



2026 TOGETHER FOR KIDS: PEDIATRIC QUALITY CONFERENCE ENCORE SERIES

July 7, 2026



CLABSI Reduction: a Tale of Two Proactive Approaches

July 7 | Noon ET



System-Wide Clinical Pathways: Consistency, Collaboration, and Outcomes

July 14 | 1 p.m. ET



Training School Nurses to Keep Care in the Community

July 15 | 2 p.m. ET

The background of the entire image is a photograph of a JW Marriott hotel building at dusk. The building is a modern, multi-story structure with a mix of glass and light-colored panels. Several tall palm trees are planted in front of the building. The sky is a mix of purple, pink, and blue. A white rectangular box is superimposed over the center of the image, containing the main text.

TOGETHER FOR KIDS

April 5-7 | Anaheim, California

2027 Together for Kids: Pediatric Quality Conference

Call for Proposals

Now Open

Submit projects highlighting work within the following themes:

- Enhancing quality in behavioral health
- Population and community health improvement outcomes
- Optimizing workforce wellbeing using quality and process improvement
- Innovations in clinical improvement
- Technology and analytic enhancements
- Health equity solutions and outcomes
- Honing leadership for health care quality effectiveness

Submission Deadline: July 30

SERIES SESSIONS

- **Equity in Youth Suicide Prevention: Addressing Racial and Ethnic Disparities** | June 3
- **Integrating Mental Health Across Pediatric Settings** | June 18
- **Applying Patient Safety Science to Suicide Prevention: Lessons Learned from Systems Work** | July 1
- **Ethical Foundations of Youth Suicide Care: Clinical, Legal, and Moral Considerations** | July 16, 12 – 1:30 p.m. ET
- **Youth, Social Media, and Suicide Risk: Implications for Prevention and Clinical Practice** | July 29, 12 – 1:30 p.m. ET
- **Regional and Rural Approaches to Youth Suicide Prevention: Integration Across Care Systems** | August 13, 12 – 1:30 p.m. ET
- **Leveraging Technology, Analytics, and Operational Pathways to Advance Hospital-Wide Suicide Prevention** | August 26, 12 – 1:30 p.m. ET

ANNUAL LEADERSHIP CONFERENCE

October 26-28 | Phoenix

SESSION SURVEY

We value your feedback!

Please complete the session's survey.





FOD E VI#
Uhgxfwrq=D #
Wdn#ri#Wz r#
Surdfwlyh#
Dssurdfk hv

Taylor Bergman, DNP, RN, CPHON, Nurse
Manager, Norton Children's Hospital

Christian Schneider, BHS, RRT-NPS,
CPHQ, Quality Improvement Consultant,
Children's Mercy Kansas City

Erin Marshall, Sr. Data Scientist,
Children's Mercy Kansas City

March 24, 2026, 9:35-10:35 a.m.

G l̥fər vɪh

- The presenters have no relevant financial relationships to disclose.
- We have not conflicts of interest related to the content of this presentation.
- There are no commercial affiliations, sponsorships, or proprietary interest influencing this material.

Ohduqlqj #R emfwlyhv

1

Describe proactive safety strategies used to reduce CLABSI rates and explain how these approaches improve patient and staff outcomes

2

Identify strengths and limitations to proactive safety huddles and outline practice, frontline-driven methods to overcome them.

3

Explore the use of a predictive model to determine high risk patients within a population

4

Identify the next step in proactive safety huddles at your institution to act on



Z khuh#duh#| rx#q#| rxu#
surdfwlyh#vdihw| #
rxuqh| B

A Tale from Norton Children's Hospital: Culture Shock to Prevent CLABSI

Taylor Bergman DNP, RN CPHON, Nurse Manager

Who we are:

Louisville, KY, downtown on metro healthcare campus

- Kentucky's only free standing, full service pediatric hospital
- 300 licensed beds
- 108,354 annual patient visits
- 13 Inpatient Units
- 3 ICUs (38 critical care beds)
- Level 4 neonatal ICU
- Level 1 trauma center
- Level 1 children's surgical center

Set the stage

20 bed Inpatient Hematology Oncology Unit

- Bone Marrow Transplant patients
- 2022-2023: Nursing turnover ~20%
- New leaders
- CLABSI rate high
- Auditing every central line
- Auditing oral care bundle



Q1 2023



CLABSI rate 5.1 per 1000
line days

Reactive safety culture-
interviewing parents after
their child was harmed

Leaders owning CLABSI
reviews, staff not invited
to participate

New staff not aware of
practice
expectations/onboarding
lacking

Punitive culture where
staff received emails
about deficiencies, but
audits weren't addressed
in real time

Staff didn't know what
the harm associated with
CLABSI was because they
hadn't experienced it
clinically



"They are just too sick..!"



Culture Wave beginnings

- Engaged staff in the WHY, reviewed former case studies at staff meetings to relate harm to humans
- Stopped looking for deficits so broadly, began celebrating small CLABSI milestones VERY often
- Re-validated skills through competencies at the bedside with all leaders engaged approach
- Asked staff what role they wanted to play in CLABSI reduction
- Started inviting staff to CLABSI reviews to participate
- Celebrated 10 days, 30 days, 100 days (waffles!), 150, and 200 days CLABSI free



**But we still had harm and something
didn't feel right when we went to talk
about it with our patients and families.**

***“It's too late to ask what you could've
done better.”***



High Risk Huddles



Began with the thought: “Could we address the highest risk patients on the unit before they got an infection? Could we partner better with clinical nursing and families to reduce risk of harm before harm happened?”



