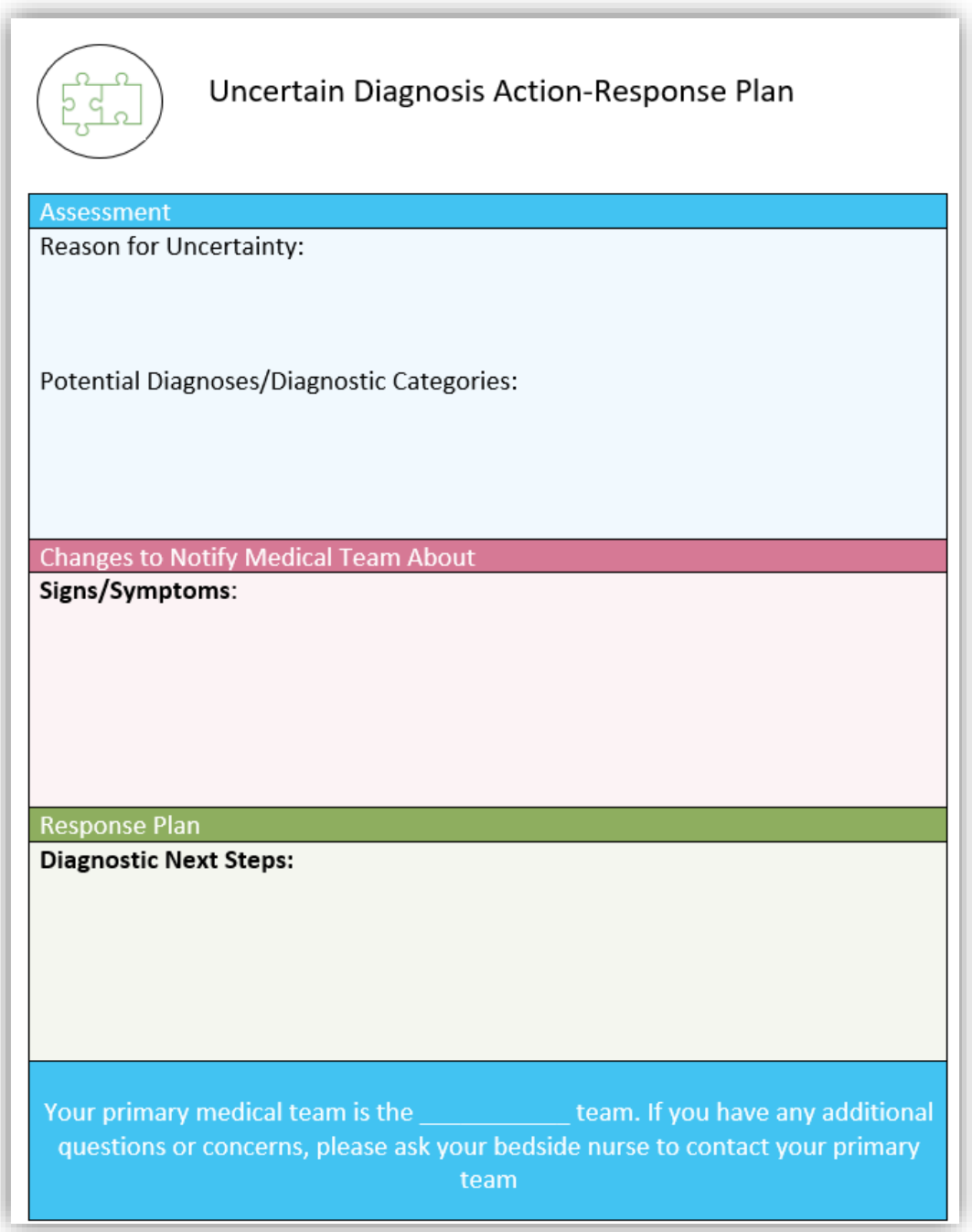
Structured Huddles

Uncertain Diagnosis

- Identify patients at risk for diagnostic errors
- Provide language to express “gut instincts”
- May be subjective, expect provider variation



Uncertain Diagnosis Action-Response Plan

Assessment

Reason for Uncertainty:

Potential Diagnoses/Diagnostic Categories:

Changes to Notify Medical Team About

Signs/Symptoms:

Response Plan

Diagnostic Next Steps:

Your primary medical team is the _____ team. If you have any additional questions or concerns, please ask your bedside nurse to contact your primary team

Credit: Dr. Tricia Marshall, Dr. Anna Ipsaro

Assisted Clinical Decision Making with Predictive Tools – Notification & Escalation Trigger

How does it work?

