

<p>Project Lead/Key Contact</p> <ul style="list-style-type: none"> • Elisabeth Leong, DO MSCR • elisabeth_heal@med.unc.edu • 303-681-7846
<p>Why are you interested in the Improvement Scholars Program?</p> <p>I’m interested in participating in the UNC Improvement Scholars Program because I am committed to advancing health equity and optimizing the delivery of care for pediatric cardiac patients. In my clinical role as a pediatric and adult congenital cardiologist, I routinely witness how disparities in access to care driven by factors such as resource limitations, communication barriers, and systemic inefficiencies, can negatively impact patient outcomes. Through this program, I hope to develop the skills needed to systematically identify and address these challenges using data-driven quality improvement methodologies.</p> <p>I am eager to gain the experience necessary to lead future quality and process improvement initiatives within my division, department and throughout the broader hospital system. By learning from experienced mentors and collaborating with multidisciplinary teams, I aim to build a strong foundation in QI leadership that will allow me to drive meaningful, sustainable improvements in patient care at UNC.</p>
<p>Problem Statement: What is the problem you are looking to solve?</p> <p>The pediatric cardiac catheterization lab at UNC experiences frequent no-shows and late arrivals for scheduled procedures, occurring at least once per week. These disruptions impact patient care, procedural efficiency, and resource utilization.</p>
<p>Importance Statement: Why is this project important?</p> <p>Missed or delayed procedures can lead to worsened clinical outcomes for children with congenital or acquired heart disease, increased wait times for other patients, and inefficient use of cath lab resources. Late arrivals may also lead to case delays, reduced procedural throughput, and increased stress on patients, families, and staff. Additionally, this issue may disproportionately affect underserved populations, exacerbating health disparities.</p>
<p>Project Scope</p> <p>In Scope:</p> <ul style="list-style-type: none"> • <i>What is the specific patient population your project will impact?</i> Our project will impact children and adults with congenital heart disease who are referred for cardiac catheterization procedures to be performed in the pediatric cath lab. • <i>How many patients are in the population?</i> The pediatric cath lab currently performs approximately 190 procedures per year. The adult congenital heart disease population is steadily growing and many will require catheterizations in the pediatric cath lab (adults with complex congenital heart disease routinely have their catheterizations in the pediatric cath lab given our congenital expertise and biplane imaging capabilities), resulting in increased procedural volume. The increased availability of approved medical devices and transcatheter equipment made specifically for babies and smaller children is also expected to increase pediatric cath lab volume over time. • <i>In what setting(s) would this problem be addressed? (e.g., hospital unit, outpatient practice setting, non-clinical setting, etc.)?</i> The problem will primarily be addressed in the outpatient and inpatient/procedural settings. <p>Out of Scope:</p>
<p>Measures: (Process, Balancing, Structure)</p>

Please describe the anticipated outcome measure(s), 2-3 process measures, and one balancing measure. Please do not include more than 5 measures total.

Measure Name	Measure Type	Measure Calculation	Measure Exclusion	Data Source	Baseline	Goal	Collection Frequency
Patient and Family Satisfaction	Outcome	Survey response grading system		Surveys	Pre-intervention survey	Improve satisfaction with scheduling, communication, and procedural experience	Each patient/family who presents for a procedure will be offered a survey
No-show rate	Outcome	Yes/No		Epic data	Pre-intervention no-show rate over the last year by month	Reduce no-show rate by 80%	Monthly data collection
Percentage of on-time arrivals	Outcome	Yes/No		Epic data	Pre-intervention patient check-in time compared to instructed check-in time	Increase on-time arrival to 80%	Monthly data collection
Late arrival/no-show documentation and follow-up	Process	EHR documentation		EHR documentation	Pre-intervention	Document and address reasons for late arrivals/no-shows	Monthly
Patient wait time for rescheduled procedures after no-shows or last-minute cancellations	Balancing	Number of days between visits		Epic data	Pre-intervention time from no-show to rescheduled procedure	Minimize time between original procedure date and rescheduled date	Monthly

Root Cause Analysis

- What do you think are the underlying causes of the problem?
- Why do you think the problem is happening?

- Language barriers that make the communication between providers and family unclear.
- Lack of reminders or unclear communication about arrival times.
- Instructions given to a different parent/guardian than the one who will accompany patient to the procedure.
- Limited health literacy or misunderstanding of procedure importance and implications for existing and future clinical condition.
- Unfamiliarity with the hospital regarding parking, entrance, registration, cath lab location resulting in inadequate time to travel between each step of the process. It may also contribute to fear/anxiety surrounding the procedural experience, which may result in late arrival or no-shows.
- Fear/uncertainty regarding procedure itself, including how painful or invasive it will be (many families equate catheterization with open heart surgery) and how much recovery time is to be expected.
- Fear of receiving bad news following the procedure, such as poor prognosis or need for additional procedures/surgeries.
- Barriers within the referral and scheduling system that result in delayed insurance approval and last minute cancellations.
- Transportation challenges, especially for families traveling from rural areas.
- Caregiver work or financial constraints that make it difficult to take time off.

Ideas for Improvement

- *What ideas do you have for changes that will result in improvement?*

- Institute virtual or in-person pre-procedure consultations to provide education regarding the procedure and logistics as well as address transportation or other barriers. We have a Heart Center social worker who is able to help address barriers.
- Assign a patient navigator to families to assist through the entire procedural experience. There is currently a nurse navigator dedicated to the pediatric heart center that can potentially also help with families undergoing cardiac catheterization. Additionally, our cath lab NP or one of our RNs could also potentially serve in this role.
- Develop a pre-procedure video that can be accessed through MyChart that provides education regarding the catheterization procedure process (details process from parking in the garage through discharge).