 Baby steps...  



Action Steps

- **Criteria was developed, script was developed**
- **Group was formed:** ID, IP RN, Unit Leader, Clinical Nurse Educator or Collaborator, Clinical Nurse, Pharmacy, Provider caring for patient—start with who can come consistently
- **HRH times were set-** 1x weekly @ 11
- **Goal** to identify risk factors and brainstorm mitigation strategies
- **Part 1 of huddle** would occur outside of room with HRH team
- **2nd part of huddle** to include family and patient in discussion and assessment of risk and room/CVL assessment by team



Unit specific criteria would go here

Hi-Risk Huddle Script

Hi-Risk Huddle Group: * indicates required members

- Attending, Resident, or APRN
- Infectious Disease Attending
- Huddle Leader* (can be clinical nurse educator, APP, ANM/RC- whoever is designated for unit)
- Vascular Access Team Nurse- Ideal but not required
- Primary RN*
- Infection Prevention RN*

7W Hi-Risk Huddle Criteria

- Diapered patients
- Repaired central line
- Previous/Current CLABSI
- PICC in place longer than 21 days
- Femoral lines
- Multiple dressing changes
- Patients with behaviors that impact CVL (biting, putting in mouth, pulling, playing with line)

Situation:

- This is "patient x". Patient has met hi-risk criteria "x". (from list)

Background:

- **Primary RN:** provide any nursing concerns/barriers for CLABSI prevention strategies about patient and any CLABSI prevention strategies currently in place.
- **Attending:** Patient admitted for ***. Is currently receiving ***. (Antibiotics, TPN, etc.)
- **VAT RN:** provide insight r/t to dressing/access issues or concerns
- **IP Nurse:** provide insight to unit opportunities/trends/hospital infections going on/etc.

Assessment:

- Huddle leader, VAT RN and Primary RN to go to bedside and assess central line and all components of central line bundle. (Dressing, caps, line, securement devices, etc.)

Plan:

Each area of specialty will work together come up with a plan for this patient. Once a plan is decided upon. Huddle organizer should ask "Are there any additional suggestions?" and "Are there any barriers to implementing the plan?"

High Risk Huddles PDSA

Age of Patient	Type of Central Line	High Risk Criteria Met	Key Findings	Interventions	Ideas for F/U and General Notes
9 months	L DL Broviac	Contact plus iso, repeat CLABSI, diapered infant, Blina	May be candidate for prophylaxis locks, education done with family about bathing, hand hygiene opportunities for contact plus isolation	Locks ordered, f/u with staff for hand washing	
2 years	R IJ (HD)	Multiple dressing changes, behavioral concerns with care (toddler), use of HD catheter, contact plus isolation, diapered	Parents had good understanding of line care, Mom is RN and never received education on proper CHG bathing, Mom states hand washing with soap and water could improve	Education for CHG bathing reviewed with mom	CHG bathing education ideas taken to UBC, can we leverage collaborator to partner with families?
20 months	R DL Broviac	Diapered, new diagnosis, age of patient	Parents articulated great nursing education for line, very aware of expectations, spoke to great hand hygiene from staff	Taught parents about line containment with active toddler, using the jelly bean device, wrapping line up, cleaning down the line during bathing	Sent N Rec points to nurses named for great education

And it started working...