- Automated early warning score calculated from age based vital signs and body system assessment documentation
- During the 1st 24 hours of admission an active EMR alert notifies the bedside RN when a patient meets criteria for an evaluation
- Outside of the high-risk times, staff can review and incorporate the NET score like another vital sign

Sensitivity: 78% (95% CI: 68-86%)

Specificity: 91% (95% CI: 90-92%)

+LR: 8.7 (95% CI: 7.6-9.9)

-LR: 0.3 (95% CI: 0.2-0.4)

PPV: 12.1% (95% CI: 10.7-13.6%)

NPV: 99.6% (95% CI: 99.4-99.7%)

Number needed to evaluate: 8

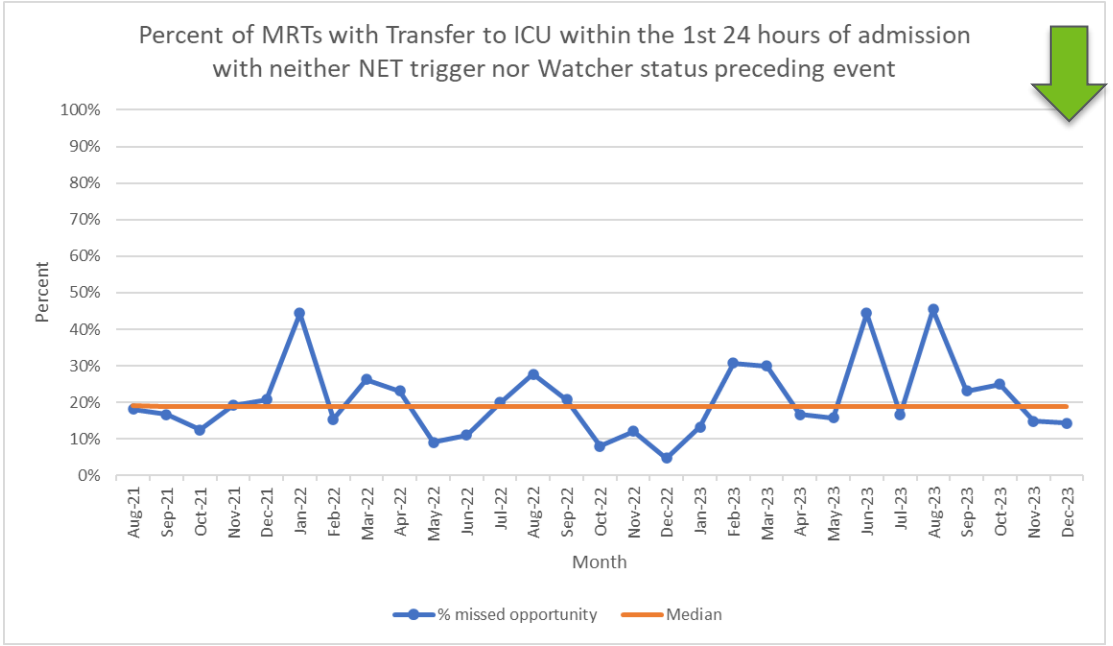
***Based on our retrospective validation when comparing tools. Continuing prospective validation on our current build.**

Assisted Clinical Decision Making with Predictive Tools – Notification & Escalation Trigger NET

Variables used to calculate the NET score:

Low Systolic Blood Pressure
Pulse
Respiratory Rate
SpO2
Oxygen administration
Respiratory Pattern/Work of Breathing
Capillary Refill

Does it help?



