

How to use Best Practices in the Cath Lab to Improve Outcomes

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Using best practices in hospitals is an important aspect of improving patient outcomes. Our knowledge of healthcare practices has never been greater or communication so rapid and widespread. Yet implementing these best practices continues to be difficult and slow in coming. The growth of knowledge and technology has made it difficult for providers and staff to research and implement new practices that have proven results in improving patient care.

One best practice in cardiac catheterization is the use of the transradial approach to coronary artery catheterization. For over 40 years, the use of the femoral approach has been the dominant method of cannulating the artery for a heart catheterization procedure. Currently 98% of all heart catheterizations performed in the United States uses a femoral approach. In Canada and Europe 40 to 50% of all heart catheterization procedures use a transradial approach. The benefits of this approach are

well documented. They include less vascular and bleeding complications and improved patient comfort. A study published in 2008 in the *Journal of the American College of Cardiology: Cardiovascular Interventions* showed that bleeding complications associated with percutaneous coronary interventions were reduced by 58% with the transradial approach compared with femoral access, a finding consistent with other research. So why then when the research continues to show that a transradial approach to heart catheterization has benefits do US cardiologists continue to use a femoral approach? The reason is training and habit.

Morton Kern, Professor School of Medicine, Chief Cardiology LBVA, Associate Chief Cardiology UCI, Medicine School of Medicine, and Pranav Patel, Interim Chief of Cardiology, Director, Cardiac Catheterization Laboratory, Associate Director, and Interventional Cardiology Fellowship Program formulated a four-prong approach to instituting a transradial approach for cardiac catheterization at UCI. This approach was to develop a standard for the use

of the transradial approach, train staff and fellows, introduce this approach to the community, re-evaluate the procedure, and make necessary adjustments.

The first step necessary to a successful implementation of the transradial approach to cardiac catheterization was to develop the standards for the use of a transradial approach. The rule for UCI was radial first whenever possible. The radial approach was not to be used for dialysis patients, those with poor ulnar artery supply or planned use of the radial artery for another procedure such as CABG. At times spasm may necessitate a femoral approach. This spasm may occur in small, old or young women.

The second step in the change process was the development of the training and education program. This was done in conjunction with the cath lab manager and Dr. Kern. This training had to meet the needs of faculty, residents, nurses, and techs. The education for the faculty and residents included when to use what approach, the anatomy, technique and the use of the device for arterial compression. The nurs-

es and techs had other educational needs such as care of the radial site post procedure. Do not forget your recover room nurses who will be caring for the patients following the procedure.

Dr. Kern and Dr. Patel were so committed to the importance of a radial approach that they prepared and presented a class for the community's interventional cardiologist. The mission of a university hospital is in its dedication to quality patient care, research and teaching. The transfer of knowledge allows others to improve their practice and hence the quality of the patient experience.

Finally, the staff and physicians reviewed their processes and practice. They learned from the doing and developed better practices based on their experience. Dr. Kern published a paper on **“What We Learned After Starting a ‘Radial First’ Program”** that

discussed the learning and adjustments that the physicians and staff made in the program.

Although UCI did not set out to use a particular change theory when designing this practice change, Kurt Lewin's three-stage change model, unfreeze-change-refreeze, certainly pertained. Educating the staff on the research and data supporting the new practice was instrumental in unfreezing the behavior of always using a femoral approach to heart catheterization. The education, support and role modeling of Dr. Kern and Dr. Patel were important in changing the behavior. Finally insisting on a radial first approach and allowing for added time and resources assisted in refreezing the new behavior.

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Ms Winner has over 25 years of ambulatory and hospital administration. She has worked at the University of California in several roles. Currently she is responsible for the cardiovascular service line. University of California Irvine Medical Center is one of five medical centers in the University of California System. University of California Irvine Medical Center's cardiovascular program is certified in Heart Failure through the Joint Commission. It is among the first hospitals in the area to be designated by Orange County Emergency Medical Services as a cardiac receiving center. Four new cath labs include two hybrid rooms one for heart and one for vascular procedures support the interventional work of the excellent cardiologist and surgeons. The cardiovascular program is a truly integrated program including cardiologist, vascular and cardiothoracic surgeons.

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