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# Using a Situation Awareness Bundle to Reduce Cardiac Arrests in the Pediatric ICU

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# Thank you!

- Stephanie R. Durbin, MSN, RN, CPN (*co-leader*)
- Maya Dewan, MD, MPH (*mentor*)
  
- Emily Turner, APRN
- Hope VanCleve, DO
- James M. Anderson Center for Health System Excellence

# Background

- Failure to recognize and treat clinical deterioration remains a source of serious **preventable** harm for hospitalized pediatric patients
- Patients who experience cardiac arrest are at increased risk for mortality
- Prior research has demonstrated that improved situation awareness in the PICU may reduce CPR events.

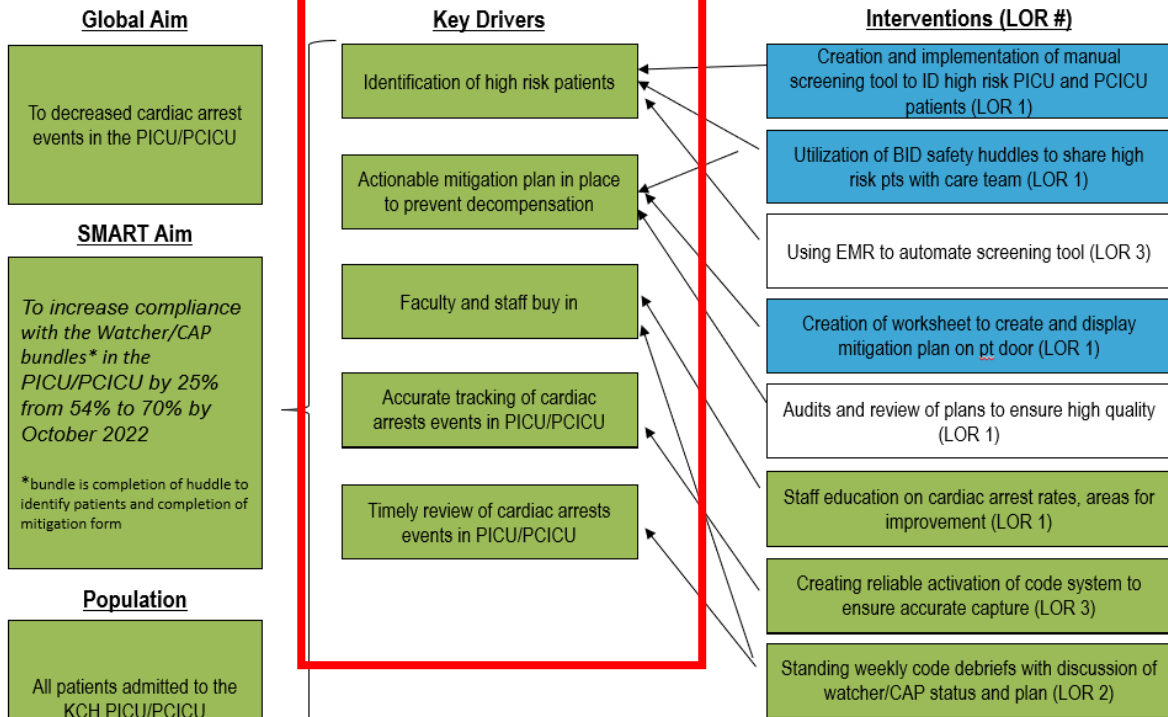
# Objectives & Metrics

- To increase days between CPR events in the PICU by 25% from one event every 40 days to one event every 50 days by October 2023
- The primary process metric was to increase compliance with the situation awareness bundle to **identify high-risk patients and create an actionable mitigation plan** by 25% from 54% to 70% by June 2022.