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Leadership support model : SA Leadership Team

- Team Roles
  - Physicians, Nurse leaders, Educators (Nursing and Simulation), Quality & Analytic support
- Meet Bi-weekly, with additional ad hoc intermittent task force meetings with focused intervention based topics
  - Typical agenda includes:
    - Deployment of QI tools, PDSA facilitation
    - Operational review
    - Learning Network agenda planning (event review, intervention sharing)
- Unit Op Ex leadership – immediate and formal event review.

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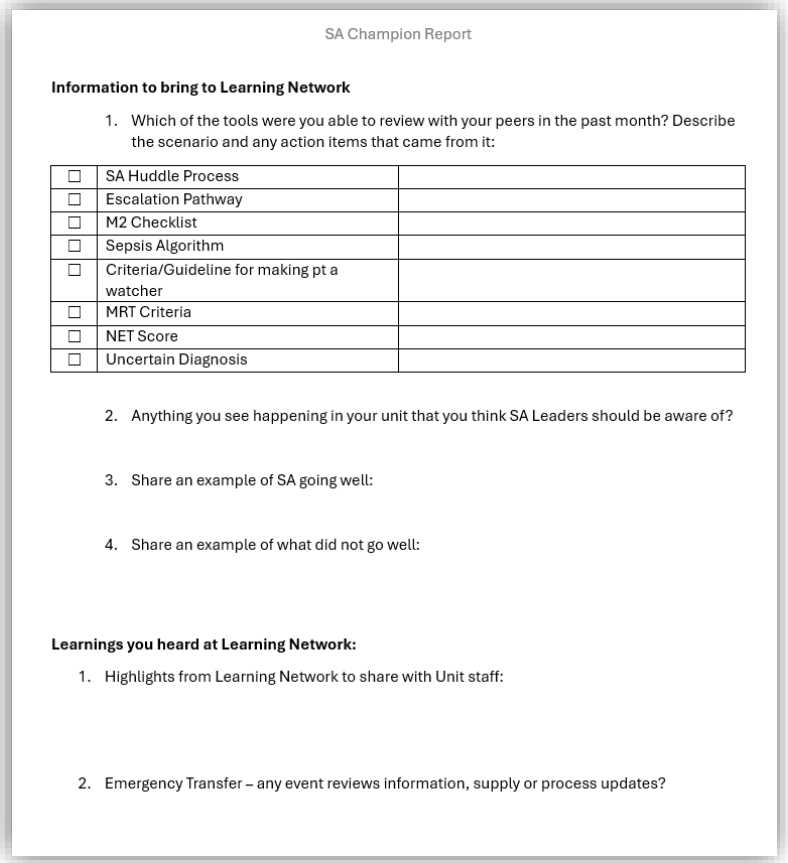
Leadership support models – Bedside Champions

RN champions and provider leaders designated from each acute care unit

- Reinforce education and validate the application of SA tools at the point of care
- Provide real-time coaching to staff members
- Participate in house-wide and unit-based meetings
  - Bring back shared learnings from the monthly SA Learning Network



SA Champion Report

Information to bring to Learning Network

1. Which of the tools were you able to review with your peers in the past month? Describe the scenario and any action items that came from it:

☐	SA Huddle Process	
☐	Escalation Pathway	
☐	M2 Checklist	
☐	Sepsis Algorithm	
☐	Criteria/Guideline for making pt a watcher	
☐	MRT Criteria	
☐	NET Score	
☐	Uncertain Diagnosis	

2. Anything you see happening in your unit that you think SA Leaders should be aware of?
3. Share an example of SA going well:
4. Share an example of what did not go well:

Learnings you heard at Learning Network:

1. Highlights from Learning Network to share with Unit staff:
2. Emergency Transfer – any event reviews information, supply or process updates?

