Building a Successful Career: Advice from Leaders in Thoracic Surgery

Sean C. Grondin, MD, MPH

I have been an attending thoracic surgeon for more than 10 years and, like many surgeons, work hard to provide exemplary clinical care, to be a good mentor and teacher, and to publish valuable research contributions. I have been fortunate to have had mentors who have guided me through my surgical training and early years of practice, and a wife and children who help me to maintain a delicate work-life balance. At midcareer, I realize how much I have learned from and been influenced by the experience and guidance of other surgeons. With this in mind, an outstanding group of surgeons (Box 1) were selected to each write a short summary of what they deem to be key elements for developing a successful thoracic surgical career. These unique and informed perspectives offer many insights that will provide useful lessons to others in our field.

MARK S. ALLEN, MD

A career in thoracic surgery is rewarding but also demanding, requiring substantial commitment and serious dedication. Although thoracic surgeons make a major difference in patients' lives, they may also cause harm by choosing overly aggressive operations, making a technical error, or failing to operate at the right time. Developing a successful thoracic surgery career is about minimizing the harm and maximizing the benefit to patients and their families. My section of this article gives a brief introduction of the basics of developing a career in this fascinating profession.

The foundation of any career, and especially one in thoracic surgery where the stakes are so high, is in obtaining the proper training. Most of the operations and techniques I use today in practice were not invented when I was in training; therefore, education should provide a platform on which to learn. Students should seek to obtain a solid foundation in anatomy, physiology, pathology, and basic patient care. This foundation enables surgeons to adapt and shape their skills as new technologies arise to fit the needs of the patient and provide a solid understanding of the reasons why certain operations are chosen. Without a solid, basic fund of knowledge, a surgeon will just pick up whatever comes along and give it a try, floundering in a sea of uncertainty, with no clear understanding of why some patients do well and others do not. Knowledge is required to objectively evaluate a new technique or procedure to have some reasonable hypothesis that the operation will be of benefit to the patient. Acquisition of knowledge is never complete. Learning must continue after residency, sometimes even at a faster rate, for thoracic surgery is advancing quickly. The successful thoracic surgeon stays current and uses this new knowledge for the patients' advantage.

After initial, fundamental knowledge is obtained, a surgeon must establish a practice. Today, this almost always means joining a group practice. The former chair of the department of surgery at Massachusetts General Hospital, Dr G.W. Austen, gave me some advice when I was a resident that has proved to be useful. He noted that 3 factors...
are important when choosing a practice to join. The first is the individual partners themselves. These are the people you will have to interact with on a daily basis. It is vital that you can work well with these people for, if not, every day is going to be a challenge. Developing a solid working relationship with your partners is of primary importance. They should be trustworthy, honest, reliable, and excellent surgeons. The second feature is the department in which you are going to work. Interaction with the department is not as important as with your partners, but the department will still influence you, although less frequently than your partners. The department should be supportive of what you need and want to accomplish; not controlling, but encouraging your career progress. The final characteristic to consider when choosing a practice is the institution you work in or are affiliated with. This entity should have a good reputation both locally and nationally. The goals and objectives of the institution should be aligned with yours. The institution you work in will characterize you before anyone meets you, and will affect your practice, so choose carefully.

The final aspect of developing a successful thoracic practice is personal development. Medicine can be an all-absorbing profession and the needs of patients are limitless. Many physicians have lives that are consumed with medicine, and they turn into one-dimensional people, concerned only for the welfare of their patients, ignoring personal and family responsibilities, only to burn out after several years. Successful thoracic surgeons have other interests and are able to successfully balance work with their personal life, making time for their family, taking time off for their own interests and hobbies. This balance allows them time to unwind and come back to work with a fresh outlook, often with new ideas, always with a renewed energy level. Thoracic surgery is a physical activity, often requiring long stretches of intense concentration in addition to standing, bending, and pulling. Keeping in shape by exercising, and controlling your weight by eating properly, are also important characteristics of a successful thoracic surgeon. It does little good to train for 30 years, learning the craft of thoracic surgery, and then not be able to perform in the operating room because of poor fitness. Staying fit gives time to develop experience as a surgeon, for, as everyone knows, experienced surgeons are good surgeons, and experience takes time to develop.

Being a thoracic surgeon is one of the best jobs in the world. Compensation is good, operating is enjoyable, patients are challenging, and it provides the opportunity to help people live longer, more

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productive lives. It is hoped that these suggestions and comments will help develop a few surgeons into the leaders of tomorrow.

ROBERT JAMES CERFOLIO, MD

To write about what it takes to build a successful career in cardiothoracic surgery the word success must first be defined. The problem is that this definition is controversial and debatable. What does it really mean to be successful? Is it how much money you make, how happy you are, how many operations you perform each year, how fast you do them, how little blood your patients lose, how well your patients do, how you are viewed by your trainees or staff, and so forth? For most, it is a combination of these factors and many others. Webster’s dictionary defines success as "a favorable or desired outcome – the attainment of wealth, favor or eminence." I find this definition to be shortsighted and perfunctory.

Because the definition or state of success is not agreed on, the characteristics required to get there are not definable or agreed on either. Given these caveats, I offer my opinion (and that is all anyone can offer on this subject) of what I believe are important attributes that lead to a successful career in surgery, and list attributes that are unique and different from those discussed by the other contributors to this article.

Although this article is specific to a career in cardiothoracic surgery, many of the attributes that any of us list could probably be applicable to success in any career. I am sure that every author will mention hard work, dedication, commitment, passion, compassion, honesty, knowledge, intellect, timing, a supportive academic environment, and so forth; however, in order for my essay to be different and perhaps more helpful to you, I offer some attributes that may be more specific for a surgeon to be successful compared with a lawyer or business person. The first word that comes to mind, and one that is probably unsuspected, is athleticism.

I define athleticism as the ability to perform a fine motor skill again and again under high pressure while working together with other team members and while acting as a team leader. Surgery is the ultimate team sport and a cardiothoracic surgeon cannot be successful if he or she is not good in the operating room. So, besides all of the obvious characteristics that are required for anyone to be successful in most any aspect of life (eg, outstanding education and training, good mentors, industriousness, some element of luck, family support), a successful thoracic surgeon has to be adroit in the operating room. This ability entails working well with others, being respected by the other team members, and controlling one’s nerves and emotions under pressure. This quality starts long before residency and maybe even before kindergarten; it may even be partially genetically programmed. Either way, it is a critical aspect of being successful.

Another attribute that my esteemed coauthors may not mention is availability. I know many talented surgeons who are skilled technical surgeons and leaders with excellent people skills but who are not successful. This failure is because many lack the organizational skills to be available and reachable. The best way to build a busy and successful surgical practice is to always be available when a medical doctor needs your services. Perhaps more than ability or affability, availability is a critical aspect of a successful career in surgery.

Stamina is another quality that is often overlooked. Our training is long; most of us do not start our practices until we are in our early 30s. I have seen many surgeons who become burned out by 45 to 50 years of age. They lack the passion to keep going; they lack the emotional and physical toughness and stamina that is necessary to rise early every morning, day after day, and to enter the operating room looking forward to the day’s challenges of 8 or 10 operations.

