

Implementation of the Cardiac Neurodevelopmental Care Optimization (CINCO)

Program:

An Interdisciplinary & Generalizable Approach to Inpatient Neurodevelopmental Care

Mentored Scholarly Activity Capstone

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Abstract

Background. Children with congenital heart disease (CHD) are at risk for neurodevelopmental delays, and length of hospitalization is a predictor of poorer long-term outcomes. Multiple aspects of hospitalization impact neurodevelopment, including sleep interruptions, limited holding, and reduced developmental stimulation. We aimed to address modifiable factors by creating and implementing an interdisciplinary inpatient neurodevelopmental care program in our Heart Institute.

Methods. In this quality improvement study, we developed an evidence-based approach to neurodevelopmental care across the continuum of hospitalization for patients with CHD using three plan-do-study-act cycles. With input from multi-level stakeholders including parents/caregivers, we co-designed interventions that comprised the Cardiac Inpatient Neurodevelopmental Care Optimization (CINCO) program. These included medical/nursing orders for developmental care practices, developmental kits for patients, bedside developmental plans, caregiver education and support, developmental care rounds, and a specialized volunteer program. We obtained data from the electronic health record for patients aged 0-2 years admitted for >7 days to track implementation.

Results. There were 619 admissions in 18 months. Utilization of CINCO interventions increased over time, particularly for the medical/nursing orders and caregiver handouts. The volunteer program launch was delayed but grew rapidly and within six months, provided over 500 hours of developmental interaction with patients.

Conclusions. We created and implemented a low-cost program that systematized and expanded upon existing neurodevelopmental care practices for patients aged 0-2 years

in the cardiac inpatient units. Feasibility was demonstrated through increasing implementation rates over time. Key takeaways include the importance of multi-level stakeholder buy-in and embedding processes in existing clinical workflows.