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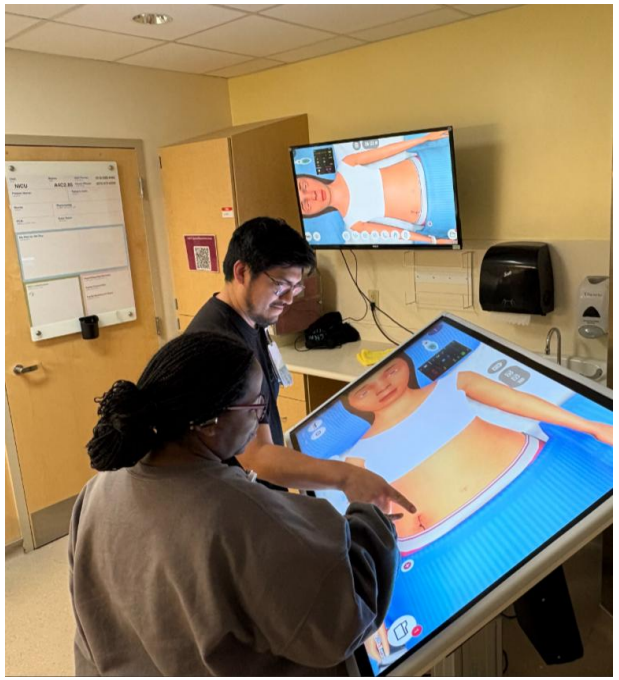
Education Modalities

- Multidisciplinary, and separately Provider or Nursing focused
- In situ education – in collaboration with Sim Center
- Development of unit-based multidisciplinary Safety Simulation program
    - Focus on sepsis and recognition of early deterioration, communication and escalation
- Virtual Patient Scenario – with in-person debrief
    - Focus on escalation and resources
- Deterioration Assessment and Response Training (D.A.R.T.)
        - Unit-specific virtual patient scenarios at the point of care
            - Focus on assessment and recognition of clinical deterioration



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Building a System-wide Learning Collaborative

Build

- Started with Common Goal, common solution with intention to spread throughout all units
- Focus with pilot test and refine the intervention package
- Iterate and test

Maintain

- Shared event review
- Show-and-tell of microsystem interventions (what's working in some units may benefit others)

Escalate

- Safety and System leadership routine reporting (quarterly)
- Primary system strategic goal for patient safety