# SA Huddles to Reduce IHCA Key Driver Diagram (KDD)

Project Leader(s): Rhea Vidrine, MD

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**Legend**

- Potential intervention
- Active intervention
- Adopted intervention
- Abandoned intervention

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

# Methods

A **situation awareness bundle** to guide the recognition of patients at high-risk for decompensation

- Checklist with the at-risk criteria
- Worksheets to share etiologies of decompensation and descriptive, actionable mitigation plans

# Methods

- A baseline survey was conducted to evaluate the current perceived level of situation awareness, identification of high-risk patients, and the sharing of desired mitigation plans.
- The unit implemented **twice a day huddles** to assign code team roles, review these identified patients
- Mitigation plans are reviewed on rounds
- Code events were defined as occurring in the PICU/PCICU and the patient received  $\geq 2$  min CPR



Patient	Admission Info ▲	Code Status	Notifications	Attending	First Call Provider	Nurses	PICU Watchers
<h1>Integration into EPIC</h1>							0
							1
							0
							0
							0
							0
							0
							0
							1



Pt Sticker

## PICU Watcher Worksheet

Trajectory	AM	PM
Improving		
Same		
Worse		

### Date:

Watcher criteria met: **TBI with increased ICP**

Is this patient an ECMO candidate? **Yes/No**

### DECOMPENSATION ETIOLOGY(S)

### WARNING SIGNS/SYMPTOMS

1. **increased ICP** 1. **ICP >20, CPP <goal, bradycardia**

### MITIGATION PLANS

- IF **ICP >20 x 15 min** THEN **sedate with morphine prn, paralyze with 1mk/kg of roc, give 5mk/kg of 3%**
- IF **sustained after above** THEN **call NSGY**

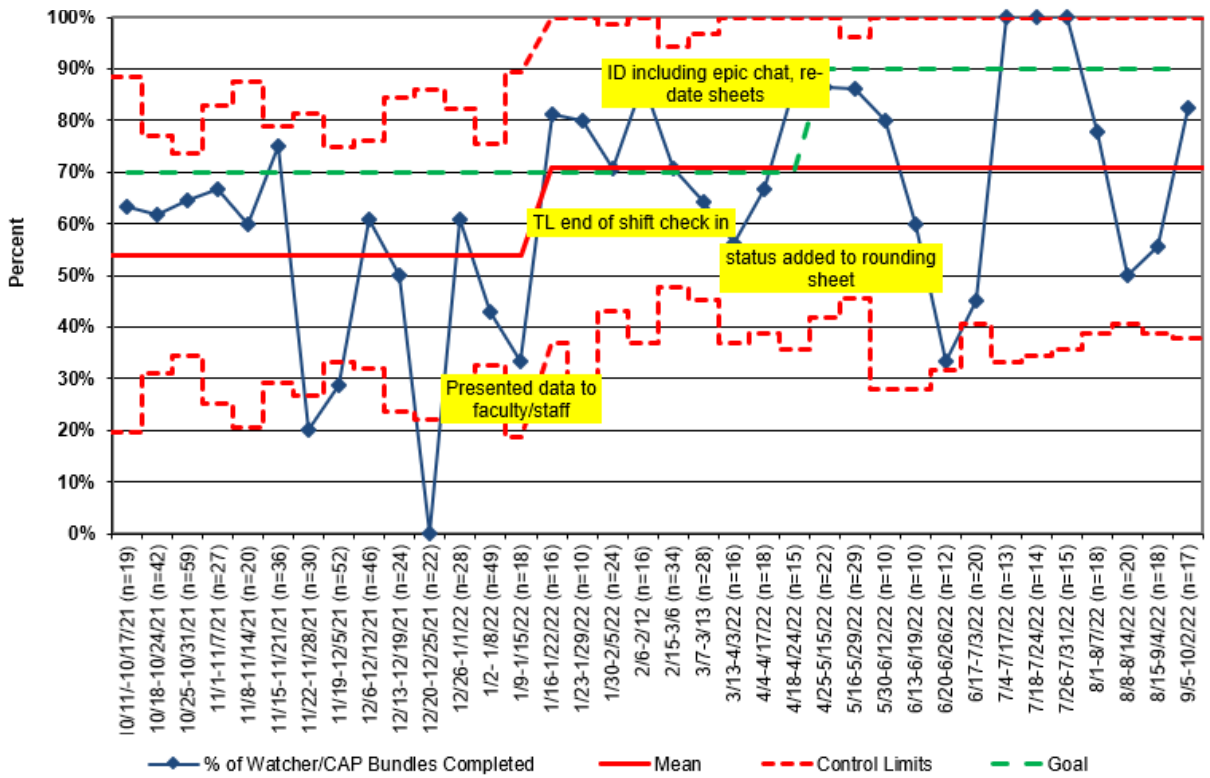
Preventative Measures	Meds @ Bedside	Preparation Equipment
<input type="checkbox"/> <b>PRE-SEDATE with all noxious stimuli</b> <input type="checkbox"/> No bath <input type="checkbox"/> No weighing <input type="checkbox"/> Weigh only with attending present <input type="checkbox"/> High risk drip change <input type="checkbox"/> Other _____	<input type="checkbox"/> Epi Spritzer <input type="checkbox"/> Code Dose Epi <input type="checkbox"/> CaCl Bolus <input type="checkbox"/> Sodium bicarb (1 meq/kg) <input type="checkbox"/> Lactated ringers bolus <input type="checkbox"/> <b>Neuromuscular blockade</b> <input type="checkbox"/> <b>3% bolus (5mg/kg)</b> <input type="checkbox"/> Angiocaths <input type="checkbox"/> Vasoactive drip in line <input type="checkbox"/> Other _____	<input type="checkbox"/> Pads on chest <input type="checkbox"/> Code cart outside of room <input type="checkbox"/> Airway plan reviewed <ul style="list-style-type: none"> <li>Medication:</li> <li>Equipment:</li> <li>Anesthesia or ENT needed at bedside Y/N</li> </ul>

