

Pumping Up the Units: Designing and Implementing Pediatric Cardiac Just-in-Time Support for Medical-Surgical Nurses

Authors: Rhymini Cadiz-Villareal, RN, MSN-Ed, CCRN, Kristin Mendoza, RN, MSN, CPN, Kristy Foster, RN, MSN, CPN, Beth Zemetra, RN, MHA, NE-BC, Aileen De Guzman, RN, MSN, CPN, Andrew Souza, DO, Michelle Essig, MD, and Dana Gal, MD

INTRODUCTION/OBJECTIVES

- Surgical and cardiac catheterization cancellations and delays create emotional and psychological distress, financial burdens, and affect patient and family satisfaction
- Cancellations impact patient throughput, organizational performance, and strain operating capacity
- Bed availability in the cardiac units was a common reason for cancellations at our institution
- This quality improvement project aimed to develop and implement:
 - Placement algorithm for admitting patients with underlying cardiac disease with non-cardiac-related chief complaints to non-cardiac units
 - Cardiac nursing support to enhance medical-surgical (MS) nurses' confidence in caring for cardiac patients

METHODS

- Baseline data on cancellations due to bed availability from 07/01/2023 to 06/30/2024 was obtained
- An interprofessional team was formed and created the patient placement algorithm and the Cardiac-MS Nursing Support Initiative (CMNSI)
- The CMNSI included (See Figure 1):
 - Nursing education
 - Monthly stakeholder meetings
 - Leadership Rounds
 - Just-in-time support
- Iterative Plan-Do-Study-Act cycles were performed and the CMNSI was modified based on monthly stakeholder meeting feedback (July to December 2024)
- Incident reports, staff feedback, rapid response, and code blue calls were reviewed with stakeholders monthly
- A survey was administered to MS nurses and leaders to assess how the CMNSI influenced their confidence in caring for cardiac patients

ACKNOWLEDGEMENTS: We would like to express our sincere gratitude to the Heart Institute, Medical-Surgical Nursing Leaderships, and the house supervisors for their ongoing support for this project.

