WHEN TIME IS EVERYTHING: REDUCING TIME TO CONTINUOUS RENAL REPLACEMENT THERAPY INITIATION

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FIGURE 1: KEY DRIVERS

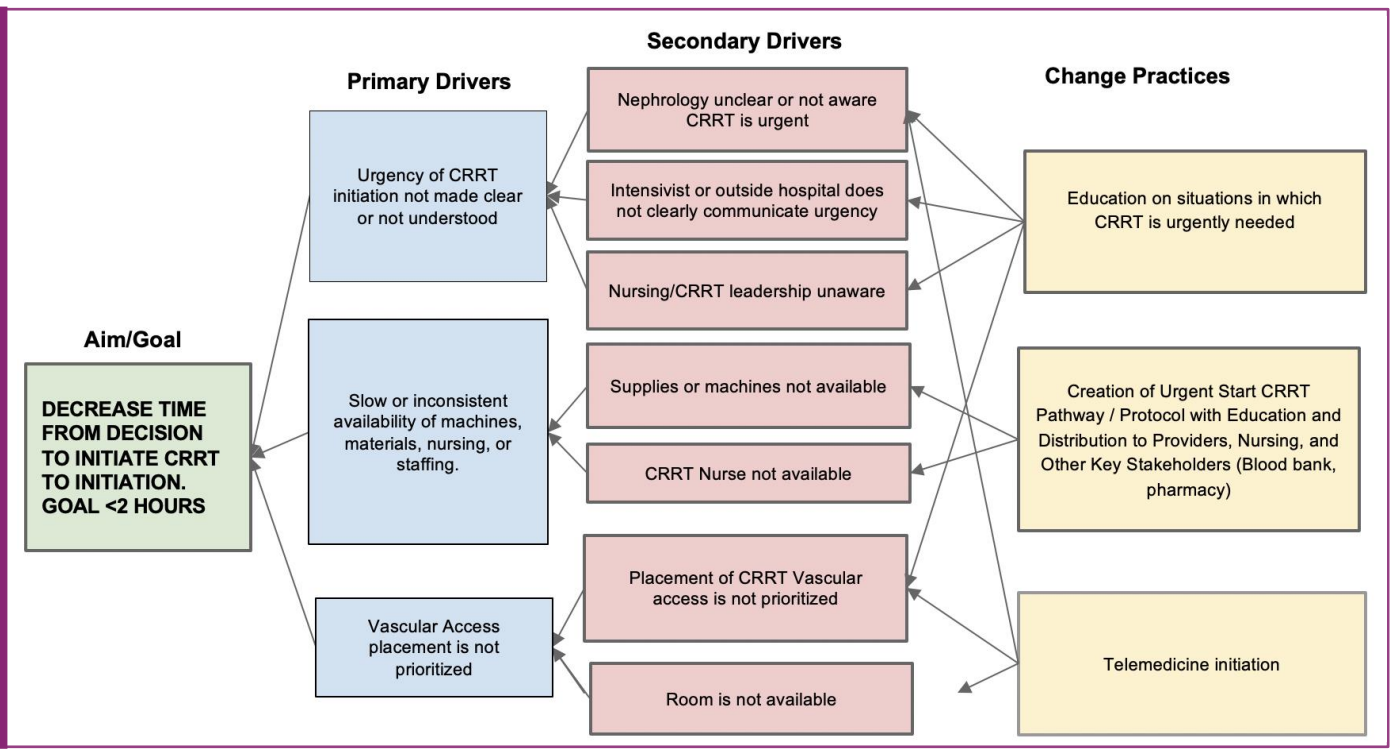


FIGURE 2: IDEAL STATE PROCESS MAP FOR URGENT STARTS

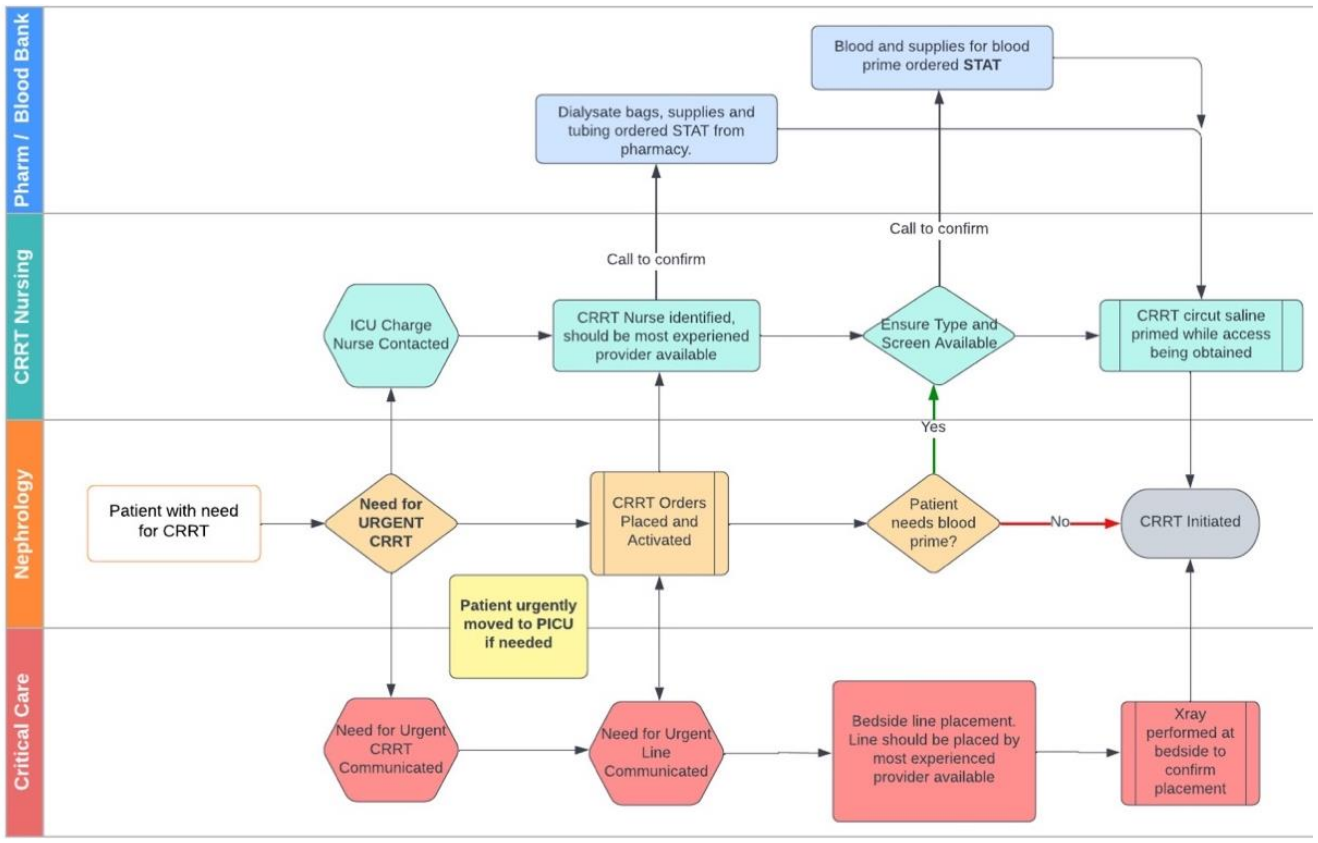
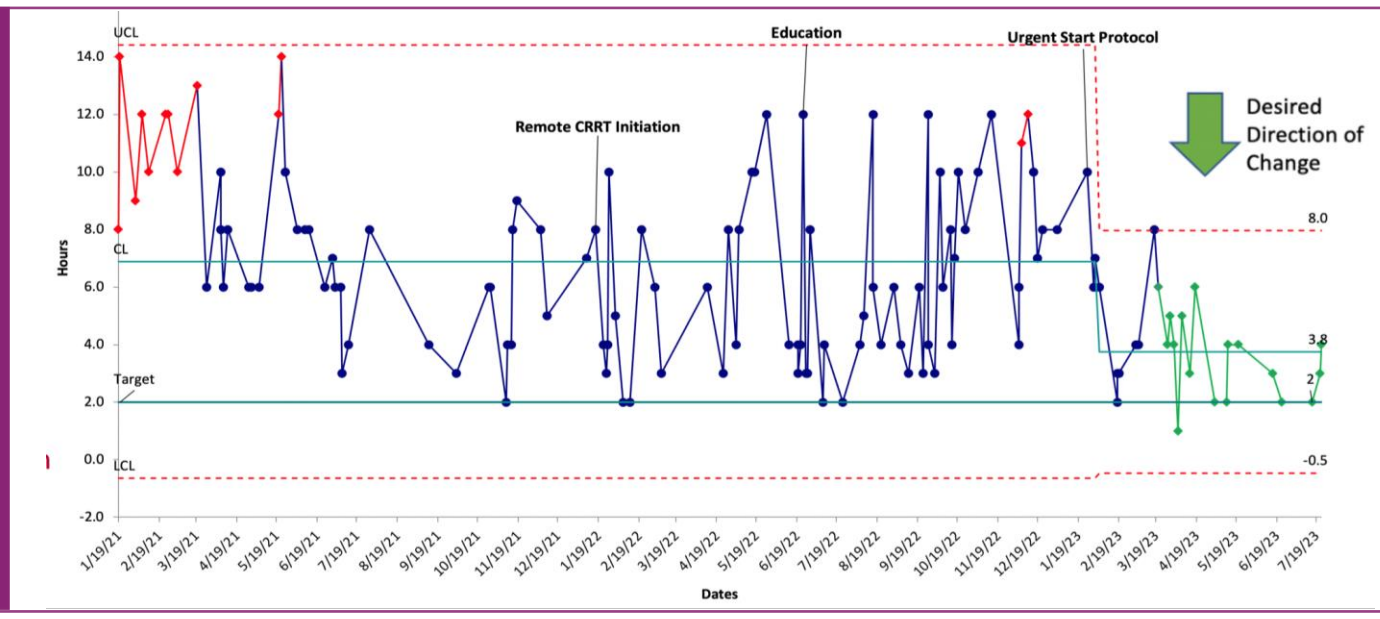