**Vital Sign Parameters:** Any change in limits requires bedside clinician eval and re-assessment.

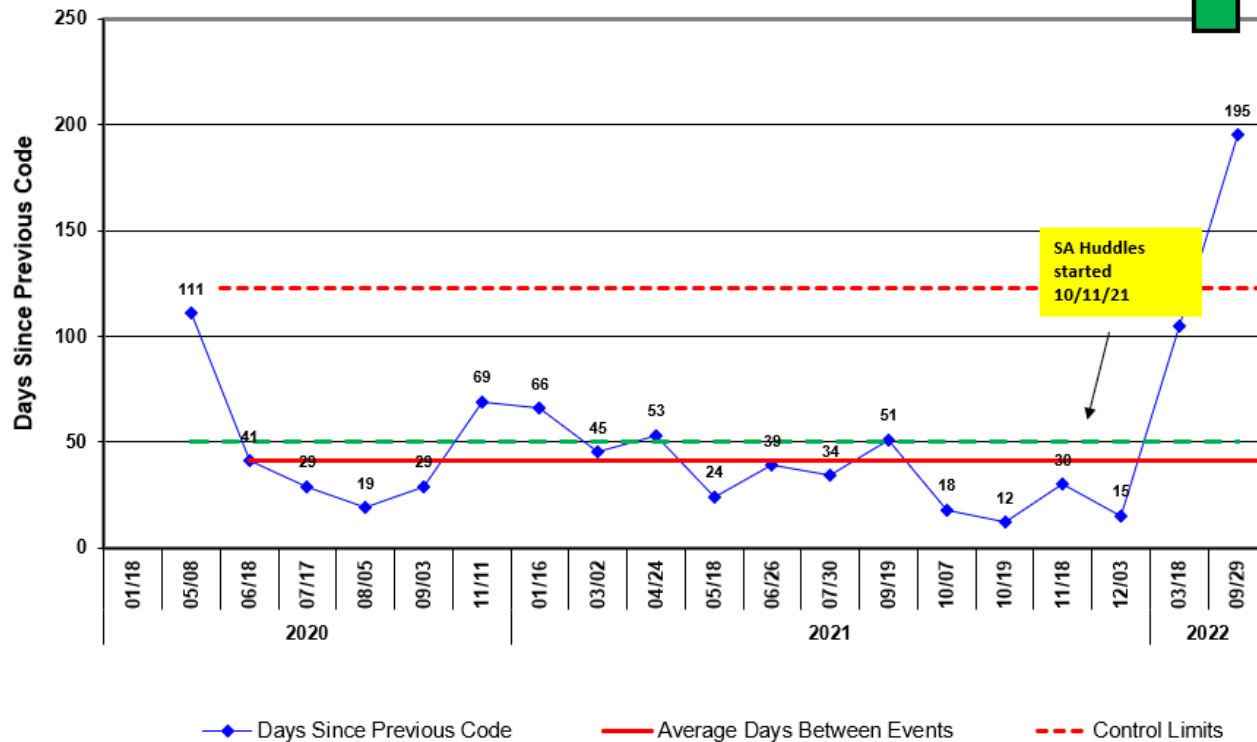
Parameter	AM Goals	PM Goals
HR		
SBP		
MAP		
O2 Sat		
ETCO2		
Temp		