Although I know all of my coauthors will mention this, I would be remiss not to mention it because it is the single most important attribute of all: work ethic. No one gets into cardiothoracic surgery without an outstanding work ethic, but I notice that many seem to lose little bits of it after a few decades of surgery. The mental grind of operating day after day is taxing, but it takes a finely honed work ethic to want to try to do it perfectly each time and not to settle for a good job when we know that we can and should do it perfectly each time.

GAIL DARLING, MD, FRCSC, FACS

My assigned task was to offer my reflections on how to have a successful career in thoracic surgery as if I was speaking with a junior colleague. As a resident, clinical technical excellence is usually the primary measure by which we are judged. It is assumed that, once having passed your examinations, clinical skills will remain at a high level, but they must be continuously practiced, refreshed, and advanced for you to remain at the top of your game. Clinical excellence is the foundation of any successful surgical career. Beyond that, the definition of success varies with the individual. Indeed, the definition of success may evolve over time. In my opinion, regardless
of the metric by which it is measured, to be successful requires 4 key elements: know yourself, do what you love, focus, and reevaluate.

**Know Yourself**

This is perhaps the hardest step of all: to reflect on what motivates you, what gives you satisfaction, to identify your strengths and weaknesses, and decide where you want to go in your career. When I was initially writing my list, I did not list this as the first step but, as I thought about my career, I realized that once I had thought about these things and really identified who I am, what drives me, and where I wanted to go, my career really started to move forward. It is important to identify your own definition of a successful career. Success for one person may not be success for another. Perhaps even more important is to recognize that what you once considered success may change over time.

Once you have completed this step, the next step is to accept who you are, to be comfortable in your own skin. Accept that what you want for yourself may be different from what others believed, or even what may have once been your own goals for yourself. Accept your weaknesses and work to overcome them if possible. Focus your career in areas of strength and interest.

**Do What You Love**

We work many hours in our careers. If you do not love what you are doing, you cannot be successful. You have to identify what motivates you, what makes you jump out of bed in the morning eager to start your day. Of course, we all have to do the other things, but try to carve out a niche for yourself in an area that you find interesting and motivating. It is important to work with people you respect and trust in an environment or culture of like-minded individuals.

**Focus**

To have a successful career, you must focus. Focus your clinical practice, focus your administrative activities or service activities, focus your teaching, focus your research, and then write or present seminars, lectures, and research papers in your area of interest. You must become the go-to person. There are many questions to be answered, and it helps if you chose a less-studied area. Think of good questions and set about answering them. Structure your tasks in readily achievable components so that each part is successfully achieved. You can build on each step until you complete the entire project successfully. Present or write about each step; do not wait for the grand finale.

Avoid distractions. Develop a list of criteria by which you assess each task asked of you. Does it fit in your area of focus? Is it something you love to do or always wanted to do? Does it move your career forward? If the request does not meet your criteria, you may try to decline the request or minimize the time spent on it, but consider all requests carefully. Look ahead: is this request or task a building block to something more substantial?

**Reevaluate**

As your career progresses, make time to reevaluate. Are you going in the desired direction? Are you on target? If not, why not? Where did you go off track? What will it take to get back on track? Are your goals still the same? Do you need a change? A new challenge? What is required to follow a new course? Know when it is time to move on.

Academic careers are usually measured in papers published, grants awarded, invited lectures, and academic standing. Equally important are the students we teach and motivate toward careers in surgery, residents and fellows we have taught and mentored who will provide care to patients and who will go out and teach new generations of surgeons who will in turn provide care. However, the foundation of success is the excellent clinical care to those who entrust their lives to us.

**JEAN DESLAURIERS, MD**

Thoracic surgery is a challenging and rewarding profession in which academic surgeons have the unique potential to make significant contributions through their integration of clinical duties, academic work, and research efforts. To do so, several considerations must be kept in mind. My personal thoughts about such considerations will hopefully help junior colleagues be better prepared and thereby contribute to their short-term and long-term successes.

**Early Years**

I had the good fortune to grow up in a favorable family environment. Both of my parents understood the importance of early education and sent me to boarding school for 12 years (ages 6–18 years). In their opinion, this was the best place not only to learn how to read and write but, most importantly, to develop a rational approach to analyzing and solving problems. In those years (1952–1964), boarding schools were also a good place to learn to be disciplined, a factor that
I consider critical to being a successful academic surgeon able to sustain his or her intellectual drive. Once I completed medical school at Laval University (1968) and knew that I wanted to pursue an academic career in surgery, my parents were also instrumental in the selection of the University of Toronto Surgical Gallie Program for my postgraduate education. At that time, the University of Toronto had the best Canadian residency program in cardiothoracic surgery. In retrospect, this decision proved to be most rewarding and one of the defining moments in my career.

**Residency Years**

During my residency years at the University of Toronto, I was fortunate to have outstanding personal mentors (Drs F.G. Pearson, R.J. Ginsberg, R.J. Henderson, and N. Delarue) who were great leaders in thoracic surgery and had strong clinical, academic, and educational records. These mentors gave me the opportunity to build on my strengths and they continued their support well after I had completed my residency program. They helped mature my judgment through balanced clinical experiences and assumption of responsibilities, as well as develop qualities of commitment, motivation, and willingness to work with high ethical standards. I not only learned how to do surgery and look after patients but also to understand thoracic diseases and their investigation. I learned to write papers and how to be part of clinical research teams. I met with international leaders in thoracic surgery who regularly visited Toronto and later gave me an opportunity to present on the international circuit of thoracic surgery. When I was Chief Resident, I was encouraged to foster an esprit de corps with more junior residents for whom I had become a mentor and these residents became, and still are, among my best friends. To this day, I recognize the value of my training experience, which helped me become a good surgeon, a better human being, and a person who learned that I was capable of much more than I originally believed.

**Early Years in Practice**

Because of my background at the University of Toronto, the transition from Chief Resident to junior faculty member was smooth. Right from the beginning (1975), I was integrated into a medical group that understood the value of a multidisciplinary approach to the investigation and treatment of thoracic diseases and the importance of being academically productive. I was able to improve my clinical competence because my first surgical partner (Dr Maurice Beaulieu) was exceptionally good. He could and did get me out of many problems and was instrumental in guiding me through the early stages of establishing my academic foundation. This type of mentorship was not the same as what had occurred during residency, being broader in scope and encompassing clinical, academic, educational, professional, and personal guidance. Most importantly, I had an opportunity for progression, which is a critical feature of an academic and research career. Starting in clinical research was done through the writing of retrospective analysis on series of patients, but all this changed when I became one of the principal investigators of the Lung Cancer Study Group at the suggestion of one of my mentors, Dr Ginsberg, from the University of Toronto.

Because there is life outside the operating room, it is almost impossible to be successful without some degree of harmony at home and, indeed, success and performance in the hospital is dependent on happiness and security at home. Therefore, critical to becoming an academic surgeon is paying particular attention to family. In my case, I was lucky to have a wonderful wife who, despite periods of anxiety, anger, or even sadness, always supported my work as a clinical surgeon and academician. She was able to appreciate the difficulties in establishing an academic niche in the current marketplace and to adjust to such difficulties.

