



Developing New Surgical Skills and Techniques as a Young Cardiothoracic Surgeon

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After finishing seven or eight years of general and cardiothoracic surgery training, the young cardiac or thoracic surgeon often faces the challenge of tailoring their practice to the new era. One of my mentors used to say that today he uses only about 25 to 30 percent of the techniques and skills that he learned during his training. This means that he had to develop new skills in order to be in line with new technologic advancements and surgical methods. Ten years ago, many portions of our everyday practice were not common or did not even exist: transcatheter valves, robotic surgery, MitraClip™, thoracoscopic ablation for atrial fibrillation, hybrid aortic surgery, totally implantable ventricular assist devices, and thoracic endovascular aortic repair. However, only a few training programs give adequate exposure to residents in all of these fields.

So the question is: how do I acquire new skills and techniques that I never learned during my training, while building and maintaining a busy practice?

In my opinion, the fundamental goal of a solid training program in cardiothoracic surgery is to teach traditional surgery, which is usually maximally invasive (with video-assisted thoracoscopic surgery being a good exception). The cardiothoracic resident must first and foremost learn and master coronary surgery, “maximally-invasive” valve and aortic surgery, and lung and esophageal surgery. They must be primarily exposed to the complexity of traditional cardiac and thoracic surgery before they move on to more advanced skills. After the completion of our formal training, we embark on our surgical career with an early goal to be a successful and safe independent surgeon.

One can acquire new techniques and skills through the following ways:

1. Take some time off from your busy schedule and dedicate a few months, or even a year if possible, to formal training in a new field, such as aortic, transplant, congenital, transcatheter valve replacement, mitral valve repair, robotics, etc. This will give you the opportunity to acquire concentrated knowledge and experience in that new field.



2. Attend conferences and courses sponsored by surgical societies or industry. At these events, you will hear from experts in the field about the new techniques and can learn from the successes and complications they have experienced.
3. Visit a surgeon or center that performs the technique frequently. Personally, I have found this paradigm very helpful, since you can see someone else operating first-hand and in the real world. Take notes, ask questions, and develop a lifelong professional relationship.

Once you have done enough training, read thoroughly and prepare for the operation. Create a list of what may go wrong and how to get out of an unpleasant situation. Have a proctor or a mentor scrub with you for your first few cases. You definitely do not want to be the first and only surgeon to do a new technique without any backup. Invite a senior colleague from your institution to be present. Experienced surgeons may not know the new technique that you are trying to implement, but they can give you valuable advice and help with a possible complication.

Acquiring new skills can be a stressful and upsetting venture. However, it is the best way to make ourselves marketable and keep up with the advancements in our specialty. Cardiac and thoracic surgery are continuously evolving, and we have to adapt to the new technological environment if we wish to remain competitive.