As seen in **Cath Lab Digest**

Cath Lab Dashboard Development: Identifying Metrics

By Lorraine Buck

Without a doubt, hospitals are under intense pressure (and will continue to be) from multiple governing bodies that keep a watchful eye on the happenings within the walls of hospitals and healthcare systems across the country. For example, the hospital value-based purchasing and readmissions reduction programs, along with the hospital-acquired condition penalty program, are enforcing balance within the cost and quality equation. And further, The American College of Cardiology (ACC) has implemented standards that cause hospitals to strive to meet guidelines, performance measures, and appropriate use criteria through quarterly reports that identify gaps in care as a means to improve practice standards. These programs continue to show an impact, from whole hospital systems to individual cath labs, all over the country.

In 2007, the Institute for Healthcare Improvement (IHI) shared three goals that they believed were necessary in order to improve the U.S. health system: 1) improving the experience of care, 2) improving the health of populations, and 3) reducing per capita costs of healthcare. Coupled with the outside regulatory agencies are savvy healthcare consumers looking for better value and outcomes, now more than ever. With these aims applied to cardiac programs and cath lab operations, specific strategies are necessary to remain ahead of the quality/cost curve. Status quo is no longer acceptable for ongoing clinical, operational, and financial success.

Corazon has witnessed many hospital-based cath labs with the same goals: providing exceptional patient experience and quality with superior outcomes, while at the same time, reducing overall costs, whether in the form of lowered supply costs, shortened lengths of stay, or elimination of readmissions. However, we also know that the cath lab is a dynamic place as a result of improved technologies and evolving procedure trends.

Cath lab administrators are charged with keeping up with these ever-changing technologies, physician practice patterns, and reimbursement changes, all while trying to manage the operational day-to-day of the cath labs, not to mention meeting quality outcomes. Easy… right? Well, not exactly! Corazon has worked with many cath lab administrators in tackling these difficult and complex issues. Taking the first step can be very stressful, so we advocate not focusing on everything at once. We recommend establishing a meaningful dashboard that incorporates a few metrics as an initial step. These metrics should encompass operational, financial, and clinical results so as to provide a full picture of the cardiac cath lab or cardiovascular program. As everyone becomes comfortable with the process, more metrics can be added.

Defining the Metrics

When defining metrics, a collaborative process to determine priorities for the dashboard effort is key. How data will be obtained, who will collect it, and what the information will be used for are all very important questions to answer at the outset. After determining which metrics to measure, it is critical to understand the definition of each. For the example outlined herein, we focus operationally on patient flow; financially on revenue, cost, and length of stay; and clinically on outcomes. Based on this scenario, the following metrics were chosen to begin the process:

Operationally

- First case on-time starts (delay in minutes)
- Average procedural time/case type
- Pre-procedure pre-admission testing (PAT) completed day before testing
- Turnaround time (TAT) between cases
- Average time in pre- and post-procedure holding area by procedure

Financially

- Overall volume/procedure
- Payor mix
- Average payment/case
- Average cost/case
- Average length of stay

Clinically

- In-hospital mortality
- Vascular/bleeding complications
- Renal complications
- ST-elevation myocardial infarction (STEMI) patients with door-to-balloon (D2B) times ≥90 minutes
- Patient satisfaction
- 30-day readmissions for acute myocardial infarction (AMI)

Measurement

Gathering data for each of the defined metrics becomes the next critical step in the process, and each area brings different challenges. Operationally, capturing the documented time for some of these metrics can be as simple as pulling the information out of the cardiac hemodynamic database. However, other pieces of information may have to be gathered from logs that may or may not be kept up-to-date.

Figure 1. This sample dashboard can serve as an example of what information to gather and present for deliberation and discussion about how to make improvements relative to established benchmarks, either internal or external.

Invasive Cardiology (Dx Cath and PCI Information)					
Operational Indicators					
	Total Number / Percent				
Avg. First Case of the Day Delay Time (mins)					
Avg. Procedural Time/Case Type (mins)					
Pre-Procedure PAT Completed Day Before Testing (Percent Complete)					
Avg. Room Turnaround Time Between CCL Cases (mins)					
Avg. Time in Pre- and Post-Procedure Holding Area by Procedure (mins)					
Financial Indicators					
	Total Discharge Volume (Quarter)	**ALOS**	**Avg. Payment/Case**	**Avg. Direct Cost/ Case**	**Primary Insurance**
Overall Volume by Procedure					
Clinical Outcomes Indicators					
	Total Number/ Percent				
In-Hospital Mortality (Number/Percent)					
Vascular/Bleeding Complications (Number/Percent)					
Renal Complications (Number/Percent)					
STEMI Patients with D2B Time ≥ 90 Minutes (Number/Percent)					
Patient Satisfaction (Percent)					
Hospital 30-Day Readmission Rate AMI (Number/Percent)					

