QPMM Quarterly Meeting Summary: Cardiac Catheterization Challenges and Opportunities

Introduction

Quality Performance Measurement & Monitoring (QPMM) Cycle

As part of CorHealth Ontario's strategic plan, a key strategic direction established for the organization is to measure and report on quality and outcomes for cardiac, stroke and vascular care. As a first step towards this strategic direction, in the fall of 2017, CorHealth initiated a Quality Performance Measurement & Monitoring (QPMM) Cycle with all cardiac programs, the MOHLTC, and LHINs to provide a platform for regular measuring and monitoring of quality metrics for cardiac services across the province. The goal of the QPMM Cycle is to ensure that patients receive high quality cardiac services regardless of where they live, and where they access care.

The QPMM Quality Scorecard is used as a tool for guiding quality improvement discussions. In 2017/18, the scorecard featured two processes as its indicators for quality: *Timely Access to Reperfusion Therapy for ST-Elevation Myocardial Infarction (STEMI)*, and *Effective Use of Diagnostic Cardiac Catheterization (CATH).* These services were selected as part of the initial QPMM scorecard because they have been identified as provincial priorities or areas that require system improvement, and are involved in ongoing quality improvement initiatives currently underway. The selection of these two cardiac quality indicators were developed in consultation with CorHealth's clinical working groups and the MOHLTC.

Background

Cardiac Catheterization Indicators

The indicators for *Effective Use of Elective Diagnostic Cardiac Catheterization* (% of Elective CATH with Coronary Artery Disease and % of Elective CATH with Pre-CATH Functional Testing) have to this point, been included in the QPMM process as developmental indicators. These indicators have never been provided to hospitals before by CorHealth in a formalized manner, so this was new data for hospitals to review. Additionally,

established targets and clinical benchmarks do not currently exist for these indicators. However, the published Accreditation for Cardiovascular Excellence (ACE) Standards for Catheterization Laboratory Accreditation from the United States state that a regular review of the rate of non-obstructive coronary artery disease should be part of a catheterization laboratory's quality assurance program.[1]

Internal analysis on these indicators by CorHealth has demonstrated that there is variation in these indicators across the province at both the cardiac program and individual physician level. The general feedback that CorHealth has received while presenting this data at national conferences has been that the rate of CATHs in which CAD was identified is thought to be low across the province. For these reasons we felt it important to include these indicators in the QPMM process to promote regular review of these results and foster regular dialogue to ensure appropriate patients were receiving CATH services in Ontario.

Next Steps

CorHealth will engage the cardiac programs to determine the best approach to evolve the CATH indicators into operational indicators in advance of the next Q4 Quarterly Meetings in April and May 2019. In the meantime, we encourage your program to continue to investigate opportunities for improvement. To help enable this, we will be supporting program access to more detailed data to inform quality improvement.

Challenges and Opportunities

Through the Q4 Quarterly Meetings, programs identified five common challenges and three opportunities for consideration in addressing these Effective CATH indicators:

Challenges

- Lack of targets or benchmarks
- External referrals
- Geography
- Access and quality of pre-functional testing
- Access to Cardiac CT

Opportunities

- Pre-screening testing and/or triage processes
- Partnerships
- Digging into the data

[1] Accreditation for Cardiovascular Excellence, ACE Standards for Catheterization Laboratory Accreditation (2015) www.cvexcel.org

Challenge: Lack of targets or benchmarks

The majority of programs believe that the current provincial average rate of CATHs performed in which CAD was found should be higher, however it is unclear what the target should be due to a lack of national and international comparators or best practice standards.

Challenge: External referrals

One challenge mentioned by many programs was the variability in the indications and pre-CATH work-up of CATH referrals from outside referring physicians. Many programs stated that education of referring physicians could reduce the occurrence of inappropriate CATH referrals, but with some reluctance to challenge another health care professional's opinion regarding a CATH referral.

Challenge: Geography

Geography proved to be a common challenge in all programs. Many programs caring for patients living in rural and remote regions highlighted the preference of both the physician and the patient to undergo a CATH without pre-functional testing to avoid extensive travel. Conversely, programs in close proximity to other centers noted the challenges associated with managing the quality of referrals from a shared catchment area and the impact this has on volumes and patient selection.

Challenge: Access and quality of pre-functional testing

Some programs noted that the wait time for access to pre-CATH Functional Testing could be quite long (upwards of 6 weeks) and it was more efficient to forego pre-CATH functional testing and proceed with the CATH procedure. The quality of pre-functional testing was also frequently mentioned. Many programs cited low quality pre-CATH functional testing resulting in high rates of false positives. This can impact the rates of normal CATH and is difficult to manage outside of the hospital.

Challenge: Access to Cardiac Computed Tomography (CT)

Cardiac CT was identified by some programs as an effective way to identify low risk CAD patients and divert them from CATH. In many programs, however, access and infrastructure for Cardiac CT is not in place, readily available, or financially reasonable.

Opportunities: Effective pre-screening testing and/or triage processes

The majority of programs accept referrals directly from a cardiologist or internist. Some programs who receive referrals from general practitioners have implemented intake processes that include additional screening through a rapid assessment clinic, require additional functional testing, or request to see the patient in clinic prior to scheduling a CATH.

Rapid assessment clinics, or chest pain clinics, were mentioned frequently during the quarterly calls, which allow the emergency department physicians to refer atypical presenting patients to a cardiologist without sending them to the CATH lab. This is both beneficial for the physicians and the patients.

