Transradial Access Services

A strategic imperative for high-performing hospital systems.

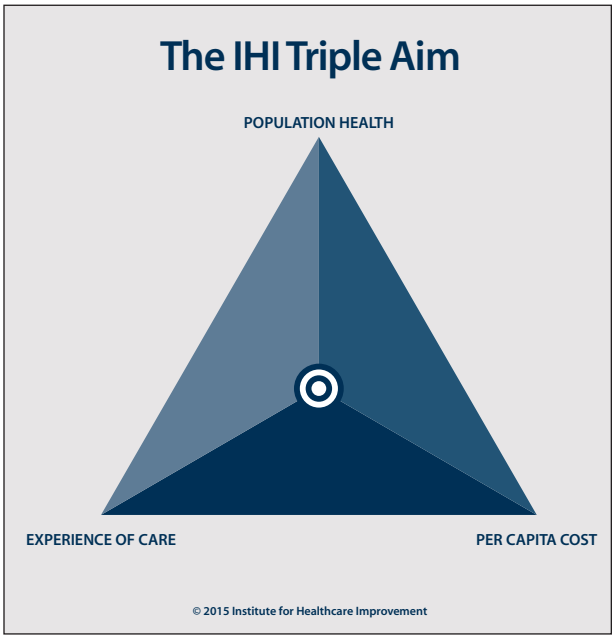
BY DENISE BROWN AND GINGER BIESBROCK, PA-C, MPH

Today, many hospital-based cath labs have the same immediate goals: reduce costs per case, improve throughput and daily efficiency to include same-day discharge, and keep clinical outcomes and patient satisfaction results high. The adoption of transradial access for diagnostic catheterizations and percutaneous coronary interventions (PCIs) is a means to achieve those specific departmental goals and a key strategy to support an organization's long-term cost and quality requirements.

As a cardiovascular service line clinical and/or administrative leader, heading down the path of providing transradial access services will bring opportunities to better align with the goals of executive management. Also, it will help deliver on the Institute for Healthcare Improvement's Triple Aim of improving the patient experience of care (including quality and satisfaction), improving the health of populations, and reducing the per capita cost of health care (Figure 1).

It is clear that through the hospital value-based purchasing and readmissions reduction programs, along with the new hospital-acquired conditions penalties programs, the Centers for Medicare & Medicaid Services is serious about enforcement of the cost and quality equation; there is no safe harbor in the status quo. All hospital inpatient and outpatient programs and services need to be reevaluated to ensure that they provide exceptional patient experience and clinical quality with superior outcomes; at the same time, they must reduce overall costs, whether in the form of supply costs or lengths of stay and elimination of readmissions.

Although today only about 20% of the overall diagnostic cath and PCI volume is performed via transradial access, the numbers are steadily rising (Figure 2). Facilities that have embraced this technique have a much greater chance of aligning their clinical care practices to the attributes of the Triple Aim and reimbursement strategies of the Centers for Medicare & Medicaid Services.



Courtesy of Institute for Healthcare Improvement.

Figure 1. The Institute for Healthcare Improvement's Triple Aim.

QUALITY OUTCOMES: BLEEDING AND VASCULAR COMPLICATIONS

The radial artery is more superficial than the femoral artery, and therefore, access is easier; it can be used as an access site in the majority of diagnostic and PCI cases. The benefits of accessing a superficial artery (where hemostasis is easily achieved) are seen in several quality outcomes including mortality, bleeding complications, and major adverse cardiovascular events (Figure 3). Improvements have been demonstrated in both ST-elevation myocardial infarction (STEMI) studies and primary PCI studies.[1,2] Improvements in STEMI patients are significant because they are typically the highest-risk patients. In fact, in 2013, the European Association of Percutaneous Cardiovascular Interventions created a consensus document on the use of radial access, describing and recommending

Courtesy of Terumo Interventional Systems.

