

Quality Improvement Explained

Improving Discharge Efficiency and Charge Containment on a Pediatric Acute Care Cardiology Unit. Nicolas L. Madsen, MD, MPH; Andrew Porter, MD; Rhonda Cable, MSN, RN; Samuel P. Hanke, MD, MS, MBA; Amanda Hoerst, MSN, APRN; Smriti Neogi, PhD; Laura H. Brower, MD, MSc; Christine M. White, MD, MAT; Angela M. Statile, MD, Med, on behalf of the Pediatric Acute Care Cardiology Collaborative (PAC³)

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About this Study

What problem were you trying to solve?

- Delays in patients being discharged from the hospital can result in negative consequences such as extended hospital stay, increased hospital costs and disruption of how other patients move through the hospital, ultimately affecting patient, family, and medical team satisfaction. This project sought to decrease delays in patient discharges, therefore reducing length of stay and hospital charges, as well as improving patient satisfaction.

How was this study performed?

- A Heart Center team developed criteria for patients to be considered medically ready for discharge from the Acute Care Cardiology Unit (ACCU).
- From January 2014-October 2015 the study team made sure discharge criteria were discussed daily on rounds, and patients were evaluated for progress each day. A discharge checklist was created & shared with the family so that they could also help meet goals. Bedside RNs marked the time when a patient met all of the medical criteria for discharge, with the goal of discharging patients within 2 hours of this 'readiness' time. Exceptions were made for patients meeting readiness between 9:00pm-7:00am.
- Reasons for delayed discharge (more than 2 hours after medical readiness) were collected and documented by bedside nurses.

What quality improvement tools were used?

- A [key driver diagram](#) was used to help develop and organize the project.
- [Plan-Do-Study-Act](#) cycles were conducted to implement and modify interventions.
- [Control charts](#) were used to demonstrate data over the period of the study.
- A [pareto chart](#) was created to capture reasons for delayed discharge.

What improvements were observed?

- Patients discharged within 2 hours of meeting medical readiness increased from 20% to 78%
- Patients discharged by noon increased from 19% to 32%

- ACCU hospitalizations had reduced length of stay from 9.4 to 8.4 days (11.5%) without the readmission rate going up.

What are the lessons learned from this work?

- Standardization of the discharge process can lead to improvement in efficiency and reduction of hospital costs, but further work is needed to accurately forecast discharges for families and engage them in preparation to go home.
- Participation by every member of the team, including providers, nurses and family is a key factor in ensuring a timely discharge to home.

What is the impact of this study?

- This work has been duplicated in many other departments at Cincinnati Children's Hospital and shown similar positive results in improving discharge efficiencies. Furthermore, the work is now being spread to other heart centers nationwide to improve the quality of discharges for a larger number of programs and patients.

Could my center do a project like this?

- Yes! PAC³ is conducting a collaborative-wide project starting in 2022. Nineteen participating centers will try to duplicate the work done in Cincinnati.