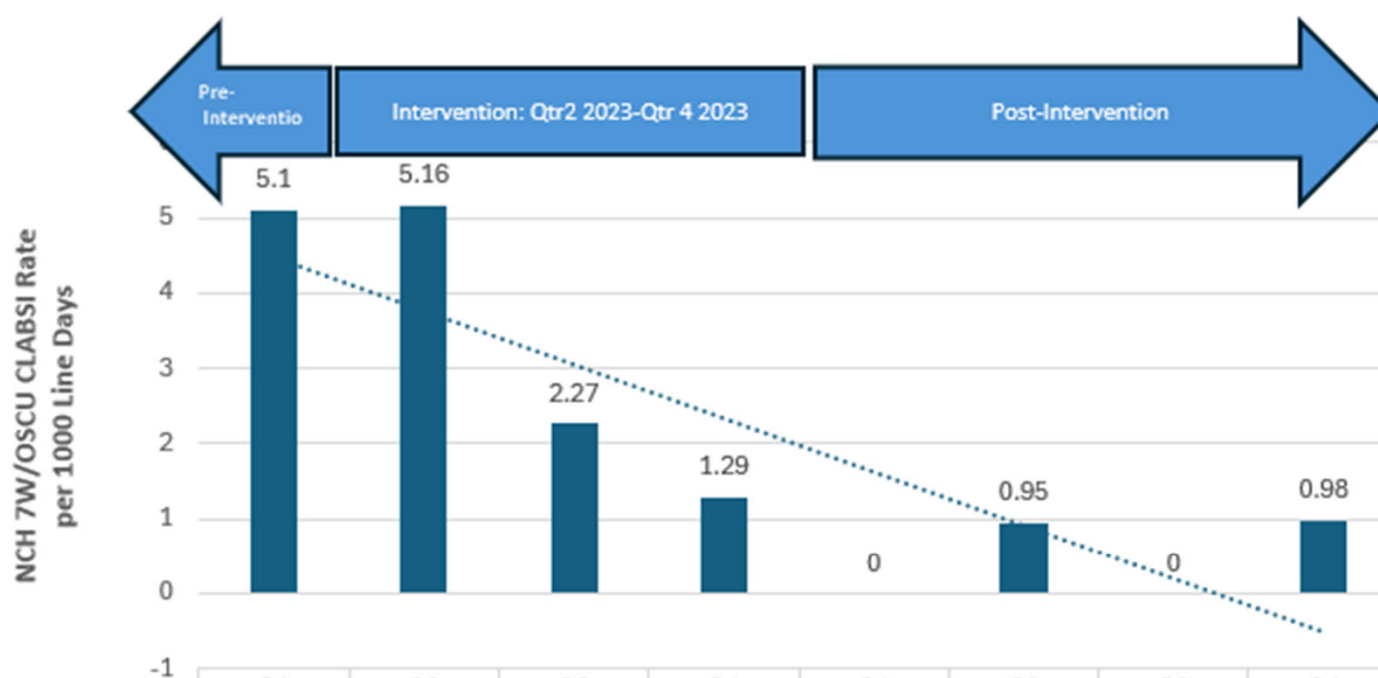
Mitigation strategies enacted:

- Prophylactic locks on infant with 3-time repeat CLABSI – CLABSI free for remainder of therapy
- Improved education to ESL families, development of resources in Spanish
- New chemotherapy closed system transfer device trialed
- PICC discontinued after HRH determined not needed

Culture wave:

- Staff contacted leaders proactively when concerned about a patient
- Staff started celebrating each other's CLABSI wins
- Retention increased
- Engagement scores increased

Norton Children's Hospital (NCH) Inpatient Hematology/Oncology Units (7W/OSCU)
 Reduce CLABSI Rate per 1000 Line Days



■ 7W/OSCU CLABSI Rate per 1000 Line Days

NCH (7W/OSCU)
 CLABSI Rate per 1000 Line Days

Things we learned along the journey:

- Barriers identified: time, competition of priorities, engagement
- Study your infections to build your criteria... and then change it!
- Start small, start now, harm can be prevented.
- Progress over perfection
- 1 quality round is more valuable than 5 incomplete rounds
- Others will join
- Patients and families are also the expert.

AI at the Bedside: Predictive Analytics for CLABSI Prevention

Erin Marshall MS

Christian Schneider MHA, RRT, RRT-NPS, CPHQ



The Region's Pediatric Health System of Choice

Hospital Snapshot

- Independent, non-profit children's hospital
- 390 beds
- 14,893 annual admissions

Central Line Utilization

- Average housewide line days: 2, 654
- Average 4 Henson Hall (Hem/Onc/BMT/GI) line days: 630



Central Line Support

Vascular Access Team	BSI Specialist	Clinical Nurse Specialist
- Partners with care teams to evaluate and troubleshoot central lines. Provides 24/7 coverage throughout the hospital. - Primarily focuses on central line placement, PIV placement, and CLABSI prevention. - Available by consultation.	Supports bedside nurses caring for lines in the PICU/CICU - Provides 24/7 support for the critical care units. Supports bundle compliance and standardization in central line care Rounding on all central line patients in their ICUs.	- Oversees, monitors, and evaluates bedside practices related to central lines. Provides clinical expertise and assistance for complex patient situations by monitoring for and assisting at the bedside when needed. A conduit for escalations from the bedside as well as dissemination of information to bedside nurses from house-wide CLABSI work. ICU-based (for now)