FIGURE 3



BACKGROUND

- Continuous renal replacement therapy (CRRT) is often utilized in critically ill patients
- CRRT is an invasive and technically complex form of extracorporeal support requiring a multidisciplinary, simultaneous, and continuous coordination of care from multiple providers and areas of expertise
- There are CRRT emergencies for which CRRT needs to be initiated quickly to prevent mortality or serious morbidity (e.g., hyperkalemia, inborn errors of metabolism with hyperammonemia)
- Time from decision to initiate CRRT to CRRT initiation is often prolonged, leading to delays in care and poor patient outcomes

METHODS

- Since 2020, Riley CRRT committee maintained a prospective CRRT database
- Interdisciplinary CRRT team meets monthly, performed a current state assessment of barriers to timely CRRT initiation **(Figure 1)**
- Utilized QI methodology, which included several PDSA cycles:
  - Remote initiation (Winter 2021)
  - Education (Spring/Summer 2022)
  - Urgent-start CRRT protocol (Winter 2023, **Figure 2**)
- Time from decision to initiation was determined based on placement of orders and documentation of CRRT initiation
- In cases with delayed CRRT initiation, root cause analysis was performed to identify areas for subsequent improvement

RESULTS / CONCLUSION

- There was a sustained and significant decrease in time to CRRT initiation during the multiple PDSA cycles throughout the 2.5 years of the project
  - See **Figure 3** at left: Statistical process control chart of time from decision to initiate CRRT to CRRT initiation
- Implementation of CRRT telemedicine initiations improved timeliness, with telemedicine starts occurring on average 3.0 hours after decision to initiate therapy compared to 5.8 hours for all in-person CRRT starts ($p<0.001$)
- The largest improvement in timeliness occurred after initiation of an Urgent Start Protocol, which has been utilized in 3 patients to date, resulting in time to initiation of 115, 90, and 70 minutes

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