AM MD:	PM MD:
AM RN:	PM RN:

# % of Watcher/CAP Bundles Completed

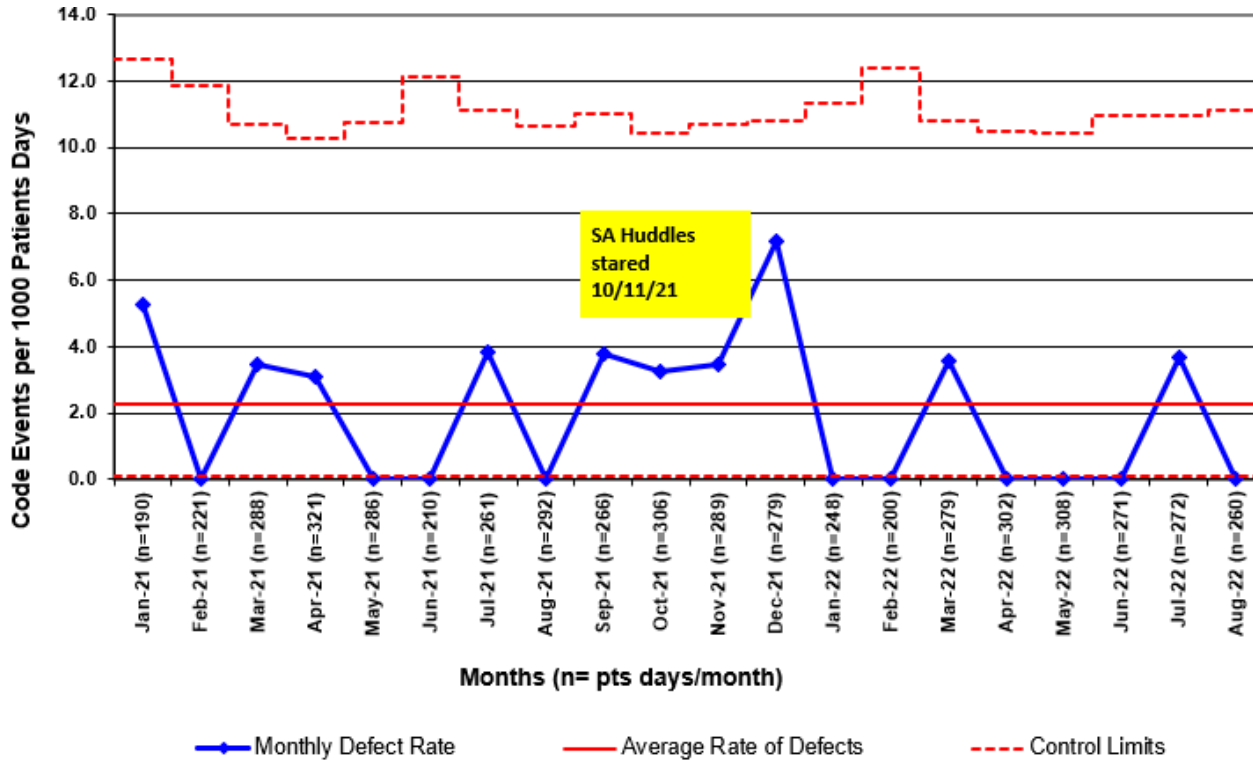


## Days Between Code Events in the PICU/PCICU

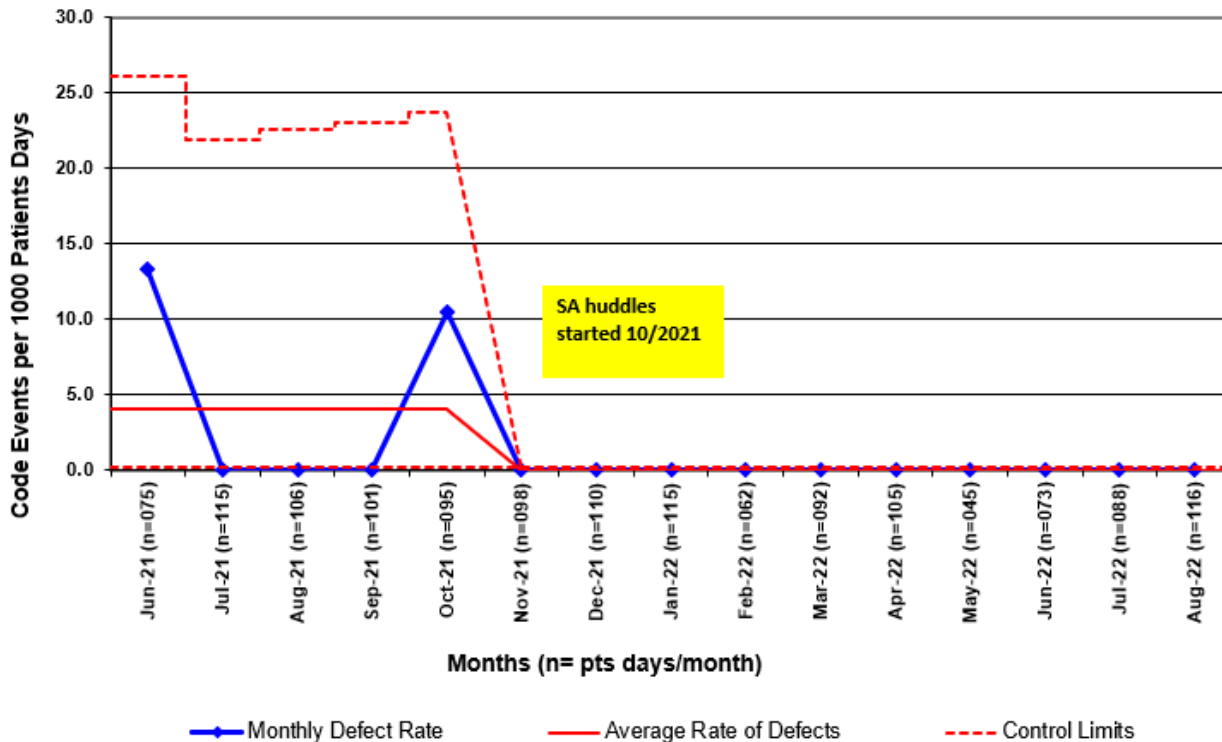


**Code event=** occurring in the PICU/PCICU &  $\geq 2$  min CPR

# Code Events per 1000 PICU Patient Days



# Code Events per 1000 PCICU Patient Days



# Conclusion

Implementation of a previously described situation awareness bundle including a standardized risk assessment tool, huddles and mitigation plans may lead to **decreased cardiac arrest events** in the PICU

# References

For more information on this subject, see the following publications:

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