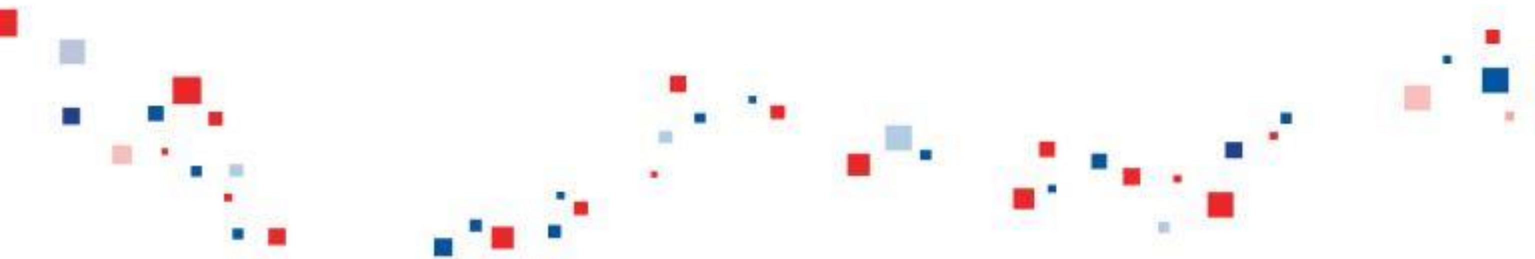
Our legacy is yours.

Decreasing Downtime: Developing a Hospital-Integrated CRRT Program

Presenting Author:

Kristen Rachinski, MSN, RN, CCRN



Acknowledgements

- Leadership at Legacy Health

- CRRT Committee members:

  Darlyne Wells, RN
  Joel Wright , BA, BSN, RN
  Diane Braxmeyer, BSN, RN, CFRN
  Sarah Gore, MSN, RN, CCRN
  Stephanie Dubuc, BSN, RN, CCRN
  Kristin Nathan, BSN, RN, CCRN
  Julie Cumiford, BSN, RN
  Elisa Crain, BSN, RN
  Liz Wyzik, BSN, RN
  Makayla Cordoza, MSN, RN, CCRN-K

Purpose

- The purpose of this process improvement project was to:

  1. Decrease the time between Continual Renal Replacement (CRRT) order entry and therapy initiation

  2. Decrease the downtime between CRRT filter changes to maximize time on CRRT for adult patients

Background

- CRRT is a therapy managed by Critical Care RN's
  - 5 hospitals
  - 7 adult ICUs
  - ~300 CRRT RNs
- Previously, initial set-up, filter changes, supplies, and equipment had been provided by a contracted service.
  - Legacy RNs took over CRRT after machine set-up
  - RNs were competent in all facets of CRRT care except circuit set-up
- Waiting on contracted personnel resulted in delays in treatment and reduced CRRT dosing, a critical intervention for unstable patients.

Background

- A delay was defined as a:
  - Delay in initiation = >4hrs from time order placed to therapy start
  - Delay in circuit change during therapy = >2hrs between circuits
- It was NOT considered a delay if the delay occurred because:
  - The patient was off unit (procedure/OR)
  - Dialysis line not ready
  - The patient was being actively resuscitated

Methods

- The project was broken down into 2 categories:
  - Administrative
  - Committee
- Work occurred over a period of 1.5 years
- Used PDCA to continually evaluate progress

Methods - Administrative

- Developed proposal
  - Cost analysis
  - Estimated # of CRRT machines for each site
- Approval from senior leadership
- Contract updates
  - Supply/equipment
  - Dialysis service

Methods - Committee

- Formed system-wide CRRT committee
  - Representatives from all sites led by clinical leader
- Standardized new user and refresher classes
  - RNs demonstrate competency every 6 months
- Developed practice guideline and updated CRRT order set
- Added CRRT Medical Director

Methods – Go Live

- Organized training and education for set up
  - Identified unit-level “super users”
  - In-person classes
- Provided 24/7 support during go-live
- CRRT committee reviewed all CRRT patient cases to identify knowledge gaps and make changes as needed