CONTACT: Rhymini Cadiz-Villareal, RN, MSN-Ed, CCRN rcadiz@chla.usc.edu

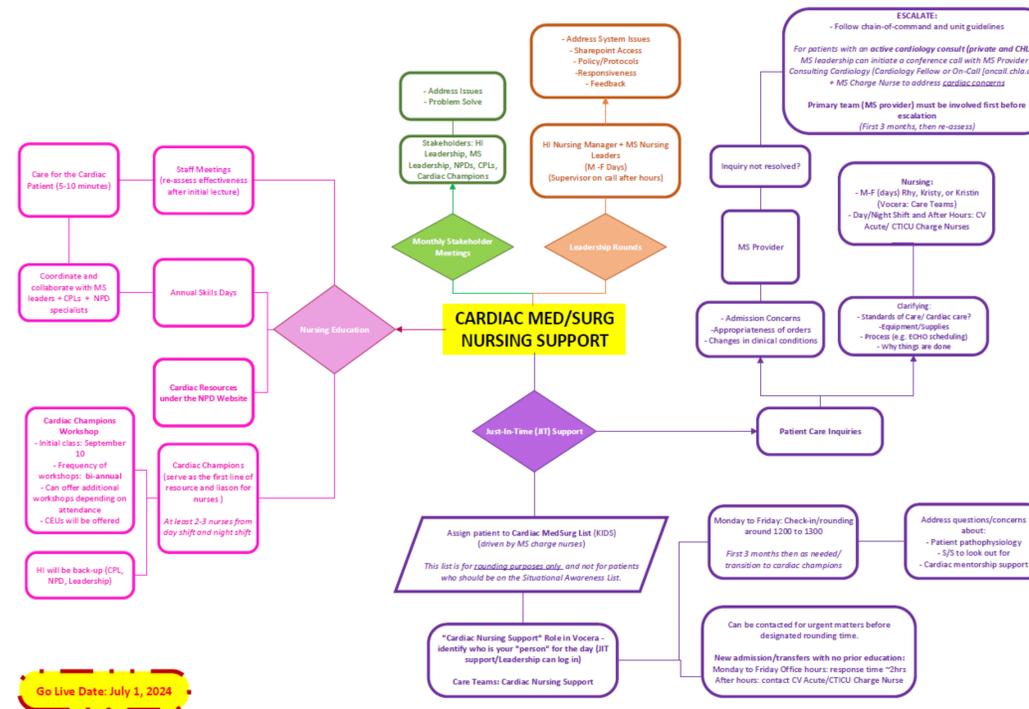


Figure 1. Cardiac-MS Nursing Support Algorithm

	5 East	5West	6 East	6 West
Unrepaired	PDA, PFO/ASD, Partial TOF repair, 2 nd degree AVB (n=32)	PFO/ASD, VSD, Coarctation of aorta, hypoplastic aortic arch (n=16)		ASD, VSD (n=2)
Repaired	TOF, AV Canal, Pacemaker, Extracardiac non-Fenestrated Fontan, TAPVR, PDA, ASD, VSD (n=26)	TOF, Truncus, vascular ring ligation, TAPVR, aortic arch augmentation (n=23)	Extracardiac non-Fenestrated Fontan (n=1)	AV Canal, DORV, TGA (n=3)
Cardiology/CT Surgery Co-Follow	Dilated cardiomyopathy, syncope, suspected MIS-C, myocarditis rule-out, pulmonary hypertension (n=23)	Cardiomyopathy, Ebstein's anomaly, hypertrophic cardiomyopathy, sepsis-induced heart failure, chest pain (n=24)	Pulmonary hypertension, cardiomegaly, syncope (n=12)	Pericardial effusion and/or drain, chest pain, SVT (history) (n=18)

Table 1. Cardiac Involvement

Respiratory issues	Pneumonia, influenza, respiratory distress, hypoxemia, bronchiolitis, respiratory failure, acute hypoxemic respiratory failure, and asthma exacerbation
Infections	Orbital cellulitis, right foot infection, urinary tract infection, pyelonephritis, and dental abscess
Congenital conditions	DiGeorge syndrome, Trisomy 21, congenital diaphragmatic hernia, transesophageal fistula, prematurity, and multiple congenital anomalies.
Neurologic conditions	Epilepsy, hypoxic-ischemic encephalopathy, seizures, stroke, severe syndromic scoliosis, neuromuscular scoliosis, and spina bifida
Cardiac issues	Pulmonary hypertension, SVT, coarctation of the aorta, VSD, pericardial effusion, and bradycardia
Other conditions	Anemia, failure to thrive, dehydration, malnutrition, liver failure, jaundice, biliary atresia, abdominal pain, nausea, vomiting, and syncope

Table 2. Most Common Admitting Diagnoses

RESULTS

- Case cancellations and delays due to bed availability were reduced from 1.6% to 0.2%
 - Baseline period: 22/1380 cases (OR: 551, Cath: 829)
 - Following intervention: 1/615 total cases (OR: 208, Cath: 407)
- A total of 180 patients with underlying cardiac disease were admitted to non-cardiac units (See Table 1 and Table 2)
 - No incident reports, 2 rapid responses were called due to non-cardiac issues, no codes
 - Staff feedback on the CMNSI was positive
- Only 25 nurses responded to the survey:
 - Unit rounding, dedicated on-call role, and cardiac champions were the most helpful resources in increasing their confidence in caring for cardiac patients
 - Cardiac website was least helpful
- MS leader survey:
 - 83% agreed or strongly agreed that CMNSI improved nurses' confidence in caring for this population
 - 100% agreed or strongly agreed that unit-based skills, unit rounding, and the cardiac MS list were the most helpful resources

CONCLUSIONS

- Case cancellations through the patient placement algorithm and the CMNSI were reduced
- The absence of associated patient safety events demonstrates the safety of this initiative
- The CMNSI enhanced confidence of MS nurses in caring for cardiac patients admitted for non-cardiac reasons
- Future work:
 - Ongoing monitoring of safety events and evaluation of less resource intensive approaches
 - Evaluate the impact on other measures of patient throughput