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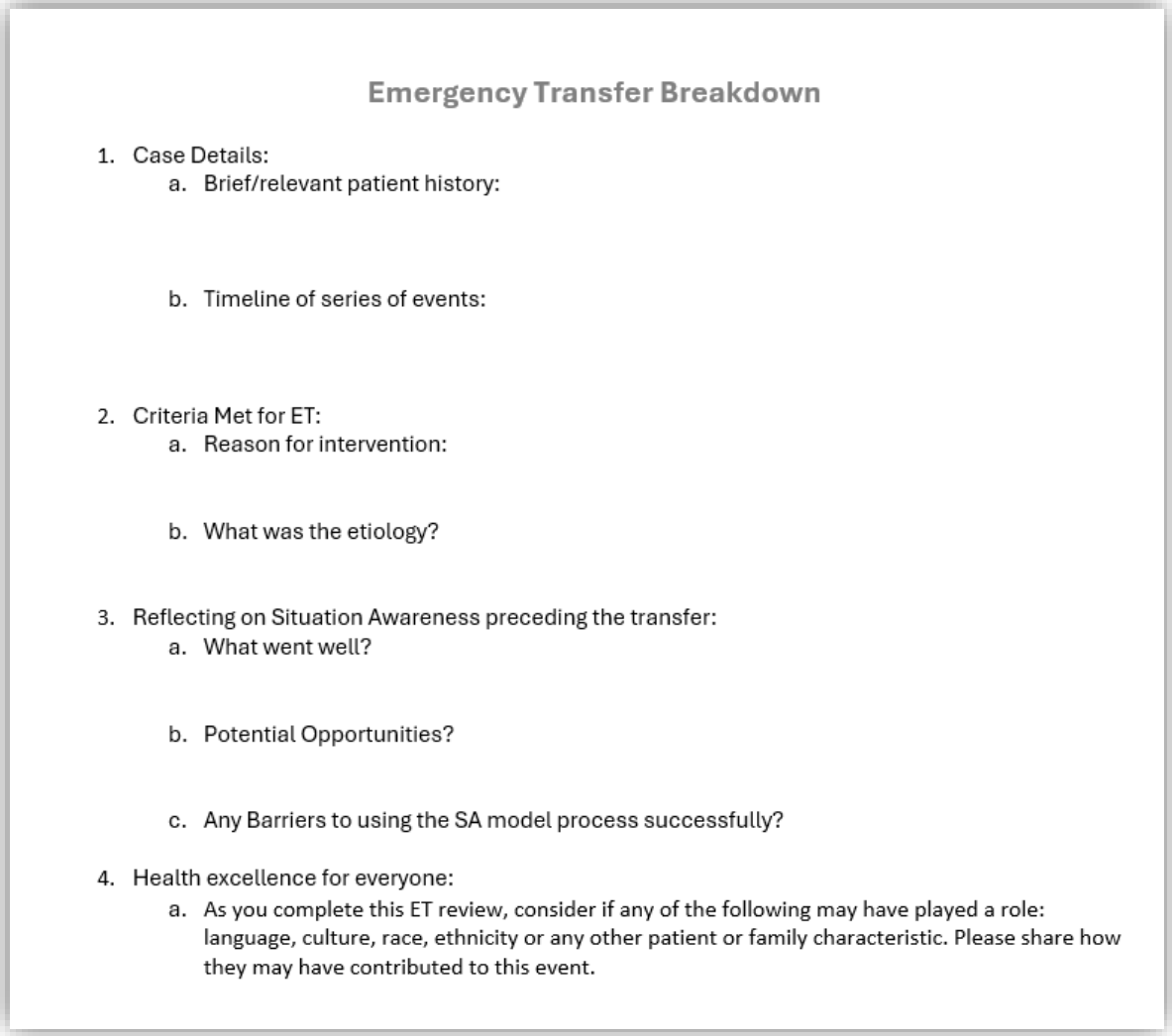
Systematic event review process with opportunity for dissemination of shared learnings



Emergency Transfer Breakdown

1. Case Details:
   a. Brief/relevant patient history:

   b. Timeline of series of events:

2. Criteria Met for ET:
   a. Reason for intervention:

   b. What was the etiology?

3. Reflecting on Situation Awareness preceding the transfer:
   a. What went well?

   b. Potential Opportunities?

   c. Any Barriers to using the SA model process successfully?

4. Health excellence for everyone:
   a. As you complete this ET review, consider if any of the following may have played a role: language, culture, race, ethnicity or any other patient or family characteristic. Please share how they may have contributed to this event.

1. ET event is called
2. SA leadership team completes initial high-level review
3. Event review form distributed, request for SAFECARR completion
4. Individual unit led deep dive event review completed

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SAFECARR: eStablish And Formalize Expert Criteria for Avoidable Resuscitation Review

Recognition	Monitoring
Notification or Response	Communication between clinicians
Treatment	Response to testing
Therapy without adequate precautions	Escalation or Transfer
Procedural/Surgical Complication	Equipment

Credit: Dr. Maya Dewan

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Next Steps

Process Reliability SA K-Card	FOCUS (Functional Overview of Child's Usual State)	Spread & Enhance Working Interventions
Testing by pilot RN SA Champion Team (Heme Onc Unit) Goal: Task-based tool for those experienced bedside RN's to assess and provide structured real-time coaching to bedside RN's with at-risk patients. Serves to enable proactive applied coaching based on SAFECARR factors	Credit: Dr. Olivia Post Medical Complexity SMART Aim: To Increase the percentage of patients with documentation of baseline vital signs and neurologic status within 48 hours of admission or transfer.	Uncertain Diagnosis: Testing in populations with KNOWN diagnosis, but unclear active current symptom etiology Watcher Sign: Always evolving with event review learnings and MRT feedback *Adding Prompt for "IV Access Consideration"*