Opportunities: Partnerships

Several programs highlighted the importance of working closely with partner hospitals and community physicians to improve the quality of CATH referrals. Initiatives that are in place today include regular dialogue about the completion of the referral form. Some sites will send back the referral form if it is not complete. Some programs stated an interest in reporting the outcome of the CATH back to the referring physician, and also highlighted that educational resources for referring physicians about appropriate referral to CATH would be useful.

Those sites with access to CTA in hospital found that a good partnership with the radiology department was effective in managing access to this technology between departments.

In one region where long travel times are common for patients and could increase the likelihood of the patient undergoing a CATH in lieu of pre-CATH functional testing, a partnership was created between the hospital and the local community to ensure access to quality pre-CATH functional testing in the community. Technicians were trained by the cardiac program and they conducted the pre-functional testing in the community.

Opportunities: Digging into the data

Many programs have done or are interested in doing a deeper dive into their own program data to further understand variation at the physician level (for physician's providing CATH and referring physicians) and to further understand the impact of valve patients on their normal rates. Many programs requested support from CorHealth to undertake this analysis.

Many sites were also engaging in quality discussions internally, including bringing this data and scorecard to relevant departmental and quality committees.

One program is beginning to develop a peer-to-peer random audit cycle, where two cardiologists read independently and interpret the diagnostic CATH results to verify and validate the accuracy of the report.

Program Successes: Case Study

William Osler Health System

In 2014, William Osler Health System (WOHS) introduced a quality improvement initiative to review the results of CATHs performed at their center. This work was initiated as a response to an evaluation of their Stand Alone PCI (SA-PCI) program by the Cardiac Care Network of Ontario (a legacy organization of CorHealth Ontario). Through this evaluation it was identified that WOHS had a rate of CATHs where CAD was found that was considerably lower than the provincial average.

In order to address this issue, WOHS appointed an internal physician lead for the project, who led the team to review the results of their CATHs at the individual physician level. They identified variability in this rate amongst the physicians at their institution. The quality improvement initiative at WOHS involved providing physicians with reports containing their own rates of Normal/Non-Significant CAD for review on a regular basis.

Table 1 and 2 illustrate blank templates of tables in an annual report that was sent to each individual physician who performs CATHs with their own rates of Normal/Non-Significant CAD and allowed them to view changes to their rate over time. In order to account for referrals that were received from external referring physicians, and in which physicians at WOHS did not necessarily have control over the entirety of the referral process, WOHS also looked at their rate of Normal/Non-Significant CAD in self-referred cases. Analyzing self-referrals allowed them to highlight patients where the physician who performed the CATH was accountable for the entire process of the referral.

These physician level reports were reviewed and discussed on a monthly basis within the program. In instances where outliers were identified senior leadership and administration were able to provide support. In some instances, the CATH lab time of an outlier physician was limited in order to drive change.

WOHS has been reviewing this data at a physician level on a regular basis for almost four years. Over the past year, as evidenced in the QPMM reports, WOHS has had one of the highest rates in the province for CATHs performed in which CAD was identified, demonstrating the effectiveness to their quality improvement work.

Table 1. Template Monthly Normal/Non-Significant CAD CATH Report Provided to Individual Physicians at WOHS

	Yours	WOHS	Ontario
% Normal Anatomy After CATH			
% Non-Significant CAD After CATH			
% Total (Both Normal and Non-Significant CAD)			

Table 2. Template Annual Normal/Non-Significant CAD CATH Report Provided to Individual Physicians at WOHS

Year	Yours	WOHS	Ontario
2017			
2016			
2015			
% of Your Non-Significant CAD That is Self-Referred			
% of Your Self Referred CATHs That Are Non-Significant (2017)			

Additional Resources and Articles

We have identified some additional resources that programs may find useful in absence of acceptable targets and benchmarks on these indicators:

- Choosing Wisely®, in collaboration with The Society of Cardiovascular Angiography and Interventions (SCAI), has developed a list of five specific, evidence-based recommendations that should be avoided in the care of patients who have or are at risk for, cardiovascular disease.
- The Accreditation for Cardiovascular Excellence (ACE) have included in their 2015 Standards for Catheterization Laboratory Accreditation that regular review of the rate of non-obstructive coronary artery disease should be part of a catheterization laboratory's quality assurance program.

Additional articles:

- Thomas, Michael P., Gurm, Hitinder S., Nallamothu, Brahmajee K. "When Is it Right to be Wrong." *Journal of the American College of Cardiology*, vol. 63. no.5, 2014. http://resource.heartonline.cn/20150625/1_sRYwYIS.pdf
- Roifman, Idan., Wijeysundera, Harindra C., Austin, Peter C., Rezai, Mohammad R., Wright, Graham A., Tu, Jack V. "Comparison of Anatomic and Clinical Outcomes in Patients Undergoing Alternative Initial Noninvasive Testing Strategies for the Diagnosis of Stable Coronary Artery Disease." *Journal of American Heart Association,* vol. 6, issue 7, 2017. http://jaha.ahajournals.org/content/6/7/e005462.long

Some of the feedback back we received in the Q4 Quality Meetings was related to a perceived poor quality of pre-functional testing. Both the CorHealth EQI Standards as well as the CorHealth ECG Diagnostics Standards include sections on indications for stress testing (ECHO stress or Exercise Stress Testing) as well as lab recommendations for quality assurance. Page 46 and 47 of the ECG Diagnostic Standards also includes very specific cognitive skills needed when supervising and interpreting exercise tests.