Risks and Opportunities

- *What factors do you anticipate will foster improvement?*

-I anticipate that families will welcome additional support as they navigate the procedural process. Positive feedback will help encourage ongoing process improvement efforts.

- *What are the major challenges you anticipate?*

- Determining measurable, meaningful outcomes to track that reflect effects of our process improvements
- Demonstrating positive effects on patient outcomes that result from the process improvements

Stakeholders and Project Team Members

<ul style="list-style-type: none"> • <i>Who are the key stakeholders in your system and processes?</i> <p>-Heart center leadership (Tim Hoffman, pediatric cardiology division chief) -Patient and family advisory council members -Pediatric cath lab physicians and staff -Congenital cardiac patients and families -Heart center social worker</p> <ul style="list-style-type: none"> • <i>Who are the key project team leaders to design and implement change?</i> 	
Name	Role
Tim Hoffman, MD-Division Chief of Pediatric Cardiology	<i>Sponsor(s)</i>
Elisabeth Leong, DO-Pediatric and ACHD cardiologist; medical director of Pediatric Catheterization Lab	<i>Team Lead</i>
Karen Jones, Peds Cath Lab PNP	<i>Subject Matter Expert</i>
Christina Markham, Peds Cath Lab CN IV	<i>Data Lead</i>
Impact on the Quintuple Aim	
<ul style="list-style-type: none"> • <i>Improved health</i> <p>Improving timeliness of procedures will have a direct positive impact on patient outcomes. For congenital cardiac patients, early and timely interventions can reduce complications, improve long-term health outcomes and prevent disease progression.</p> <ul style="list-style-type: none"> • <i>Enhanced patient experience</i> <p>Patients and their families will experience better communication, reduced wait times, and smoother procedural days. We hope to minimize uncertainty, which can cause significant stress and anxiety.</p> <ul style="list-style-type: none"> • <i>Enhanced clinician and staff experience</i> <p>Cath lab physicians and staff, as well as inpatient care teams, will experience a more predictable workflow and reduced disruptions in their daily schedules, which can improve job satisfaction and morale.</p> <ul style="list-style-type: none"> • <i>Health equity</i> <p>By reducing inefficiencies like no-shows, the catheterization lab can more effectively schedule and allocate resources to those who need care most, including populations with limited access to healthcare. Patients from low-income backgrounds or those with complex social determinants of health may be at higher risk of missing appointments due to transportation, financial, or logistical issues. Better scheduling and follow-up systems can help reduce these barriers by providing more consistent access to care. By ensuring patients don’t fall through the cracks due to missed appointments, outreach efforts can focus on helping those who are most vulnerable or at risk of poor health outcomes.</p> <ul style="list-style-type: none"> • <i>Reduced costs</i> <p>By minimizing gaps in the schedule caused by no-shows, we can optimize resource utilization, including staff, equipment, and operating rooms. Costs related to rescheduling and preparing for procedures that don’t happen (e.g., unused equipment or staffing costs) will be reduced. This leads to more efficient use of hospital resources. By reducing the number of missed appointments, we can increase throughput and maintain more consistent revenue generation.</p>	
Sustainment Plan	
<ul style="list-style-type: none"> • <i>What ideas do you have for sustaining the improvement?</i> <p>I think our process changes that result in improvements will be relatively seamlessly adopted as our standard practice. We can continue forward momentum through our weekly cath lab huddles where we address the process changes and positive outcomes we are experiencing.</p> <ul style="list-style-type: none"> • <i>How do you see the work you start with IHQI’s support continuing?</i> <p>Our cath lab team is motivated to continue optimizing the patient experience so we will continue to perform PDSA cycles with ongoing process improvement.</p>	

Carolina Quality Tools
<p><i>How will Carolina Quality tools (Just Culture, SAFE reporting, TeamSTEPPS, huddles, and visual management boards) be used to support the work? Although use of these tools is not required, applications including them will be strengthened.</i></p> <p>-Our team already has weekly huddles where we can specifically discuss this project and add as a standing agenda item.</p> <p>-Our team is familiar with and comfortable utilizing the SAFE reporting system when we feel issues need to be escalated.</p> <p>-We are intentional about maintaining a Just Culture where all team members feel safe and comfortable bringing up topics or discussing situations. All members of our team will feel empowered to contribute ideas and efforts to this project.</p> <p>-One of our nurses currently creates visual management boards so we will plan to create more specific to this project.</p>
References
<ul style="list-style-type: none">• Sponsor letters – specifics that leaders agree to.<ul style="list-style-type: none">-Dr. Hoffman has agreed to support Karen Jones, PNP (pediatric cath lab NP) in utilizing her 2 clinic days per week for both pre- and post-catheterization visits (virtual and in person).-I met with the UNC Children's Heart Center Family Advisory Council regarding this project and parents were strongly in support of this endeavor. Members of the council expressed that they would personally value having the opportunity for a pre-procedure virtual visit to discuss the procedural details and address expectations/questions/concerns. They also endorsed that it would be high value to have a post-procedure visit with our team prior to returning to care with their primary cardiologist. Others suggested eliciting feedback regarding the experience in post-procedure visits as well as requesting participation in Press Ganey surveys.