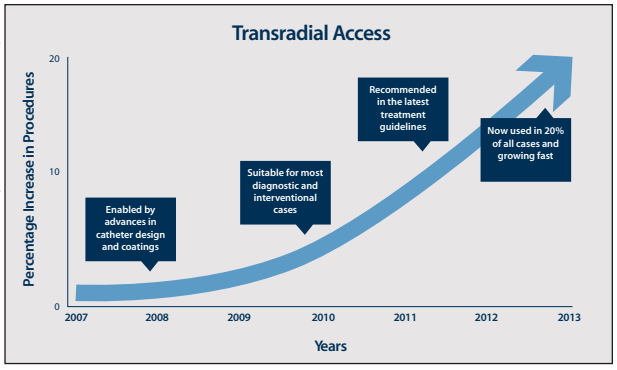


Figure 2. Increase in radial access procedures.

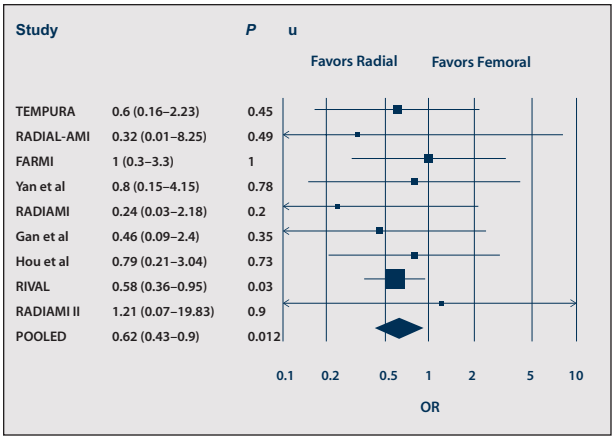


Figure 3. Forest plot comparing major adverse cardiac event outcomes in the radial versus the femoral access site in randomized PCI trials in patients with STEMI. Odd ratios (OR) and 95% confidence intervals (CIs) are presented for individual studies and pooled data. Reproduced from Heart, Mamas MA, Ratib K, Routledge H, et al, 98, 303–311, 2012.[2] With permission from BMJ Publishing Group Ltd.

the technique to be used in routine practice. Also in 2013, the Society for Cardiovascular Angiography and Interventions published a consensus statement on the radial approach.[3] Both documents describe a reduction in bleeding risk, vascular complications, mortality, and costs.

Key to these improvements is user experience and competency. Many of these studies cite a learning curve. In 2013, Hamon et al published recommendations for structured training that described a three-level approach in which initial transradial approach procedures are diagnostic caths.[4] These are followed by elective PCI and then STEMI as the operator gains experience and competence. A structured training plan will ensure low conversion rates from transradial to transfemoral access.

SAME-DAY DISCHARGE COST SAVINGS

Although use of the transradial technique in the cath lab does not ensure that all patient care processes have been optimized for same-day discharge of a cath or PCI patient, it does significantly improve the opportunity. There are organizations today performing a moderate to high volume of transradial procedures that have yet to redesign their patient selection, intake, and discharge processes and are still treating these same-day discharge candidates as an overnight stay. The cost of care implications of a patient in a bed being treated by nursing staff overnight is high and could be derived and quantified by an organization by answering these two questions: (1) What is the cost of nursing care for a patient with an overnight stay? (2) What is the loss of revenue on a patient who needs a bed when none exists?

In 2010, Rinfret et al noted a savings of more than $1,000 Canadian per patient.[5] Each high-performing organization in the United States today must understand their own overall cost structure in order to continue financial viability given the payment environment.

TWO-MIDNIGHT RULE

Although the Two-Midnight Rule is in a slight state of limbo, the Medicare intermediaries are still allowed to perform the probe and educate program, which provides for each intermediary to request 10 to 25 claims per hospital for prepayment review and compliance with the Two-Midnight Rule. The Recovery Audit Contractors, however, continue to be barred from conducting postpayment reviews and enforcement through September 30, 2015. As previously stated, with the opportunity for a greater number of same-day discharges and clearer delineation of the disposition of same-day observations, facilities that use the transradial technique could see a significant drop in the number of cath lab patients crossing two midnights.