Results

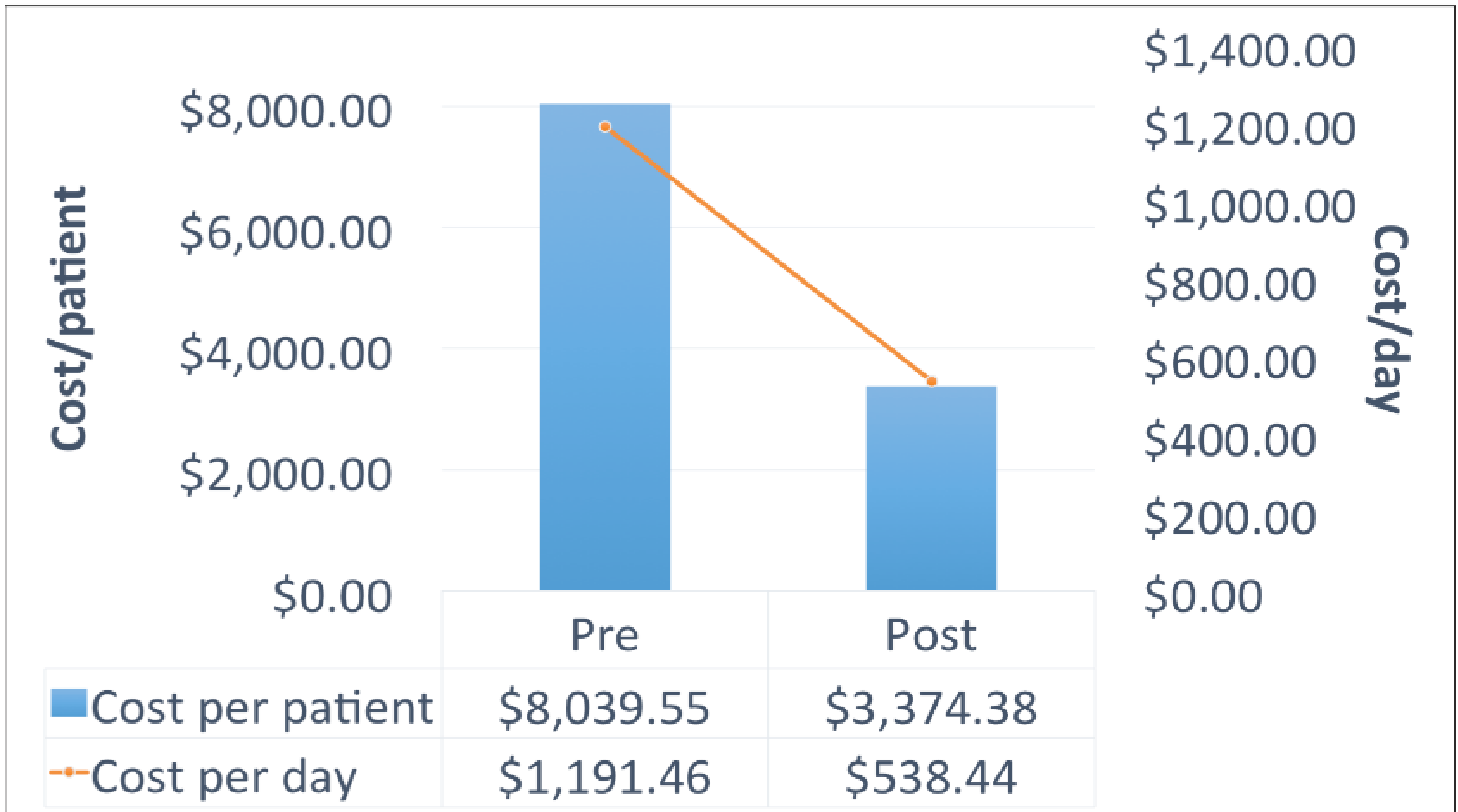
- Education and training for critical care RNs
  - 28 set up classes
  - ~300 RNs trained

- Comparing the 12 months prior to implementation to the subsequent 12 months, the number of delays for:
  - CRRT initiation decreased by **>400%**
  - Circuit changes decreased by **>1,000%**

Comparison of Pre- and Post-Implementation

	12 months Pre-Implementation	12 months Post-Implementation
Patient encounters (n)	88	121
Days of CRRT per patient (mean±SD)	5.8 ±5.3	5.8 ±7.1
Days of CRRT provided (n)	593.8	758.3
Time from order entry to CRRT start (mean±SD)	4.1 ±2.8	3.5 ±2.2
Preventable delays: Initiation (>4hrs) (n)	**16**	**4**
Preventable delays: Set changes (>2hrs) (n)	**82**	**8**
Disposable sets per patient (mean±SD)	3.7 ±3.6	3.5 ±4.0

Cost Comparison: Pre- and Post- Implementation



	Pre	Post
Cost per patient	$8,039.55	$3,374.38
Cost per day	$1,191.46	$538.44

*5-year estimated cost savings of >$1.5 million

Conclusion

- Implementing a hospital-integrated CRRT program decreases delays in patient therapy and improves adherence to ordered dosing while providing substantial cost savings.

- RNs were able to successfully and safely implement the new practice change with ongoing education and support
  - RNs report higher understanding of CRRT

Our legacy is yours.

Thank you for your attention!

What questions do you have?