**Late Years in Practice**

In recent years, I have had the opportunity to add to my surgical and personal education by being involved in the People’s Republic of China, where I spent 1 year as a Thoracic International Consultant in 2008 to 2009. That year was invaluable both personally and professionally, but it changed my portfolio of value concepts and reinforced the importance of the prior education I received during my residency and early years in practice.

**Conclusions**

The keys for success as an academic thoracic surgeon are probably more individual than has been discussed in this essay but, overall, they include a good surgical education, opportunities for progression, continued need for mentorship and support, respect of family values, and intellectual honesty.

**ANDRE DURANCEAU, MD**

The 4 most important pieces of advice that I have received from experienced and respected mentors are as follows: be a good physiologist as much as a good surgeon, focus on 1 area of
expertise, and learn to define the problems and report objectively.

A surgeon starting a new academic career needs such advice. Candidates are selected early, based on their personality, character, education, and accomplishments during their training. However, the true motivation of any individual is difficult to assess. The level of excellence for recruitment must be set at the highest tier: ask for more and recruit better than yourself. The result in time will be a high-quality group instead of a successful individual. New positions in our division are now available to candidates with a PhD degree in an effort to favor expertise for investigation and research. Expectations and planned progression in academic activities must be explained to these surgeons.

Security and support for the surgeon starting in thoracic surgery is essential, which requires an easy integration into a well-organized group practice. Solo practice is unacceptable, especially in a university environment. Group practice should offer fair remuneration but also protected facilities and time for research and encouragement for academic participation. Our group practice model is an adaptation of the Duke Private Diagnostic Clinic where the base principle is the need to invest in your own development to succeed. This model includes transparent governance, an equal base salary, and recognition of both clinical and academic productivity. Expenses for meetings are reimbursed for up to 20 days per year. Participation in professional societies is encouraged and their membership fees are covered. All incomes generated by professional knowledge are pooled and 5% of the clinical income is put into a research and development fund, fiscally recognized as a public foundation.

The additional expertise required by the extended training needs to be recognized by the university. A university position with a tenure tract offers the best opportunity for an academic evolution. It represents security but also applies more pressure for research and academic productivity. With the support of our group practice and its research and development fund, we have succeeded in creating 3 named university professorships, recognizing the academic distinction of those recruited in our Thoracic Surgery Division: 1 in lung transplantation, 1 for thoracic surgery oncology, and 1 for esophageal diseases. These positions are financed by funds held in endowment. In time, they should guarantee support to the thoracic surgery division for excellence in care, education, and research.

Possibly the most difficult challenge that remains, especially in a socialized environment, is the unconditional support of the hospital to meet our goals. Although these goals should be the same for the administrator working on a fixed-budget basis, physicians and patients are often considered as liabilities. When asking for new technologies and asking for more space and personnel, the final say too often belongs to a manager reporting to a politician.

With the best training in hand, a successful thoracic surgery career depends on an easy integration into a successful group practice. Recognition of the outstanding expertise by the university is essential with a teaching position that includes a tenure tract. The hospital must commit to providing the proper working infrastructure.

**MARK K. FERGUSON, MD**

My approach to this question centers more on how to build a satisfying career than how to build a successful career. Success in a career is easily measured: are you respected by your colleagues, coworkers, and patients; is the work you do important; do you have good outcomes; have you contributed to the art and science of your specialty? Many of the other contributors to this article outline reliable pathways to success. Notably, just because success is easily measured does not mean that it is easily achieved. Following those pathways is often difficult, and success is by no means guaranteed.

Satisfaction in a career is a more challenging and potentially rewarding goal. Its definition can be elusive and, being uniquely personal, is different for each individual. Many physicians achieve success in their careers without ever being truly satisfied personally or professionally. Other physicians never achieve what is generally defined as success in their careers but derive great satisfaction from what they do. I make no claims at being an expert on achieving job satisfaction. I often have been challenged by the difficulties of making decisions that affect career success and career satisfaction in opposite ways, and believe the following observations are relevant. The astute reader will note that there are conflicting suggestions provided here.

Define what satisfaction means to you. Identify what your priorities are in your personal and work lives. Ensure that you devote as much thought and energy to your personal priorities as you do to your professional ones.

Learn to say no. Not everything that you are offered, or everything that attracts you, serves your midterm and long-term goals. Prioritize your opportunities, identify what you can reasonably expect to accomplish in the allotted time, and decline what does not work for you.
Use your time efficiently; in particular, do not let others waste your time. Feel free to leave meetings that are not being run effectively, that are straying from their agendas, or that conflict with other personal and professional commitments.

Find a niche that you love and that, within your own sphere, you can own. This sphere will expand substantially as your interest and expertise grow. There are so many opportunities within our subspecialty that it should not be a challenge to find 1 or 2 areas to which you can fully devote your energy and enthusiasm.

Be flexible in your thoughts and behavior. Being open to new ideas or new ways of doing routine tasks creates opportunities for improvement. Change itself is not always good: there needs to be a rationale for it, but being open to change is always good.

Be a lifelong learner. There is nothing more rewarding than learning new concepts, clinical approaches, or operative techniques. Having methods for staying on the top of your game is vital to enjoying a career that may span 30 or 40 years.

Share your knowledge with others. Although this is easy in an academic setting when you are surrounded by residents and medical students, opportunities still abound in a private practice setting. Nurses and other physician extenders will benefit from your teaching, as will your patients, and the community at large is always hungry for knowledge about our subspecialty.

Humbly appreciate the talents you were blessed with and the accomplishments you have achieved. Be thankful that you have the opportunity to work in a respected profession that serves others.

RICHARD J. FINLEY, MD, FRCSC, FACS

General thoracic surgery has provided a challenging and rewarding professional career. After 30 plus years of practice, I still look forward to going to work and helping patients with complex thoracic surgical problems. I believe the key elements in developing a successful thoracic surgery career include education and mentorship, teambuilding, teaching, and personal development.

Education and Mentorship

Under the direction of Dr Angus McLaughlin and Dr John Duff, I received an excellent surgical education at the University of Western Ontario. The former was an outstanding educator whose tireless effort to prepare me for the arduous profession of surgery set the standard for my further development in thoracic surgery. Dr John Duff was an outstanding surgeon, educator, and researcher. He strived to create new knowledge in the management of uncontrolled sepsis, which stimulated me to take further training in basic surgical research at the Harvard Medical School. This training allowed me to answer important surgical questions in the area of esophageal and thoracic surgery.

Following my general surgical and basic science training, I was fortunate to train under Dr Griffith Pearson and Dr Joel Cooper at the Toronto General Hospital (TGH), at the peak of the division’s academic and clinical accomplishments. Dr Pearson stimulated me to follow my dream of an academic career in general thoracic surgery, which has come to fruition thanks not only to the mentorship of Drs Pearson, Cooper, Ginsberg, Todd, Delarue, and Henderson but also to colleagues who understand the role of academic surgery in the care of the patient needing general thoracic surgery.