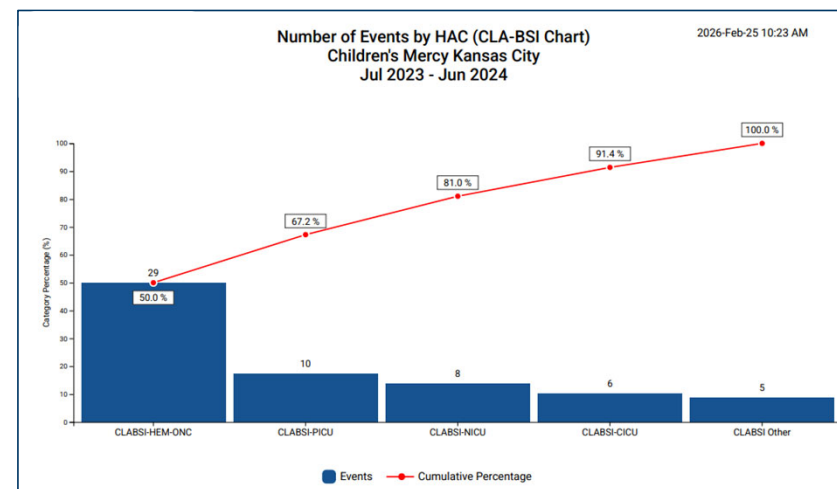
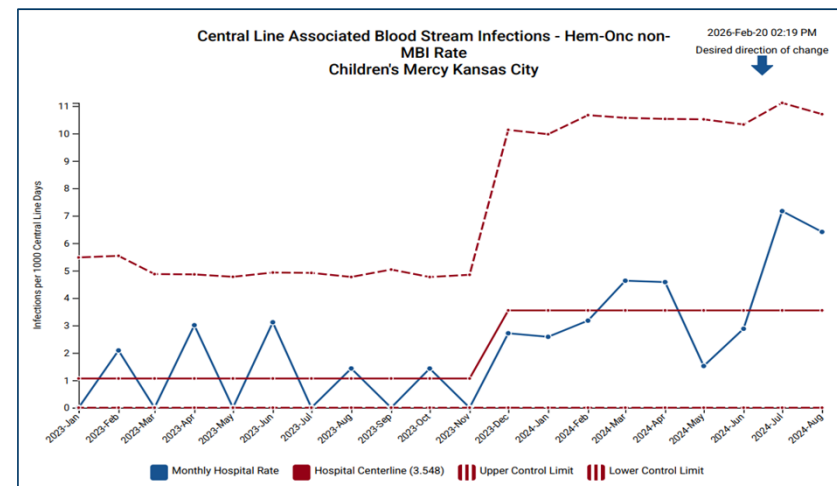
Background

Key Observations

- Organization-wide increase in CLABSI rates.
- Control charts show centerline shifts in the undesired direction.

Strategic Focus

- Shift from **reactive** responses to **proactive** prevention
- Emphasize **work as imagined** versus **work as done** to close system gaps



Focused Improvement Workshop

- Interdisciplinary team completed a Focused Improvement Workshop (FIW) with two aims:
 - Define criteria to identify high-risk patients
 - Standardize a proactive approach to CLABSI prevention

Team &
Workshop
Overview



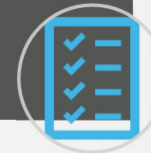
- Analysis identified 4 Henson Hall as the pilot unit

Pilot Selection



- Developed a predictive risk model and standardized criteria for identifying high-risk patients
- Established a tiered system for early identification, evaluation, and intervention

FIW
Outcomes



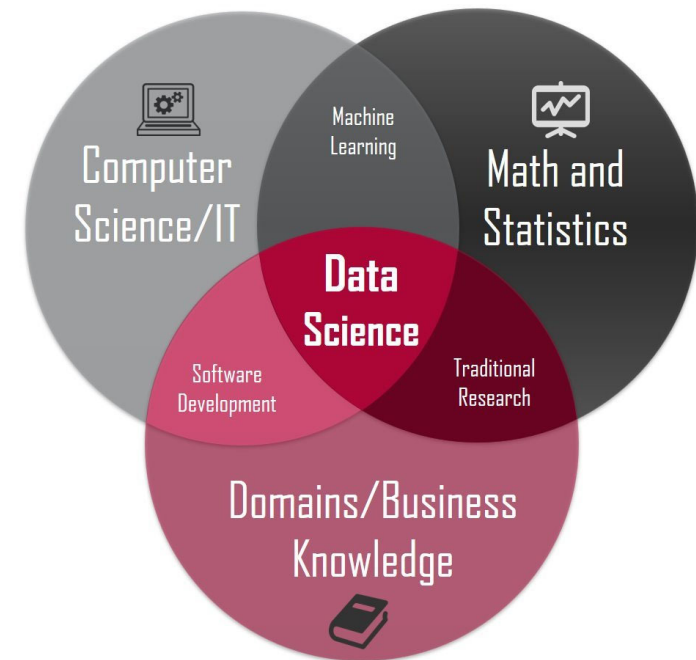
- Reduce CLABSI incidence in Hem/Onc/BMT & GI (4 Henson) by 15%—from 4.01 to 3.40 per 1,000 line days—by July 2025

Outcome
Measure



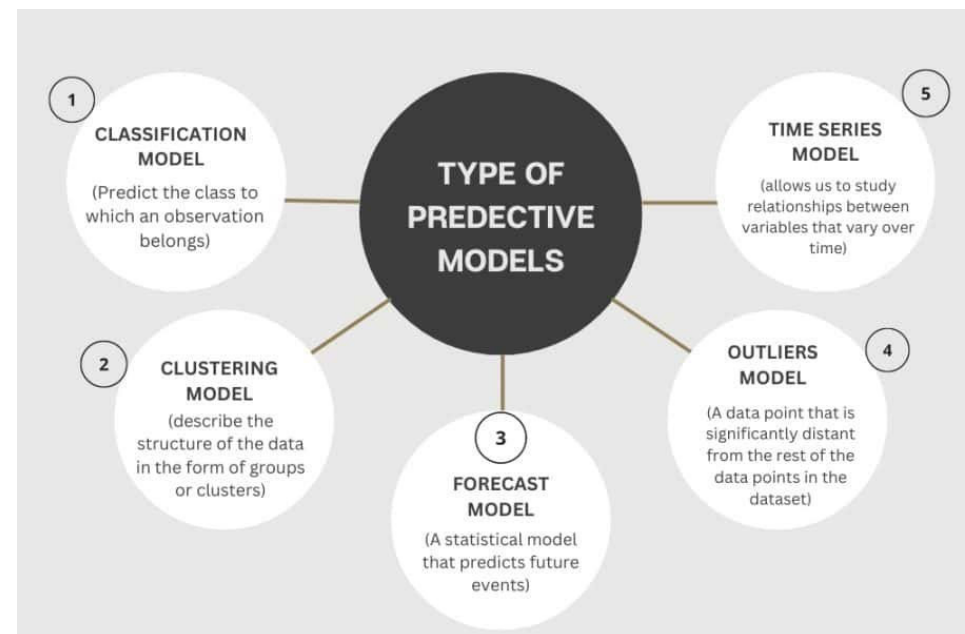
What is Data Science?