COST PER CASE IMPLICATIONS

Radial access favorably influences cost drivers of PCI by reducing cost per case in many ways. First, as noted, major complications are reduced. These reduced costs are associated with interventions, diagnostic testing, and increased length of care associated with complications. Second, hemostasis time is reduced and managed with less staff. To achieve hemostasis with the radial artery, a small wrist device is used that applies pressure and is managed by staff. But rather than requiring one to two staff members, as seen in femoral hemostasis, only one staff member with minimal time commitment is needed. Third, the length of stay is reduced, with less bed rest and earlier ambulation.

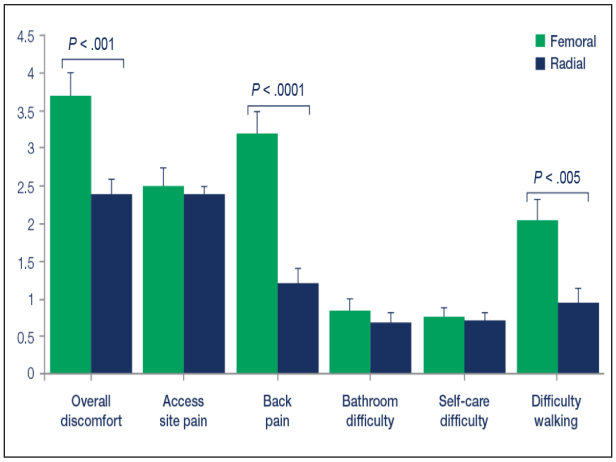


Figure 4. Transradial patient comfort and quality-of-life satisfaction. Reprinted from *American Heart Journal,* 138, Cooper CJ, El-Shiekh RA, Cohen DJ, et al. Effect of transradial access on quality of life and cost of cardiac catheterization: a randomized comparison. 430–436, Copyright (1999), with permission from Elsevier.

A recent study of more than 7,000 patients showed an average of $803 less per PCI case after risk adjustment, which did not include the reduction associated with a same-day discharge. So, if a program performs 1,000 PCI cases per year using the transradial approach, there could be an $800,000 cost savings for that program. The breakdown showed that there was a minimal cost reduction in procedural costs ($130) but a larger cost reduction ($705) in the post-procedure costs. Twelve percent of the savings were due to decreased bleeding, and 50% were due to a decrease in length of stay. It was also noted that the higher the bleeding risk, the higher the cost savings. In those patients with the highest bleeding risk, there was almost a day difference in length of hospital stay for those who underwent the transradial approach compared to those who underwent a transfemoral approach, which can equate to significant savings.[6]

PATIENT SATISFACTION

The transradial approach has also been found to improve patient satisfaction because radial procedures are more discrete and less painful, the groin area is not prepared prior to the procedure and is entirely avoided during the procedure, and the wrist wound is less painful and requires less management (Figure 4). Rapid ambulation after the radial procedure is a key improvement for patients with back issues for whom bed rest and lying flat for several hours is painful. Also, many patients can be discharged the same day, requiring less hospitalization. All of these advantages have made radial access a preferred access for many patients.

When developing PCI offerings, a transradial approach sets one apart from the competition. With increased patient satisfaction, education, and word-of-mouth promotion within the community, transradial patients should become very powerful marketing tools.

CONCLUSION

Although use of transradial access for cath lab patients is not a panacea, it could be viewed as a sea change and a major step toward transformation. In an era when every facet of health care delivery is open to redesign and our normal patterns of payments are being challenged, adding transradial access services should be seen as a very positive step. It is hard to argue with a change to a PCI program that, when done correctly, provides improved quality outcomes, decreased costs, and increased patient satisfaction. Transradial PCI can help align with the philosophy of the triple aim and organizational goals to better satisfy providers, patients, and service line and system administrators. ■

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