Corazon Program Audit - CCL Dashboard

Hospital CCL Analysis

Operational	**Jan - Mar 16**	**Benchmark**	**Apr - June 2016**
Avg. First Case of the Day Delay Time (mins)			
Avg. Procedural Time/Case Type (mins)			
Pre-Procedure PAT Completed Day Before Testing (Percent Complete)			
Avg. Room Turnaround Time Between CCL Cases (mins)			
Avg. Time in Pre- and Post-Procedure Holding Area by Procedure (mins)			
Financial	**Jan - Mar 16**	**Benchmark**	**Apr - June 2016**
Volume by Procedure (Inpatient & Outpatient)			
Avg. Inpatient length of stay by MS-DRG			
Avg. Contribution Profit (Inpatient & Outpatient)			
Case Mix Index (CMI) Inpatient by MS-DRG			
Clinical Outcomes	**Jan - Mar 16**	**Benchmark**	**Apr - June 2016**
In-Hospital Mortality			
Vascular/Bleeding Complications			
Renal Complications			
STEMI Patients with D2B Time ≥90 Minutes			
Patient Satisfaction			
Hospital 30-Day Readmission AMI			

Most financial data can be obtained from the hospital financial database, which can provide overall volume/procedure, payor mix, and average payment per case as well as average length of stay. However, hospitals without cost accounting systems can experience difficulties when attempting to gather the average cost per case. When this occurs, hospitals should use estimated cost based on a cost-to-charge ratio as a benchmark.

Clinically, hospitals that participate in the national data registries (ACC-NCDR, HCAPS, and/or Press Ganey) can obtain outcomes data for the defined metrics. For those that do not participate, other means of gathering the defined metrics would need to be determined. Corazon often advises that sometimes hospital information technology (IT) departments can be instrumental in helping to set up computerized ways in which to collect some of the data elements. We suggest discussions with the IT department early on in order to discuss potential options before looking beyond internal means. Anything set up electronically will most likely save valuable staff time. And again, definitions must be clearly explained for each metric, otherwise, "apples to oranges" comparisons could occur, especially when comparing to external benchmarks.

Analysis/Improvements

Once data is gathered, analysis needs to occur, which is a very useful step in determining opportunities for improvement. To accomplish this, identified internal and/or national benchmarks are necessary for comparisons to hospital results. For example, compared to identified benchmarks, operationally a hospital may find that pre and post holding times for inpatients have continued to increase over the past few months. To understand the outcome, using cause-and-effect diagrams and process maps can further help to identity the root causative factors and suggest solutions.

Financially, the case mix index (CMI), an important financial monitor for hospitals, could show a slight decrease from the previous year for a particular set of patients. Finding out why or how is important, though such an effort would not exist without knowing and then understanding the data. Even small changes of .10 (as a value) can affect a hospital's bottom line. Results of a decrease in CMI could be a sign that the hospital is not capturing complications and co-morbidities that groups accounts into higher-weighted DRGs.

Likewise, a shift in more medical versus surgical volume can also lower CMI. Setting up a process to work with physicians in order to appropriately improve documentation will in turn help coders easily identify the complications and co-morbidities. This is just one example of a possible many that shows how collecting and analyzing data can lead to identifying issues that would otherwise be undetected, along with improvements that can positively impact the program or hospital overall.

Control

After putting the effort into choosing metrics, setting up data collection methods, analyzing the results, and implementing an improvement plan, sustaining any gains is the final step in the ongoing cyclic process. Having a dashboard set up and consistently monitored will assist in meeting defined goals.

Corazon believes that ultimately, using data to measure costs against the quality of care provided should be an overarching goal of cath lab leaders. In fact, administrators who can plan, implement, and oversee a quality improvement process will be best prepared to anticipate and respond to changes challenges in healthcare while remaining financially sound.

Further, to achieve and sustain a market leadership position in this healthcare environment, administrators will need to have their "finger on the pulse" as to how their service is functioning operationally, financially, and clinically. These three prongs of any program need to be considered in tandem. Remember when working to develop metrics for a successful dashboard, to keep in the mind the following: "Every mountaintop is within reach if you just keep climbing."[1] Do not overwhelm yourself. Start small and keep climbing. The view from the top is always worth the effort.

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Reference

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