Based on this experience, my advice to residents and young academic general thoracic surgeons is to get the best education you can and establish yourself as an excellent surgeon whose primary interest is the safe care of the patient. Be professional in every encounter with patients, colleagues, and staff. Become an expert in 2 or 3 areas in general thoracic surgery, study the history and development of these subspecialty interests, and join societies in which these interests can be nurtured and a network of colleagues can be fostered. Develop research questions in these areas that can be answered with good science, followed by presentation and publication at peer-reviewed meetings. In addition, thoracic surgery will continue to change. General thoracic surgeons must practice lifelong learning through reading journals and attendance at meetings. It is important to keep up to date in new technology and processes in order to play a leadership role in the management of the patient with thoracic diseases.

Team Building

A successful career depends on excellent multidisciplinary patient care, education, and research teams. First and foremost are your fellow general thoracic surgeons in your division. These colleagues need to be excellent clinical surgeons with dedication to the development of the academic thoracic surgery team. Although their interests may vary, their primary focus is on treating the patient who needs thoracic surgery in a caring and evidence-based manner. Secondly, the clinical support staff is an essential part of dealing with the complex and arduous workload associated with general thoracic surgery. The staff
needs to be well trained and dedicated to patient safety and quality improvement. Stimulating partnerships with respirologists, gastroenterologists, otolaryngologists, anesthesiologists, oncologists, and pathologists are essential for excellent patient care and creative research.

**Teaching**

The most satisfying aspect of my job is ensuring that our students, residents, and fellows receive the best clinical and academic training available. I recommend that the resident should have at least a Masters degree in epidemiology, education, or a basic science research in order to sustain their academic career. After these residents have graduated, it is important to maintain communication with them to support their development.

**Personal Development**

In order to lead others, you must manage yourself. Many brilliant thoracic surgeons have destroyed their careers with unprofessional activity. You need to make time for yourself and your family. You must keep yourself fit, mentally and physically. Develop hobbies and a life outside surgery in order to broaden yourself. Despite the challenges of modern thoracic surgery I envy those who will practice this rewarding specialty in the future.

**MICHAEL R. JOHNSTON, MD, FRCSC**

Success means different things to different people. To me, it is being able to do what I want to do when I want to do it. This view may be simplistic, but it encapsulates what I think are the most important prerequisites for becoming a successful thoracic surgeon:

1. Broad training that leads to broad perspectives and more opportunities
2. Research experience keeps the door open for academic pursuits in the future
3. Always striving to be an effective educator
4. Awareness that mentoring involves much more than educating
5. Being an effective, compassionate communicator builds trust and confidence in patients and their families.

Success is a career-long pursuit. Some of us may be fortunate enough to practice in the same location and rise through the ranks for our entire career. But for most of us, including myself, during those 30 or 40 years of our professional life, options are encountered by choice or by necessity that will significantly alter our career pathway. Whether it is promotion, or salary, or protected time, or research support, at some point you believe you need to draw a line in the sand. “Meet my demands or I leave.” Just remember, if your demands are not met and you stay, your credibility is worth about as much as a subprime mortgage, so know your alternatives before you issue your ultimatum.

When career options arise, the choice may be obvious and is usually dictated by that old adage “Never make a lateral move.” If only it were that easy! But factors seemingly extraneous to our career often get in the way of the obvious. Factors such as family, friends, geography, politics, and even health may make a seemingly easy decision difficult. Transitions are hard and do not always end up being career enhancing. My advise is to carefully weigh the choices, make the decision, and never look back.

Once in a new position, possibly a new hospital or university, or, in my situation, a new country, one has to look at the opportunities available, which is where broad training and experiences really pay off. I moved from the University of Colorado in the early 1990s to the University of Toronto just as the likes of Cooper, Ginsberg, and Patterson were heading south. Bad timing or good opportunity? It could have been either, but I believe (admittedly in hindsight) it turned out to be the latter.

To be recognized as a leader and an expert, one eventually has to narrow the scope of practice, probably from both clinical and research perspectives. Thoracic surgery is just too large a field to be proficient in all areas. I must confess that I mostly decided what I no longer wanted to practice rather than actively deciding what to pursue. I was always drawn to thoracic oncology, but along the way I dropped cardiac, thoracic vascular, transplant, and benign esophageal practices. A combination of interest and opportunity were undoubtedly the determining factors.

Once you see yourself heading in a certain career direction, it is time to actively focus. Research and clinical practice should reflect that focus, as should educational pursuits. Join the appropriate highly focused organizations (over and above the national thoracic societies) and take courses that will enhance your knowledge in that focused area, be it surgical education, minimally invasive surgery (MIS), or biomarker validation. Spending time with experts in that particular field is essential. After 3 years at the National Cancer Institute, I had a reasonable idea of cancer clinical trial design, but only after an in-depth experience with Drs Mac Holmes, Griffith Pearson, and other notables in the Lung Cancer Study Group could I comfortably claim to be proficient in the field.
In my career I have worked with some exceptional surgeons and basic scientists. I have practiced both cardiac and general thoracic surgery in private, university, and Veterans’ Affairs settings and in 2 countries with very different health care systems. I have held peer-reviewed funding for both basic and clinical research. However, for me, the most gratifying and personally rewarding element of my career has been the mentorship of students, residents, and fellows. Being a mentor is more than merely educating these bright young people. It is role modeling and leading by example. It is advising and counseling for their best interest. It is also critiquing and criticizing in a manner that constructs rather than destructs. The rewards are the pure satisfaction of having influenced and shaped a career, and a lasting bond of gratitude from a group of eager, but highly vulnerable, trainees who now are your peers.

MARK J. KRASNA, MD

After a nearly 20-year academic career, what makes a thoracic surgeon get up one morning and say “I’m going to do something different”? One is satisfied that you have helped hundreds of patients each year. You even believe that you have developed those unusual skills of knowing when not to operate, as well as the audacity to know that there are certain procedures that you can do that few others would ever try to do. You have enjoyed training students, residents, fellows, and postdoctoral students who have themselves gone on and become successful thoracic surgeons around the world. So why stop? What would be the career move that would give the most satisfaction? The next step can be more of the same: a lateral move to another institution where you can make a new or larger program or develop an existing program successfully. One could always go to the obvious next step in the academic food chain and become a chairman of a department of surgery. Having worked within the department at many administrative levels, the department head option was not for me.

What I wanted was to make the greatest impact on patient care and the future of thoracic surgery, integrated with the other oncology disciplines. I had successfully developed a thoracic surgery division and initiated a thoracic oncology program. In addition to implementing biweekly prospective cancer conferences, we developed true multidisciplinary thoracic oncology clinics. We began replicating this model in other disease sites when I served as associate director for multidisciplinary care within the Cancer Center. Then I realized that the next step was obvious: become a cancer center director! Although I was able to perform 400 thoracic procedures a year, and my division as a whole was able to perform more than 1200 procedures a year, my thoracic oncology program treated almost 3000 patients a year. As cancer center director, I would be able to have a unique impact on the care of thousands of patients. Although I looked at many opportunities at single institutions in academia and the community setting, I ultimately chose to join a large health care system. The system included 79 hospitals from coast to coast, and would enable me to reach more than 60,000 new patients with cancer a year, with a total of more than 250,000 patients with cancer within our system. This impact was what I was looking for.

