



ILCOR 10 Steps to improve IHCA - Case Study from the Stanford Medicine Children's Health, Palo Alto, California, USA

Background: In 2007, Stanford Childrens Hospital (Palo Alto, California, USA) published in JAMA their findings of implementing a Pediatric Rapid Response Team (RRT) [1]. The study found that the RRT implementation resulted in decreased mean mortality by 18% and reduced resuscitation calls outside the intensive care unit (ICU) by 71%. The criteria to activate a RRT was based on adult data, which was the only available data at that time. However, in 2013, we experienced the highest number of resuscitation calls outside the ICU and were forced to revitalize the RRT program. To do so, a common cause analysis was performed that identified various issues and most importantly, the late deployment of the RRT intervention. We found that the RRT criteria to activate the team had been based on acute changes in respiratory and heart rate and blood pressure from the adult criteria, therefore missing the signs of pediatric compensatory mechanisms. As a result, the root cause analysis determined this was the reason that activating the RRT was occurring too late to prevent a respiratory or cardiac arrest outside ICU.

Steps Taken

- Complete revitalization of the RRT criteria for activation of the RRT for a progressive or significant change from baseline, vs. acute change.
- Education to providers and staff on the RRT program and to new faculty or staff members
- Consistent simulations throughout acute care units on when to call an RRT
- Committee known as Resuscitation Oversight Committee (ROSC) to review and educate and escalate themes and system errors.
- Zero tolerance for any pushback to activate an RRT
- Metrics changed from 2 acute respiratory compromised (ARC) or cardiopulmonary arrest (CPA) events monthly to 2 ARC and 5 CPA events annually (Figure).

Challenges and Barriers:

- Providers felt it was a personal weakness or failure to call the ICU to have the RRT examine their patients
- ICU at times would push back that they were called if patient was not in a pre-code situation.
- Chief residents would tell the residents to NOT call an RRT, they should be able to handle on their own.
- No bed in ICU for acute care patient.–
- Started to debrief after RRT's or codes outside ICU to escalate issues.
- No clear roles
- Nurses lose confidence/comfort to take care of patient if not meeting criteria for ICU transfer
- Thought RRT activation was an immediate ticket to get patient into the ICU

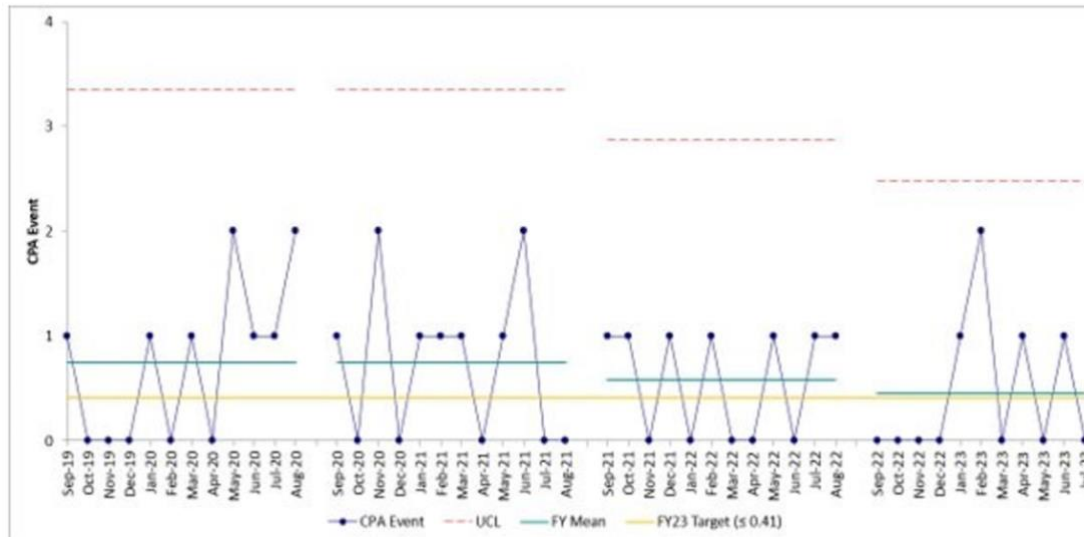
Results

- Changed mindset to the purpose of an RRT was for early intervention and a collaborative approach with provider and ICU to intervene early and keep the patient from transferring to the ICU. In addition, if patient needed to transfer to ICU, it was done in a safe and timely manner.
- If no bed in ICU, the acute-unit bed became an ICU staffed with ICU personnel until transfer could be completed.
- Zero tolerance for push back of activating RRT was enforced by executive leadership.

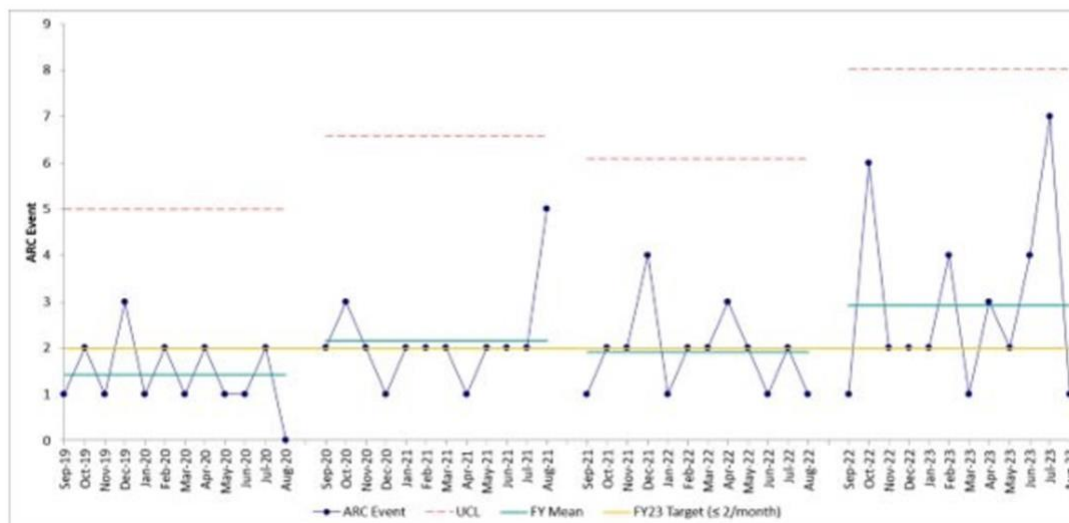
Outlook

We have reduced resuscitation calls outside of the ICU (Figure; August 2023)

Cardiopulmonary Arrest Events (CPA)



Acute Respiratory Compromise Events (ARC)



Reference:

1 Effect of a rapid response team on hospital-wide mortality and code rates outside the ICU in a Children's Hospital. Sharek PJ, Parast LM, Leong K, Coombs J, Earnest K, Sullivan J, Frankel LR, Roth SJ. JAMA. 2007 Nov 21;298(19):2267-74. doi: 10.1001/jama.298.19.2267.

Contact information: Lynda J Knight, MSN, RN (lyknight@stanfordchildrens.org), Director-Revive Initiative for Resuscitation Excellence Stanford Children's Health, Palo Alto, California, USA.