

Cardiac Acute Transition Care to Home (CATCH) Program: The development of an innovative transition to home care model

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Introduction

- 40,000 infants/year born with congenital heart disease (CHD), a leading cause of morbidity and mortality in infancy.
- Over 6-year period, 6.7% of children who underwent cardiac surgery experienced adverse events including mortality after initial discharge (Crowe et al., 2016).
- CMH experienced similar mortality rate of 5.9% (3/51).
- Programs such as CHAMP® use integrated mobile health (mHealth) technology for communication and hemodynamically monitoring of the single ventricle interstage population and have generated a reduction in morbidity and mortality for this specific patient population.
- The Cardiac Acute Transition Care to Home (CATCH) program was developed to provide a new standard of care for high-risk patients utilizing these aforementioned technologies with variations specific to high-risk congenital heart disease populations after complex hospitalizations.

Aims

- Reduce morbidity and mortality from adverse events at home via phone and mHealth communication with outpatient high-risk CHD patients
- Educate and empower families of high-risk CHD patients in order to recognize clinical changes early
- Facilitate open-communication from home between provider and parent regarding questions, concerns or clinical changes

Voice Recording: <https://voca.ro/1dwLrm7RVmkl>

Inclusion Criteria

- Single ventricle patients who did not go home interstage
- Hospitalization longer than 1 month
- More than 2 transfers back and forth from CICU to acute care floor
- Complex hospital course and medical status

Methods

- The CATCH program integrates the expertise of specialized acute care advanced practice nurses (APNs) with proactive communication of mHealth data from families at home to improve successful transition home after a complex hospitalization.
- The Model of Improvement was used as the framework to guide development of the CATCH program.
- The first phase involved one-on-one education with family regarding patient's diagnosis and current medical condition prior to discharge and frequent phone calls once discharged from the APNs, including 24-hr direct phone access.
- The second phase included the addition of mHealth technology, allowing parents to submit videos, vital signs (HR, O2 sat), and clinical concerns for ongoing patient monitoring in the home setting.
- Patients followed in the CATCH program for a minimum of 1 month or until time of first outpatient cardiology clinic visit.
- ED visits and readmissions tracked along with other interventions.

Results

- February 2020 to August 2022, 15 patients participated
 - 5 patients in clinical development phase 1
 - 7 patients utilized the addition of mHealth technology with CHAMP® app in phase 2, plus 3 additional patients followed but without the app
 - 5/15 single ventricles palliated to Glenn
- Mortality rate to date is 0%
- Readmission rate 20% (3/15)
 - Weight loss/adherence concerns
 - G-tube replacement with observation
 - URI with respiratory symptoms and feeding intolerance
- Countless other interventions include medication questions, adjustments and refills; feeding questions and adjustments; reassurance or recommending PCP visits for other concerns; and outpatient home health clarifications.

Conclusion

The CATCH program is an innovative care delivery system for high-risk patients discharging to home after a complex hospitalization. The CATCH program integrates expertise from specialized APNs with proactive communication of mHealth data from families at home to improve the transition from the acute care hospital setting to home. Families were provided with education and empowered to recognize and communicate clinical changes early. By doing so, the CATCH program was able to reduce overall morbidity and mortality from adverse events at home within the first 30 days of discharge from a complex congenital heart disease hospital admission.