What are the skills that enable a thoracic surgeon to become a cancer center director?

We thoracic surgeons are uniquely situated to understand the value of multidisciplinary cancer care. We understand team work and team building. We can learn to leave our big egos at the door when we enter the examination room or conference and put the patient’s needs first while implementing multidisciplinary cancer care.

The additional skills that thoracic surgeons possess to accomplish this include leadership, compassion, reliability, and our let’s-get-things-done approach. This impatience helps us achieve more hard-to-reach goals faster than others. We are used to thinking outside the box and rapid problem solving, with unique abilities to adapt to changing realities. We respond well to change; we recognize a problem, analyze it, make a decision, and then launch into action. Autonomy is one of the traits that thoracic surgeons crave, and, in the milieu of health care, this is one that is often challenged. The ability to maintain autonomy and affect health care on a broad scale is, again, one of the attractions of being a cancer center director, where a reporting structure directly to the CEO or Board of Directors is possible. Although there is no formal training in most residency and fellowship programs, thoracic surgeons become leaders naturally in the course of their training. Bringing a whole team together to follow a strategic vision is challenging, but thoracic surgeons are used to being the captain of the ship and leading by example. This ability is learned when performing major cardiac and thoracic complex procedures that require communication with a large team made up of different specialties. Leading that team by example, earning and then commanding respect and rewarding team members, is one of the first lessons that the resident develops in training.

Once the decision is made to become a cancer center director, thoracic surgeons needs to marshal
their skills to best succeed, which includes multitasking, continued learning, and, in particular, expanding the scope of our knowledge base: understand the other cancer specialties by reading their literature and participating in multidisciplinary conferences and educational programs. This process positions thoracic surgeon leaders to be serious and knowledgeable contenders among their colleagues, and be respected for decisions that affect all aspects of cancer care. In addition to participating in annual thoracic surgery conferences, I have also maintained a presence, at least once a year, at national oncology conferences.

In addition, surgeons must learn and understand the business of medicine and of cancer care in particular. This learning does not necessarily mean getting a Master of Business Administration (MBA), but at least a basic knowledge of budgets, strategic plans, and vision goals is required. Succeeding on the business side of health care today is a necessity in order to achieve a greater impact on improving patient care. Seeing the forest and understanding each of the trees and their surrounding environment is a gift that thoracic surgeons generally have. We realize that patient-derived revenue is generally dependent on referrals, which is dependent on relationships with other physicians. As thoracic surgeons in a competitive environment, we know better than most the importance of communication with referring physicians and keeping primary care doctors in the loop and not feeling left out. Other sources of revenue that the thoracic surgeon director can bring to the institution include fundraising and grant procurement. Leaving academia does not mean leaving academics. A thoracic surgeon cancer center director in a community setting should strive to publish programmatic data, and encourage other staff from the various disciplines to do the same: this not only is good marketing and public relations, it truly allows the team to assess its own results critically and contribute to the body of scientific knowledge. In addition to involvement in clinical trials through cooperative groups or industry-sponsored research, National Institutes of Health (NIH) grants are available for clinical as well as basic science research in the cancer arena, including in nonacademic centers. Our current NIH/National Cancer Institute (NCI) grant and subcontract awards exceed many academic departments in dollar amount and scope of projects.

In conclusion, I paraphrase what I learned from Dr Denton Cooley on grand rounds one day in the Children’s Hospital in Boston, “Codify (your ideas), modify (to fit the specific environment), simplify (the process to make it easy and replicable), and apply (the new paradigm to your setting).” If one can transcend the personal satisfaction of doing a case, rise above the challenges of leading an operating room team, a thoracic surgeon can make an even greater difference as a program leader.

For more information on leadership, 2 classic books I suggest are Leading change by J.P. Kotter (Harvard Business School Press; 1996) and On Leadership: Essential Principles for Success by D.J. Palmisano (Skyhorse Publishing; 2008).

TONI LERUT, MD

In November 1973, when I was in the final phase of my residency in surgery, my Chief Professor Jacques Gruwez invited Mr Ronald Belsey to be a keynote speaker at an international symposium at our institution. Six months later, a letter from Mr Belsey arrived on my desk announcing a vacancy for a senior resident in his department at Frenchay Hospital, Bristol, United Kingdom. I was offered the position and went off to Bristol for what became a dazzling experience and the turning point in my career.

Being a brilliant surgeon, original thinker, and superb teacher, Belsey, in those days named The Pope of Esophageal Surgery, shared his skills and knowledge through personal example with the benefit of a masterly command of the language. Not surprisingly, this unique experience triggered my interest in thoracic surgery, as it most likely did for many of the approximately 45 other international trainees who became influential leaders in thoracic surgery.

Following residency, it was not clear to me whether I would pursue a career in private practice or in an academic environment. Being inspired by Mr Belsey and realizing that only a few centers focused on thoracic surgery, I decided to pursue an academic career.

Some years later, again through Mr Belsey’s influence, I was offered a scholarship to the University of Chicago where I met Drs David Skinner and Tom DeMeester. They both introduced me to the wonders of esophagology and widened my thoracic horizons by bringing me in contact with Drs F.G. Pearson and Joel Cooper. My exposure to their pioneering work in lung transplantation became the basis for starting our own lung transplantation program. Other inspiring leaders who have influenced my career include Dr Alberto Peracchia from Italy and Dr Hiroshi Akiyama from Japan. From this review of my career, it is clear that building a successful career is a gradual and multifactorial process.

To begin, I clearly had a great deal of luck. To be trained and mentored by a giant in thoracic
Building a Successful Career

James D. Luketich, MD

The development of a junior faculty member in an academic setting is a challenging endeavor. After a long and arduous residency, a young faculty member will face many challenges at any institution.

There are various pathways that can be pursued to climb the academic ladder. It is important to have a detailed discussion with the Cardiothoracic Chief or Chairman as to your goals and his or her expectations. Make sure that you do not choose a path determined only by what a Chairman or Division Chief is seeking, but also find a position with a pathway that excites you and is best suited not only to your background and skill set but also to your personal strengths and passion. Preliminary discussions of your goals and the Chairman’s expectations are crucial to your ultimate success and happiness in your new environment. The ideal institution is one that has adequate resources and mentoring that will allow you to succeed and one that places an emphasis on research at a level that is compatible with your personal goals.

The potential tracks for junior faculty surgeons in an academic setting include both a tenure track and a non-tenure track. It is critical to identify a focus for your work whether clinical care, teaching, research, or program development. Advancement in the tenure track is most frequently accomplished by the route of the surgeon-scientist, whereby one develops a focused research effort, characterized by originality of work, publications, grant funding, sustained productivity, and achievement of national/international reputation. This has traditionally been laboratory-based basic science research. Generally, a junior faculty member is expected to obtain extramural funding within 1–3 years of his or her appointment in the form of a start-up grant. Following this early success, achieving tenure in most institutions requires peer-reviewed publications, national presentations and additional grant funding at a more senior level such as Research Project Grant (R01) funding. For most competitive academic institutions, tenure promotion is a slam dunk if a clinical faculty member obtains R01 funding, assuming other requirements are met (for example, teaching medical students, institutional academic service, and a track record of publications in the area of the funded research).