Managing, processing, and analyzing large datasets to uncover patterns, make predictions, and drive informed decision-making across various domains & industries

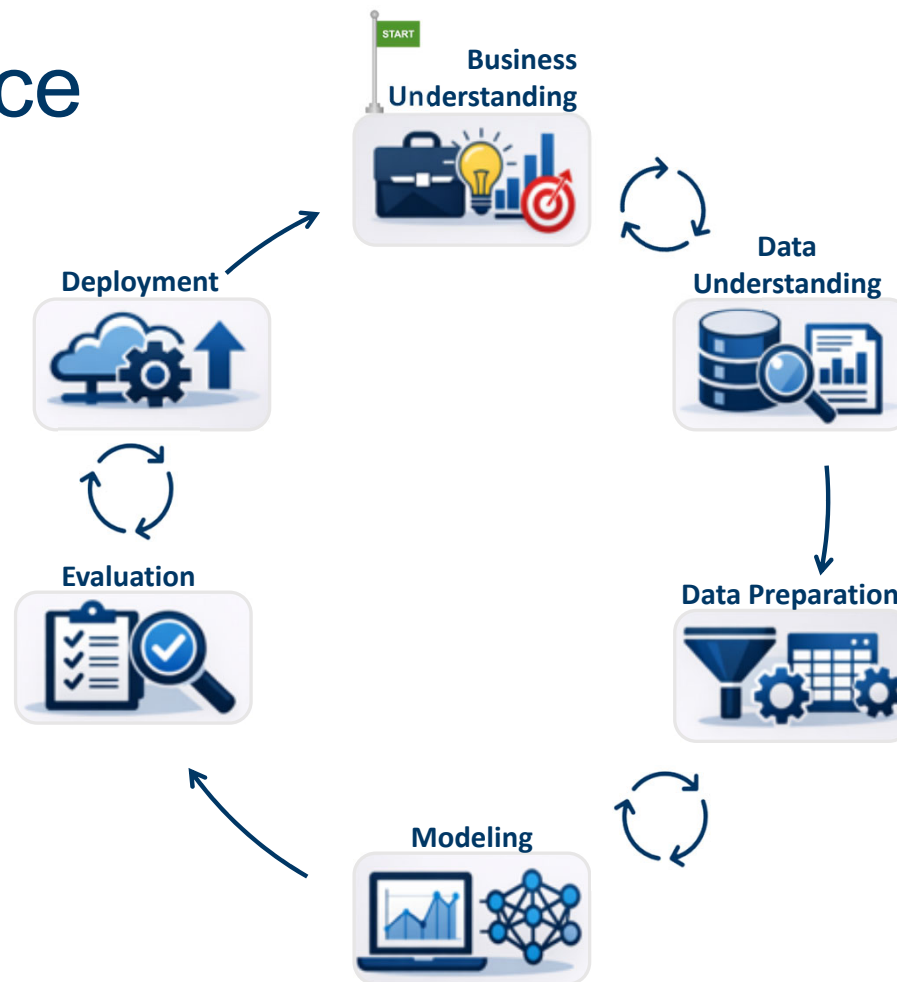


What is a Predictive Model?

Use data, statistical algorithms, and machine learning techniques to predict future outcomes based on past and current information



Data Science Process



Model Features

Feature	Nontunneled Lines Model	Tunneled Lines Model
Age	x	x
AML Diagnosis		x
ANC < 500		x
Capillary Refill > 2 seconds	x	
CLABSI History (prior 2 yrs)	x	x
Double Lumen	x	x
Foley		x
Immunocompromised		x
Insurance Payor	x	x
Interpreter Needed	x	x
Labs	x	
Length of Stay		x
Line Days	x	
Lower Extremity Line	x	
MBI or Community CLABSI History (prior 2 years)		x
Medical Service		x
Number of abnormalities	x	x
Number of lines	x	
Parafilm		x
Race		x
Sex		x
TPN	x	x
Tracheostomy	x	
Ventilator	x	
Ventriculostomy Tube	x	

