



HeartWatch: Reducing Detectable Emergency Transfers through Improved Situational Awareness in an Acute Care Cardiology Unit

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Background

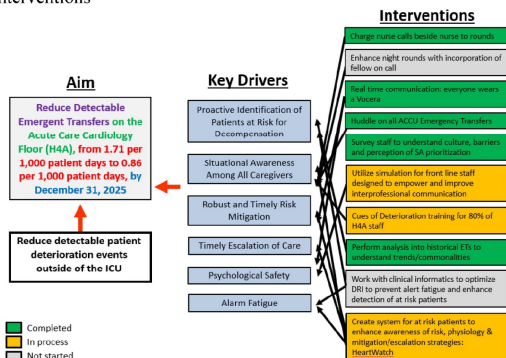
- **Emergency Transfer (ET):** intubation, vasoactives, high volume bolus within 60 min of ICU transfer¹.
 - 20-fold more common than codes
 - 8-fold higher mortality than non emergently transferred patients^{1,2}
 - higher mortality rate in cardiac patients compared to general pediatric population⁵
 - longer CICU LOS* and post-CICU hospitalization compared⁵
- **Our Acute Care Cardiology Unit (ACCU) saw an increase in detectable* ETs from 0.48/1000 pt days to 1.71/1000 pt days beginning March 2023**
- Investigation into the problem identified:
 - 80% of ETs are detectable
 - 50% of ETs chronically flagged on our early warning detection scales
 - A reduction in the rate of rapid response team calls (RRT) – also known as ACTs*
 - Survey of frontline providers expressed lack of psychological safety

Aim

Reduce detectable* Emergency Transfers on the Acute Care Cardiology Floor (H4A), from 1.71 per 1,000 patient days to 0.86 per 1,000 patient days, by December 31, 2025

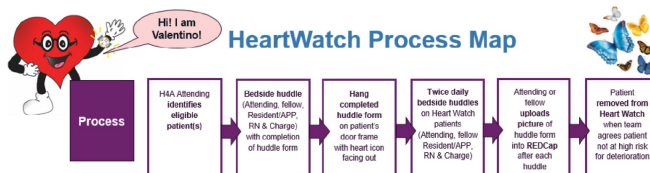
Methods

- IHI Model with establishment of an Aim, Key Driver Diagram (KDD), and Plan Do Study Act (PDSA) cycles
- Utilized an affinity diagram to develop KDD and Impact and Effort Matrix to determine initial interventions



Methods

- Surveyed frontline providers to determine primary drivers of ETs
- Adapted HeartWatch program from other PAC3 centers which utilizes a bundle of interventions to proactively enhance situational awareness in high-risk patients³
 - Twice daily safety huddles
 - Completion of bedside communication tool
 - Door tag to improve shared mental model for at-risk patients



HeartWatch Huddle Form

Patient/Unit/Room: _____ Build: _____ Height: _____ Weight: _____

Date: _____

Participating: ☐ No ☐ Charge RN ☐ Resident/APP ☐ Fellow ☐ Internship

Programs (check your order's prerequisites):

Heart Watch Decon/Decontamination	Warning Signs & Symptoms
1. _____	A. _____
2. _____	B. _____
3. _____	C. _____

Warning Signs & Symptoms Intercom-Decontamination Plan

F. A. _____ Yes _____

F. B. _____ Yes _____

F. C. _____ Yes _____

Decontamination protocol:

☐ 20 min ☐ 1 hr ☐ 2 hr ☐ 4 hr ☐ Heat labile ☐ Other _____

Which will be activity/duration scenario:

When to Call ACT: *

HR: _____ RR: _____ SpO₂: _____

Cox Ratio: _____ Pulse: _____ Respiratory Support: _____

FEV1: _____

Always follow your clinical judgment and call ACT despite scenarios if symptomatic

Consider:

Visual Aids: ☐ O2 ☐ O2H ☐ Other _____

Transfer: ☐ Yes ☐ No ☐ Other _____

Can patient leave? ☐ Yes ☐ No ☐ Other _____

NPO: ☐ Yes ☐ No ☐ Other _____

Code Status: _____



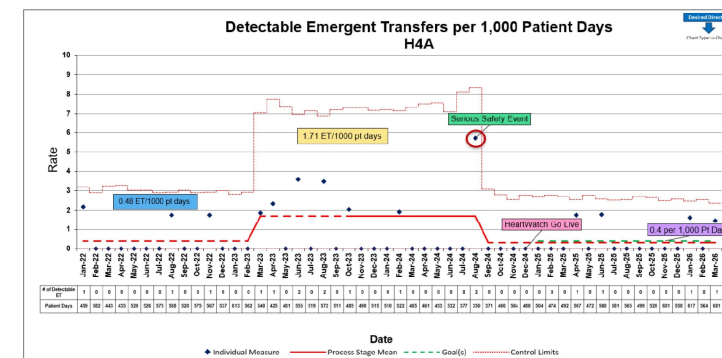

Signature:
☐ Tech/CTG
☐ Prep Room Patient
☐ Visual Aids/Phone (N/A)

Version 2



Results

- Following implementation of HeartWatch in our ACCU December 2024, we had a center line shift with a decrease in the rate of ETs from 1.71 ETs per 1000 patient days to 0.4 ETs per 1000 patient days and have been able to sustain below our goal.



Conclusions and Next Steps

- HeartWatch is an active and ongoing QI project in it's second PDSA cycle
- Average enrollment of 1-3 patients per month
- Plan to development specific inclusion criteria by May 2026 after failing to capture two detectable ETs
- Engaged frontline providers in a simulation model to improve communication and culture
- Sparked additional QI project to optimize night rounding to better identify subtle clinical changes overnight in our most vulnerable patients
- **HeartWatch was accepted as the next Path 3 Project with a plan to spread to other PAC3 centers**

References and Definitions

Detectable ET: detectable deterioration during the preceding 12 hours

- change in vital signs, PEWS, I/O
- sepsis alert or warning signs/symptoms
- respiratory distress, apnea, increased O2 support
- change in neurological status
- parental, nurse, or ancillary caregiver concern

ACT: assessment and consultation team (AKA rapid response team)

LOS: length of stay

1. Cosgrove, T. C., et al. (2023). "Improving Situational Awareness to Decrease Emergency ICU Transfers for Hospitalized Pediatric Cardiology Patients." *Pediatric Qual Saf* 8(5): e630.
2. Hussain, F. S., et al. (2019). "Emergency Transfers: An Important Predictor of Adverse Outcomes in Hospitalized Children." *The Journal of Hospital Medicine* 14(8): e482-484.
3. Birley, A., et al. (2022). "HeartWatch: Implementing a Pediatric Heart Center Program to Prevent Cardiac Arrests Outside the ICU." *Pediatric Qual Saf* 7(6): e167.
4. Brady, P. W., et al. (2013). "Improving Situation Awareness to Reduce Unrecognized Clinical Deterioration and Serious Safety Events." *Pediatrics* 131(1): e298-e308.
5. West, Z., et al. (2025). "Assessing the Impact of Emergency Transfers in Pediatric Cardiology." *Hospital Pediatrics* 15 (11): e379-385.