Having a focused effort that encompasses basic science work and clinical and teaching efforts has certainly been a part of my success. I was interested in esophageal surgery, so I devoted significant time and energy to developing a clinical practice that included benign and malignant esophageal surgery. I developed early collaborative relationships with local and regional medical oncologists, gastroenterologists and other surgeons interested in esophageal disorders. The availability of corporate and industry funding to develop research and clinical studies related to minimally invasive esophageal surgery also facilitated my success. All of these...
led to peer-reviewed publications. Referring doctors began to associate our research with good clinical outcomes for their patients, and my clinical volume continued to grow. The relationships I developed with basic scientists helped me strengthen my own hypothesis-driven basic science research and improved my grant writing skills. While having a busy clinical practice that is directly related to your research is not essential, it gives you obvious advantages. Your clinical material can also support a tissue bank to facilitate your basic science projects and that of your colleagues. If you focus on research, focus your efforts on a specialized area of concentration. A common error is the tendency to be too diffuse.

Another route that can be pursued is one of a clinical investigator, although advancement for tenure promotion may be more difficult compared with the classical basic science model. This route may also provide satisfying advancement along a non-tenure track. These efforts can start with a more modest time commitment to research and can result in leadership positions in intergroup trials.

Outstanding contributions in teaching or innovation can also demonstrate that one’s work and career path are worthy of tenure. If you have spent considerable time successfully developing or improving a technique, as documented by publications, invited lectures and professorships, and other indicators of prominence in thoracic surgery, this may be considered a strong factor for tenure. A clear focus on education, particularly developing and providing medical student education, is necessary for advancement as a physician-educator. To be a surgical educator, you have to gain formal knowledge in education. Teaching awards provide documentation of excellence.

At our institution, advancement in the non-tenure track is similar to tenure track advancement, with a few notable exceptions. This track focuses on individual accomplishment, programmatic contributions and progressively increased responsibility over time. Being considered a role model by medical students, postgraduate trainees and junior faculty and a record of high quality patient care are also important. Less emphasis is placed on leadership and the ability to obtain external funding.

Although it is evident that you have to work hard, it is important to maintain some balance. Finally, be persistent and organized in your efforts.

DOUGLAS J. MATHISEN, MD

Building a successful academic career starts in medical school. The fund of knowledge acquired is the foundation for the rest of your medical career. An academic interest usually develops while in medical school and sets in motion the necessary elements to a successful academic career. Performing well in medical school opens the door to the best available residency training. The place in which you train creates an imprint that follows the rest of your career, and this is especially true for your cardiothoracic residency. Where you train influences your abilities as a surgeon. You will have a lifelong association with your fellow trainees, those who preceed you and those who follow. You become members of the same club! Your cardiothoracic residency has a great impact on getting your first job. Next to choosing a mate and whether or not to have children, fellowship training is one of the most important decisions of your life.

Residency training usually introduces you to the most important mentors in your life. They will be the ones who nurture you, educate you, and point you in the right direction. They are likely to bring out the desire in you to become an academic surgeon and educator.

Your first papers and presentations in your field are likely to come from your time as a resident. The cardiothoracic residency should be devoted to mastering the fund of knowledge and honing your technical skills. No matter what your ultimate career goal, being an outstanding surgeon clinician is the foundation on which to base everything else.

During general surgery residency, many choose to pursue time in a research laboratory. This choice may relate to what you pursue after completion of residency, but not necessarily. However, it should lay the foundation for scientific pursuit. With luck, it will still be applicable years later. In addition to being productive in the laboratory, this time should also be devoted to expanding your knowledge base; in surgery in general, and cardiothoracic surgery in particular. There is never enough time to read but, if you delay it, to your fellowship you will always be behind. Read, read, read.

As a young faculty member, it is important to choose a strong institution and a great person to work with. Choosing the right people to work with is the most important factor in early job selection. If you have chosen wisely, they will support you, provide you with opportunity, come to your aid in a crisis, and be there to fill in when you are away. Great colleagues ensure that you will look forward to coming to work every day.

Early on in your career you must develop the discipline to become productive. It is difficult to acquire later in your career; clinical demands will monopolize your time. You must extend yourself...
to write, give lectures, and participate in meetings. I always adhered to the philosophy of never saying no. If I said yes, I always did what was required and preferably on time. A good mentor should provide opportunity. What you do with it is up to you. I believe you should not narrow your interests too soon, but start to develop an area of special interest. It is then important to develop a body of work around this area of interest. This work can be clinical, basic research, outcomes research, or any number of things. It should be something you enjoy; it is not work then, it is fun! There are many pathways to academic prominance.

If you choose to pursue a basic science laboratory effort, it is best to start early in your career before clinical demands make it impossible. It is important to have a supportive mentor to help navigate all of the vicissitudes of laboratory work and funding. Joining an established laboratory accelerates your career and is the best approach. A laboratory effort brings personal satisfaction and acclaim to your group. One must recognize the challenges of trying to balance all of the demands of clinical, research, education, and family life. One should emphasize the importance of developing a balance between your professional life and family life, especially in the ascendency of your career, when family and professional demands are often in greatest conflict. Your family must not be shortchanged! Every person is different in how they achieve balance; there is not 1 prescription that works for everyone. It is important to find what works for you.

Throughout your academic career, making the residents you train a priority will always be effort well spent. You will develop a loyal following who will always add to your success. They will work for you, produce academically for you, and help you recruit other great residents in the future. Focusing on residents and their training is amongst the best investments in your academic life.

If you are fortunate enough to then be involved in the direction of a surgical group, putting together that group requires a great deal of thought. I have always thought of it as building a puzzle. Each piece is important and must fit.

Each member should contribute in a specific way. I have always believed each member has something to call their own. This approach allows the group to have broad interests. Carving out a niche for each develops expertise and improves work satisfaction. The group must be compatible, respectful of one another, supportive of one another, and put the interests of the group ahead of the interest of the individual. This collective effort will work to strengthen the group and generate recognition for your group.

This approach creates a collegial atmosphere and a desirable place to both train and work for others. Groups that are not put together with forethought and with an eye toward compatibility often become dysfunctional. As the leader of the group, one should strive to treat each member fairly, trying to promote their interests. If the members of your group are successful, you will be successful. It is important to devote time to promote your colleagues in their career. They will respond in kind by contributing to the group effort and remain committed to your vision.

I have always believed it best to stagger recruitments so that there is a range of ages within the group, allowing advancement and progression of the individual. This range also allows for orderly transition of people coming and going within the group or, ultimately, the retirement of you as the leader of the group. It is important to plan for succession to maintain the integrity of the group and have a long vision, not just ending with your retirement.