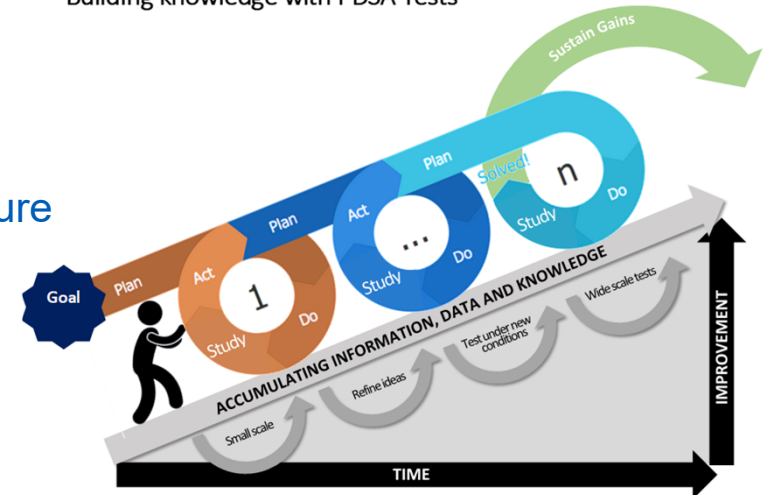
Features analyzed but not included in model:

- Ostomy
- Adapter new/change
- Tubing new/change
- Dressing changes
- CHG bathing
- Ethnicity
- Infusing medication
- Abnormalities
 - Blanched
 - Blood
 - Kink
 - Not aspirating
 - Pain

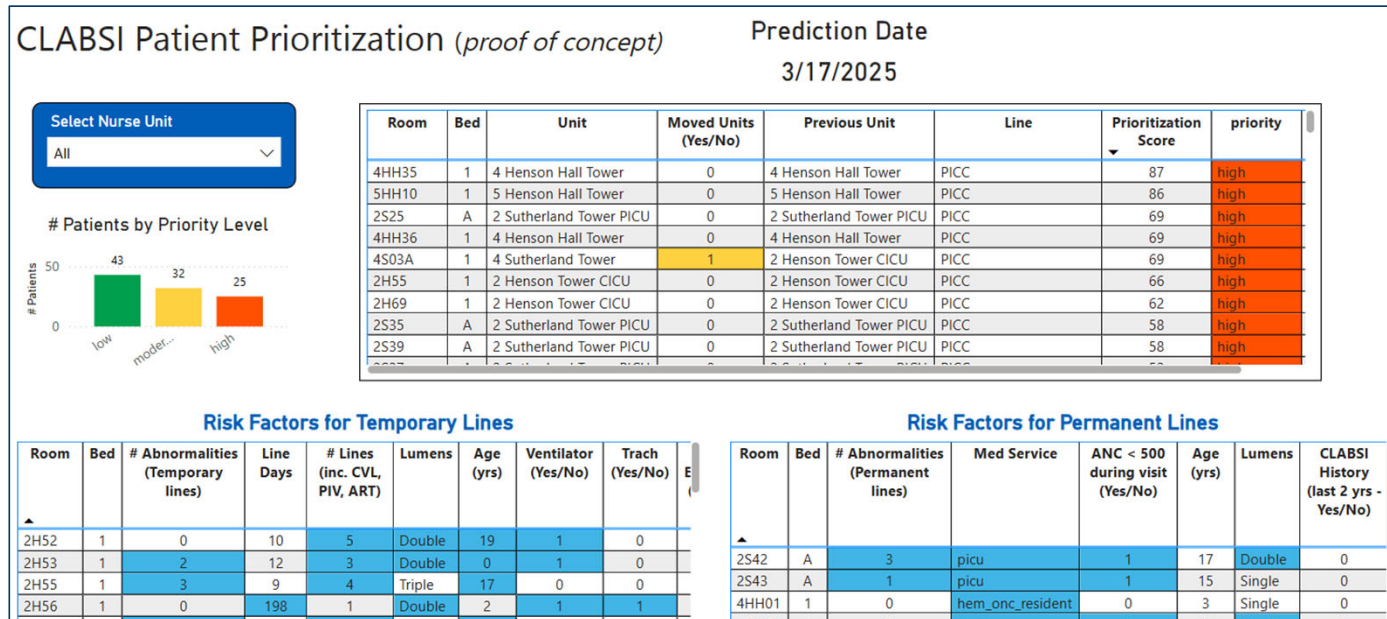
Integration of Predictive Model

- Small, manageable PDSA cycles
 - Learning Conversations to evaluate risk factors
 - Version 1 of models – validation/feedback
 - Developed a Power BI dashboard
 - Version 2 of models
 - Integration into hospital's technology infrastructure
- Real-time feedback
- Computer labs
- Focus groups
- Frequent communication & transparency

Building knowledge with PDSA Tests



CLABSI Patient Prioritization Dashboard



Red – high priority. Patients with a score of > 70 or with clinically significant risk factors.

Yellow – moderate priority. Patients with a risk score between 30 and 70.