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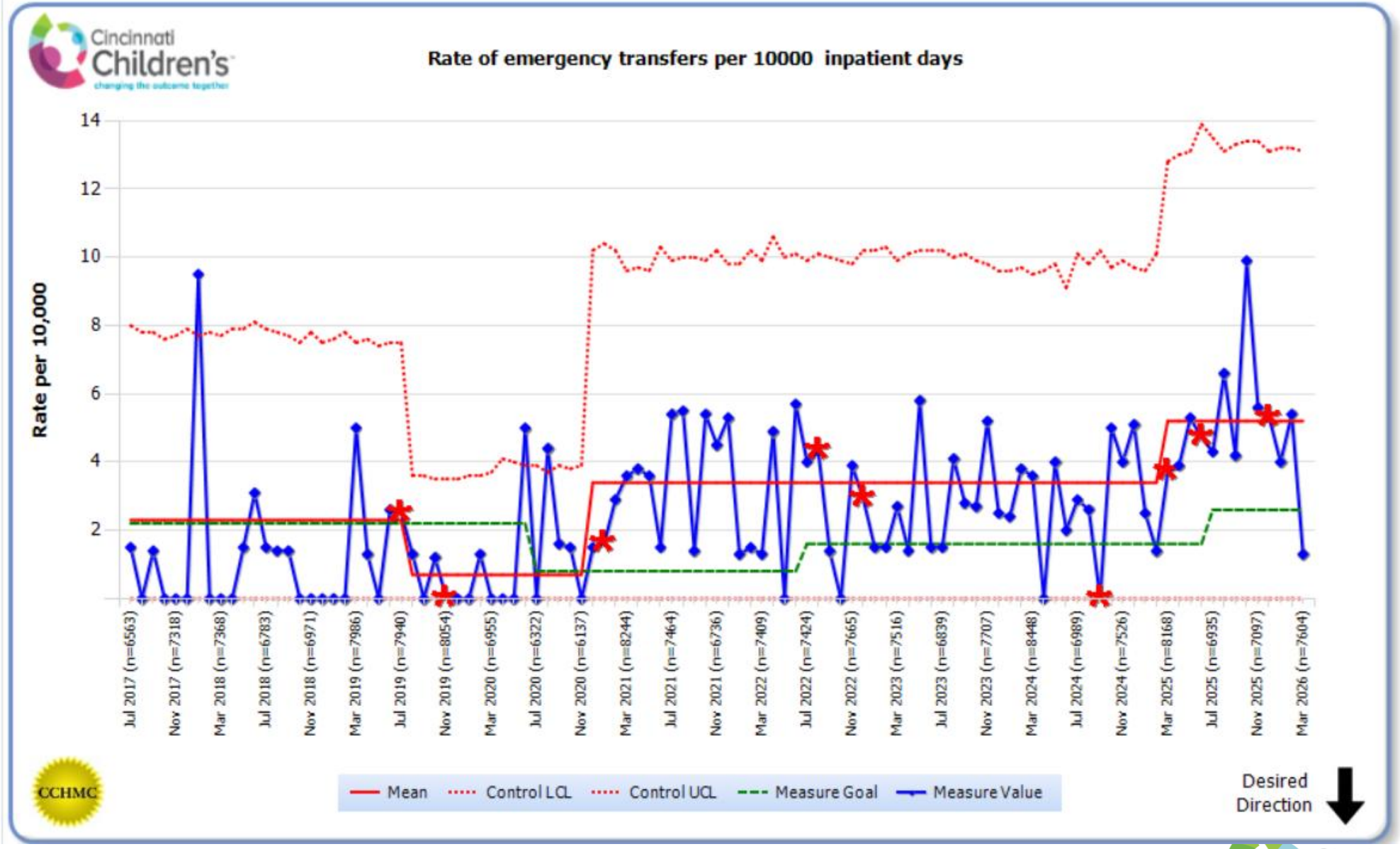

Centerline: 5.3/10,000 pt days

Goal FY26: 2.55

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Thank you – What questions do you have for us?

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