Planning for retirement is just as important as any other stage of your career. It is not just financial planning but how to keep your mind engaged and physically involved. If you have done a good job of organizing your group, you will continue to be a valued member well into your retirement. The wisdom and judgment that you have acquired over the years will be seen as a valuable contribution even in your retirement years.

Careful planning at all phases of your professional life creates a rewarding career, in which you also contributed to your profession, developed your own professional life, and contributed to the development of your colleagues.

ROBERT MCKENNA JR, MD

Building a successful career starts during training. Find a gimmick. Although it is difficult to predict the future, pick an area of cardiothoracic surgery that really interests you. Get training that makes you marketable and unique. When I was in medical school, I told my wife that I would not be just another general surgeon who could perform a cholecystectomy like 10,000 other surgeons in Los Angeles. Take courses or additional fellowships (eg, video-assisted thoracoscopic surgery [VATS] lobectomy, MBA) that make you different from others so that potential employers want you.

Find a job in an environment that allows you to be successful. It is important to operate, so you need a job that gets you busy soon. Ask from where your cases will come. What is the marketing plan? Find a niche in the group, such as maze procedures. Select patients who will do well after
your procedures. If you turn down cases that should not be done, referring doctors will respect that good judgment. Spend plenty of time with your patients. A good consultation for lung cancer includes showing the patient the computed tomography scans and discussing diagnosis, natural history, treatment options, and recovery. Patients will appreciate the time that you spend. A happy patient is your best marketer by telling their doctors and their friends how happy they are with you. Communicate well with referring doctors regarding consults, postoperative results, and follow-up.

Get involved in hospital activities. After a few years in practice, time for committees becomes limited, but there is plenty of time when starting a practice. Committees and hospital activities help you to get to know physicians at the hospital. Other marketing can also help to build a career. Give as many continuing medical education (CME) talks as possible. Clinical research helps keep you current and leads to journal articles that can be the basis for the CME talks. Giving a talk about your own experience and your data helps others to recognize you as a knowledgeable leader in the field.

Find a mentor. A job with cardiac surgeons who want you to develop a general thoracic program is not ideal. It always helps to have another surgeon whose specialty is the same as yours so that you can discuss cases and the program. It is difficult to be isolated as the only one in the group to do a specialty.

Ultimately, thoracic surgery is a great specialty. As Dr David Sugarbaker says, “Find a job, and make it the right job.” Good luck.

F.G. PEARSON, MD

Background

When I began surgical residency in Toronto in 1955, general thoracic surgery was still a subspecialty within the Division of General Surgery in North America. I was appointed to this subspecialty group in 1960. My professors at Toronto General Hospital and the University of Toronto were Drs Robert Janes and Frederick Kergin. Both were general surgeons who made pioneering contributions to the subspecialty of general thoracic surgery.

Cardiac surgery became an exciting and rapidly growing discipline during the 1950s, and residency programs were established in the combined subspecialties of Cardiovascular and thoracic surgery in almost all centers in North America and Europe. However, Toronto established a separate training program in Cardiovascular Surgery in 1958, headed by William Bigelow. Bigelow, another TGH General surgeon, was a pioneer in Cardiac and Vascular surgery, but was never a thoracic surgeon.

In 1967, Dr Norman Delarue and I requested and were granted the opportunity to restrict our clinical practice to general thoracic surgery in a separate surgical division. Approval and support for this initiative was given by the then Professor of Surgery at University of Toronto and TGH, Dr Frederick Kergin. This approval provided the University of Toronto and TGH with a unique early opportunity to develop an academic residency training program in general thoracic surgery. A history of the evolution of this surgical specialty in Toronto, and subsequently throughout Canada, is detailed in Pearson’s Thoracic and Esophageal Surgery textbook.

A Successful Career in General Thoracic Surgery

Clinical training

All candidates should seek the best possible clinical training experience. The program should include general surgery, ideally providing 1 year at the senior resident level. Proficiency in both flexible and rigid endoscopy is an invaluable asset which is not sufficiently emphasized in some North American programs.

The inclusion of esophageal surgery is strongly advised. Esophageal surgery is often difficult, and technically challenging. Good results in benign conditions may be demanding, but are very rewarding for patient and surgeon. Furthermore, esophageal surgery remains in no man’s land, and is not perceived to be the province of any particular specialty.

Mentoring

An important mentor was my elementary school science teacher, Dr A.G. Croal. His interest, skill, and enthusiasm made the biologic sciences a fascination. In my final year of high school, he persuasively advised me to become a physician rather than a high school science teacher. His message was, “Medicine provides many more options, and you may still end up teaching science, among many other opportunities.”

Surgical mentors include Professors Janes and Kergin in Toronto. They arranged my residency in Ronald Belsey’s Regional Thoracic Unit in the west of England. Belsey profoundly influenced my career, transmitting his unique experience and his original and innovative technical skills. He imbedded in me, and in many other international trainees, the critical importance of a good history (listening to the patient), unbiased observation,
and learning from one's mistakes. In the history of thoracic surgery, Belsey plays a pioneering role in championing the educational importance of long-term follow-up. He was an inspiration, friend, and supporter until his death in 2007, at the age of 97!

In a residency training program, the opportunity to act as a meaningful mentor is a gift and a rewarding opportunity.

**Team building**
The ability to work effectively in teams is invaluable, and becoming increasingly the norm in relationships with other specialties. Thoracic surgeons perform more effectively and more enjoyably working in collaborative groups and partnerships. Diminishing the incentive for economic competition between partners is potentially a positive feature in most successful, enduring groups.

**Learning and education**
Change and new information are increasing at ever more daunting rates. The need to assimilate and adapt is fundamental to our discipline, and increasingly favors identifying foci of special interest and expertise.

**Retirement**
To quote Ronald Belsey at the beginning of my residency on his service, “Young man! You must begin planning for your retirement on the day you begin practice!” He was referring to the pleasure and importance of outside interests and hobbies in a busy surgeon’s life. He lived his philosophy, and pursued his extrasurgical interests throughout his career and long after his retirement from the British National Health Service.

**CAROLYN E. REED, MD**

As I sit and interview candidates for cardiothoracic surgery, I am awed by the intelligence, talents, motivation, and altruism of these individuals. However, some actually ask me how I became a successful thoracic surgeon! It forces me to think back over a 25-year span of time, realize how much has changed in medicine, and focus on what enduring traits and activities are important to initial and, more importantly, ongoing success.

The first requisite is passion. Passion for your work fuels the long days and nights, overcomes the disappointments, and sustains the drudgery (eg, bureaucracy of paperwork, politics) It may not be immediately apparent how to focus this passion, but inevitably, in the first 5 years of your career, the niche that makes you tick becomes evident and you become more focused. There are many areas in thoracic surgery in which to excel, whether it is by clinical patient-oriented expertise, translational or basic science, education, administration, or health care policy. It is unlikely today that one can be successful in all the components, but it is important to recognize and value the whole.

To be successful, you must recognize and seize opportunities. Such behavior implies flexibility, willingness to welcome change and innovation, and the lack of fear to risk failure. The ability to change is difficult for individuals, and as people grow older, they tend to narrow the scope, not to widen it. Nowhere is it more clear than in the recent developments in thoracic surgery that such behavior invites failure.