Green – low priority. Patients with a risk score below 30

Integration into Technology Infrastructure

Platform Capabilities

- **Centralized, near-real-time** list of all patients within the hospital's technology platform
- Predictive risk model to **support patient prioritization** and early intervention
- **Built-in notification tools** for assigning team members and documenting complex care notes
- **Direct interdisciplinary input** (e.g., Infection Prevention) captured during rounding
- Ability to **request virtual nursing** support or education
- Option to **escalate patients** to the Command Center for proactive safety huddles

PATIENT MANAGER PANE VIEW					Profile CLABSI Risk 2				
CLABSI RISK					SNOOZED CLABSI PATIENTS				
ROOM: BED	CLABSI PRIORITY FLAG	CLABSI TIER 2	CLABSI ROUNDDING NOTES		ROOM: BED	CLABSI PRIORITY FLAG	CLABSI TIER 2	CLABSI ROUNDDING NOTES	
VAT MEMBER ASSIGNED	CLABSI PRIORITY SCORE	COMPLEX CARE PLAN	CLABSI EDUCATION		VAT MEMBER ASSIGNED	CLABSI PRIORITY SCORE	COMPLEX CARE PLAN	CLABSI EDUCATION	
4HH0501	1				4HH0201	84		CLABSI Educat...	
4HH0901	12				4HH0301	67			
4HH2101	0				4HH0401	11		CLABSI Educat...	
4W1701	77				4HH0601	71			
5HH0401	28				4HH0701	52		CLABSI Educat...	
5S14B01	3				4HH1301	43			
5S16C01	3				4HH1401	6			
6HALL4101	15		CLABSI Educat...		4HH1601	1			
6H0101	6		CLABSI Educat...		4HH1901	90		CLABSI Educat...	
6H0801	2		CLABSI Educat...		4HH2001	33			

CLABSI Prevention Escalation Workflow

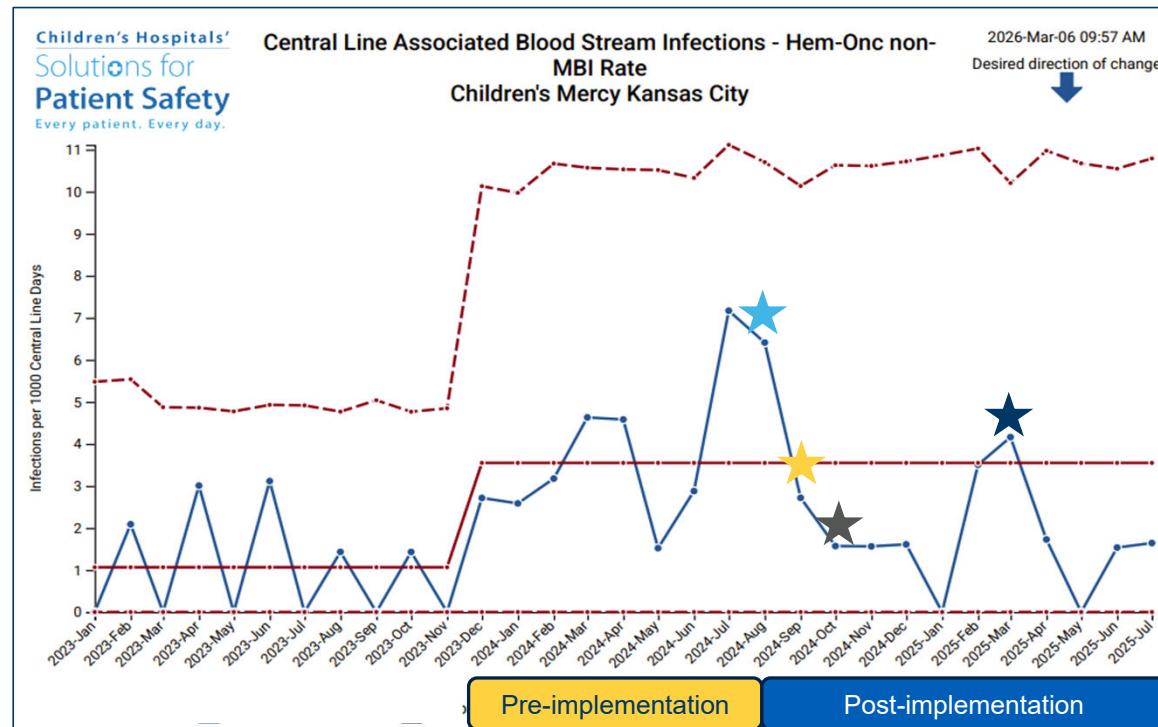
Tier 1: CLABSI Rounding – Vascular Access Team

- Partners with the bedside RN during round
- Reviews patient-specific CLABSI risk factors
- Assesses dressing integrity and central line maintenance
- Implements “beyond the bundle” prevention strategies
- Addresses linen management, bathing, oral care, and environmental cleanliness
- Assigns family education tasks (via virtual nursing) to reinforce safe line care

Tier 2: High Risk Huddles

- Activated when Tier 1 concerns cannot be resolved
- Supported by a facilitator (Quality & Safety) and a coordinator (Patient Progression Hub)
- Utilizes existing technology infrastructure to ensure timely escalation
- Escalations communicated during the Daily Enterprise Update
- Additional disciplines (e.g., Child Life, Wound Care) invited as needed
- Team reviews escalation rationale and collaborates on countermeasures

