

Individualized Education in the Cath Lab: A Strategy to Improve Outcomes and Workforce Stability

Interdisciplinary training from MedAxiom Academy provides a solution to the cath lab conundrum of increased patient and procedural volumes, rapidly advancing technology, and staffing shortages.

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BACKGROUND: THE CATH LAB CONUNDRUM

In cardiovascular care, cath labs are a cornerstone of diagnosing and treating disease. A knowledgeable cardiac care team is essential in the cath lab given the highly technical nature of procedures and the interplay between various members of the service line to deliver care. As the demand for advanced cardiovascular interventions grows, so does the need for a highly skilled multidisciplinary team. Unfortunately, increasing patient and procedural volumes, staffing shortages, and rapidly advancing technology have created a conundrum in the cath lab (and in health systems at large).

Historically, the cath lab has expanded from a platform offering basic catheter-based procedures to providing a combination of diagnostic procedures and therapeutic interventions, including percutaneous coronary interventions, structural heart procedures, peripheral vascular interventions, ablations, device implantations, and other combined interventional/surgical procedures.¹ This shift has amplified both the volume and complexity of the procedures performed in the cath lab. Not only have procedures increased in complexity over recent decades, but the imaging and

device technology used in the cath lab are also constantly evolving, requiring ongoing learning at the point of care and outside of the cath lab.^{2,3} With this complexity comes a need for team members to know and execute their roles while supporting other members of the cath lab team and being able to adjust their skill sets to new technology and procedures.³ When individual team members have a clear understanding of their roles, it allows them to work at the top of their license and potentially alleviate other team members, as is the case for advanced practice providers (APPs) supporting physicians.⁴

Cath lab facilities are also increasingly in demand due to the rising prevalence of cardiovascular disease, particularly among aging populations. This trend will likely continue, significantly impacting cath labs and their staff. Amidst this growing demand, there is a shortage of skilled professionals, including interventional cardiologists, nurses, and technologists.

Hospitals can improve patient outcomes, ensure a safe work environment, and address workforce shortages by investing in education and training for all cardiovascular care team members. Education can help clarify the specific roles and responsibilities for each member on a care team, allowing individuals to better support and collaborate with the larger team. Each member understands their role and possesses

the essential skills to contribute to a highly functional team. Education is also a successful retention strategy, particularly for high-performing individuals who value lifelong learning.

EDUCATION AS A SOLUTION TO THE CATH LAB CONUNDRUM

Cardiovascular leaders must prioritize ongoing training for cath lab teams to address workforce shortages and ensure patients undergo safe and effective procedures. Comprehensive training programs, with resources targeted at individual team members, can help standardize practices, improve team coordination, and enhance the skills of all team members.

The cath lab requires a diverse team of highly skilled professionals to deliver safe and effective care:

- **Interventional cardiologists** require ongoing training in the latest techniques and technologies to maintain high standards of care and keep up with the latest guidelines and literature.
- **APPs** in acute care and ambulatory settings facilitating throughput, quality assurance, appropriate clinical documentation, and discharge management also need to understand the latest techniques and technologies because they often support cardiologists on staff.
- **Cath lab nurses** require training in patient assessment, monitoring, medication and sedation management, and emergency response.
- **Cardiovascular and radiology technicians** should receive training focused on imaging techniques, radiation safety, hemodynamic monitoring, assisting with procedures, and emergency management.
- **Nurse techs** need to understand the basics of cardiovascular anatomy, medical terminology, patient care, and test performance such as obtaining electrocardiograms or blood glucose sampling.
- **Electrophysiology nurses and techs** performing ablation and device implantation need to develop advanced knowledge of cardiac arrhythmias and use of mapping and ablation systems.

Although programs for physicians are available through many cardiovascular societies, there are fewer options for education for other care team roles (APPs, nurses, technologists, technicians, etc), particularly surrounding cardiovascular care.

SOLUTIONS FOR EDUCATION: MEDAXIOM ACADEMY

Cardiovascular leaders should involve all cath lab team members in training, including interventional cardiologists, nurses, technologists, and other support

staff. Interdisciplinary training fosters collaboration and communication, both of which are essential to promote safety and successful patient outcomes.

With the increasing complexity of cardiovascular interventions, advanced training in interventional and structural procedures is also crucial. Interdisciplinary training ensures that team members are well equipped to handle the latest techniques and technologies.

Simulation-based training allows cath lab teams to practice procedures in a controlled environment, enhancing their skills and confidence. Hands-on training with experienced practitioners also helps bridge the gap between theory and practice.

Regularly updating knowledge and skills through continuing education programs allows team members to stay abreast of the latest advances in cardiovascular care and maintain high standards of patient care and safety.

MedAxiom is dedicated to transforming cardiovascular care by educating the entire cardiovascular team. Designed to support lifelong learning and professional development, the MedAxiom Academy provides comprehensive cardiovascular education for administrators and clinicians to improve care delivery, optimize organizations, and advance care. The MedAxiom Academy features online learning offerings led by subject matter experts who educate and empower the entire cardiovascular care team to succeed in today's rapidly changing health care environment.

The APP-focused suite of courses recently exceeded 1,000 learners who have successfully completed these courses, which focus on cardiovascular, peripheral vascular disease, electrophysiology, acute care, and cardiometabolic management essentials. The APP courses can be used for orientation for new APPs who do not have a strong background in cardiology.

The cardiovascular essentials courses in the MedAxiom Academy also provide educational courses for clinic staff such as medical assistants and nurses. These programs offer continuing education credits but can also be integrated into a training program as onboarding materials. MedAxiom is also developing procedural education, designed specifically for the interventional care team, that will be available in the Academy in late 2024 or 2025.

Additionally, delivering consistent messages to new and existing care team members removes the burden from program directors and administrators, who may be understaffed as well. All Academy programming offers a way to measure success across the program, with graded exams at the end of different modules in the courses.

Furthermore, MedAxiom offers consultative services to develop a program's educational strategy. Health care

and business experts can work directly with MedAxiom consultants to map an academic pathway to address an individual program's challenges and opportunities.

CONCLUSION

When combined with competitive compensation packages, benefits, a supportive culture, and advancement opportunities, ongoing education can be a huge draw to attract and retain skilled cath lab staff members. Sufficient training can allow team members to understand tasks across the care team, allowing service line leaders to redistribute tasks when needed to maximize efficiency and reduce the burden on specific roles. Most importantly, a well-educated staff provides better care to patients in procedural areas.

By fostering interdisciplinary collaboration and providing ongoing opportunities for skill development, hospitals can ensure the sustainability and excellence of their cardiovascular care services. ■

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