Results

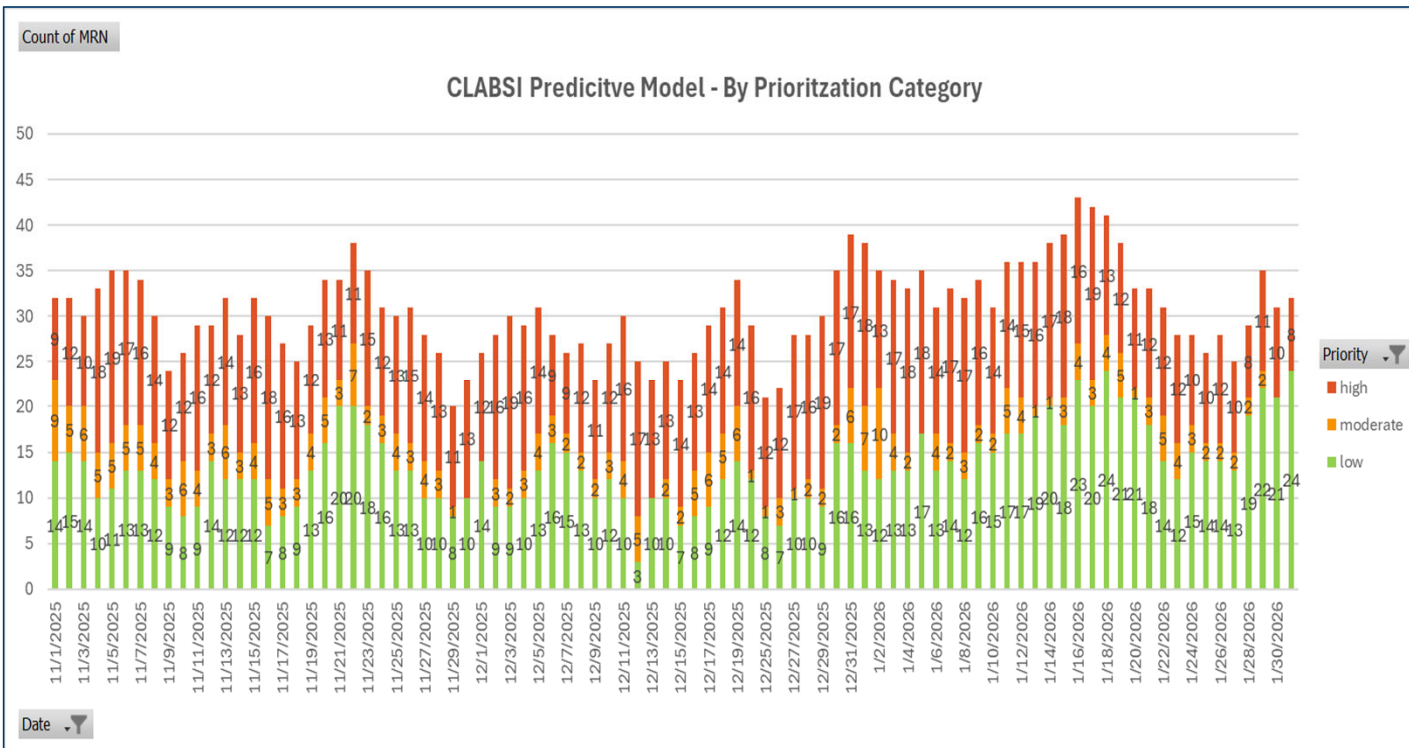


April 2024: Focused Improvement Workshop

September 2024: 4 Henson Hall Pilot (Tier 1)

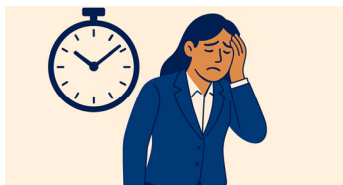
October 2024: Tier 2 Huddle

March 2025: Predictive Model Developed



Proportion of high & moderate risk patients is decreasing over time, indicating that proactive huddling is working to decrease overall risk

Reflections & Lessons Learned



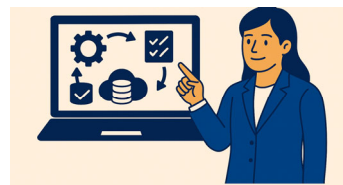
Pressure to start



Shift to using
predictive model
in addition to
clinical expertise



Not all risk
factors can be
captured by the
model



Finding the right
platform – avoid
creating more
work



Communication
across teams



Nh | #Wdnhdz d | v

- Just start somewhere, and start small, rapidly change during the process when needed
- Explore and engage who you need to be successful
- Look at your historical data to plan your proactive approach, don't get caught up in the how, do what makes sense for your space
- Frontline feedback is critical to culture, CLABSI prevention, and change.

T xhvwlr qvB



Taylor Bergman DNP, RN, CPHON

Nurse Manager

Norton Children's Hospital

Email: taylor.bergman@nortonhealthcare.org



Erin Marshall, MS

Sr. Data Scientist

Children's Mercy Kansas City

Email: emarshall@cmh.edu



Christian Schneider, MHA, RRT, RRT-NPS, CPHQ

Licensed Quality Improvement Consultant

Children's Mercy Kansas City

Email: caschneider@cmh.edu

THANK YOU!