This brings me to the third requisite to a successful career: a dedication to self-renewal. In medicine, particularly in emerging technologies, molecular medicine, changing climates of health care delivery, and so forth, the potentialities are endless. I recommend the book *Self-Renewal* by J.W. Gardner (WW Norton; 1995) to my colleagues.

Inevitably, some candidates, particularly women, ask how these enduring qualities applied personally to me. I first would say that it was a different time and place, but specifics may be helpful. I was never going to be a cardiothoracic surgeon, but I found the passion (general thoracic oncology) during a surgical oncology fellowship. I seized the opportunity to do a cardiothoracic residency and never looked back. I chose a job in which I felt I could make a difference in patient care and resident education, and there was nobody but myself to build and lead a multidisciplinary team in general thoracic surgery. As a woman in a field populated by the other gender, I was often the token committee member at the local or regional level. It did not bother me because I used the opportunity to learn new skills, broaden my horizons, and meet new people, some of whom would become mentors. I was fortunate that my senior colleagues fostered my national career, and it was important to me and the women who have followed, and will follow, that these activities were successful. I think I put some cracks in the glass ceiling.

My success in thoracic surgery will always be embedded in my clinical work. Caring for the patient is the bedrock of medicine. It is bothersome that some individuals stray away. Each patient’s thanks, hug, or letter is a measure of a successful career. Over the years I have kept a record of these tributes, and it is stark evidence that one can make a difference. I try to instill in my residents that everyone is capable of this measure of success. I suggest that prerequisite reading for all residents should include *How Doctors Think* by J. Groopman (Houghton Mifflin Co.; 2007).

The imparting of my skills, judgment, and values to the future of thoracic surgery, the residents, is
a daunting task. However, the reward is great. When a resident calls with excitement and pride to relate how he or she has accomplished a complex procedure you taught, you experience success.

I do not know if I belong in the category of influential thoracic surgeons. However, in the eyes of my patients and residents, I know I have made a difference, and that is enough for me.

JACK A. ROTH, MD, FACS

I have been asked to describe from my perspective what it takes to build a successful career. Success is in the eye of the beholder. I would first advise that one not strive for career achievements that will be believed to be perceived by others as hallmarks of success. Success should be measured by personal satisfaction and does not require external validation. In my experience, pursuit of success as a goal is elusive and the real rewards are to be found in the journey. I have been fortunate to have a career that combined thoracic oncologic surgery with clinical and laboratory research, resident and fellow education, and departmental administration. This combination does not appeal to everyone, nor is it in any way a prerequisite or formula for a successful career. Although this was a career track that defined many prominent academicians in the past, the complexities of contemporary surgical practice, research, and education have contributed to the abandonment of the triple threat as a realistic goal. Career success can be achieved by pursuing 1 of these areas in depth. The choice of thoracic surgery as a career was critical for me. As a medical student, I was fascinated by the anatomy in the chest and also realized that there was an unmet need for treatment of thoracic cancers, with few surgeons in the specialty. Planning your fellowship training to meet future unmet needs in areas with a shortage of specialists can make one very much in demand. I have been privileged to practice thoracic surgery in 2 great institutions: the NCI and the University of Texas MD Anderson Cancer Center (UTMDACC). I have also been privileged to have worked with many outstanding surgeons as mentors and colleagues. Although much of my career has been devoted to clinical and laboratory research, the uninterrupted practice of thoracic surgery has always been important to me because it is personally rewarding to treat patients, intellectually challenging to deal with complex cases, and useful to keep in touch with the critical clinical questions and current technical advances in diagnosis and treatment. Clinical and laboratory research has been an important component of my career. The surgeon scientist contributes to progress in our specialty, and thoracic oncology presents many novel and important research opportunities with the potential to make advances in patient care. If you choose this path, a 2-year to 3-year research fellowship in a top-tier laboratory is a requirement. The variety and consistent challenge of combining research and patient care contributes to career longevity and avoidance of burnout. For those readers interested in a thoracic surgery research career, I present a brief perspective on some principles that have been useful to me in choosing areas for scientific investigation.

Maintain an Active Clinical Practice Throughout Your Career

Technical mastery and expertise in thoracic surgery is required. Continuous exposure to challenging clinical problems provides inspiration for formulating important research questions. You will also be prepared to translate new diagnostic tests or therapies to clinical practice.

Focus Your Research on Problems Related to Your Specialty

The clinic and operating room are laboratories. Many of our treatment strategies have suboptimal or unproven efficacy. In designing clinical research, it is important to be pragmatic as well as innovative. A clinical trial may be interesting but impossible to complete because of a lack of patients or resources. Investigate the most important clinical problems despite their difficulty. Answers to trivial questions result in only an incremental advance at best and still require great time and effort. An important corollary is that problems should be chosen that can be solved with current technology or technology that can be readily developed. My clinical research early in my career exemplifies this concept. The outcomes from surgical treatment of lung and esophageal cancer were dismal when I began my career at the NCI. However, for the first time, new platinum-based chemotherapy was shown to cause tumor regression in a high percentage of cases. Because most relapses were systemic metastases, it seemed logical to give chemotherapy preoperatively when metastases could not be detected clinically and tumor shrinkage could facilitate surgery. I initiated the first randomized trials in preoperative therapy in lung and esophageal cancer.2–4 Although the trials were small, the results provided direction for future clinical trials and stimulated research.
Investigate Research Questions that Have Biologic Relevance

If you have a laboratory or collaborate with laboratory scientists, investigate research questions that have biologic relevance. Cancer research progresses in increments, and the likelihood of making a major therapeutic breakthrough is low. However, carefully designed experiments and clinical trials yield important biologic insights that may point to a new direction. For example, for many years our research group has been studying genetic abnormalities that contribute to lung cancer development. This work has led to a novel therapy that replaces defective genes in lung cancer cells with normal functioning copies of the gene. This work progressed from the laboratory to successful clinical trials in a period of 20 years.5–7 Funding this research was, and remains, a challenge and involved obtaining grants from the NCI, foundations, philanthropy, and industry. When designing research protocols, it is important to let science dictate the technique. Searching for applications for techniques or devices rarely leads to conceptually significant results.

One of the most personally gratifying experiences for me is acquiring new knowledge that can benefit patients. Surgeon scientists have contributed greatly to advancing scientific knowledge and patient care. This career path is challenging and ultimately deeply rewarding.

VALERIE W. RUSCH, MD

Some surgeons seem to have followed a nearly charmed path to academic success and international renown. They are often the beneficiaries of outstanding residency programs and excellent mentoring, and seem to have had great wisdom early on about their career development. For various reasons, including the paucity of senior women thoracic surgeons when I was training, my career path has developed through patience, persistence, and fortuitous circumstances, with both good and bad decisions. The academic career advice that I give trainees is based on nearly 30 years of these professional life lessons and can be summarized in the following 8 points:

Select an Academic Focus

This should be a topic; a disease or a scientific question that interests you the most. Achieving international respect from your colleagues takes years of effort and requires making a lasting scientific contribution. You cannot achieve this unless you are intellectually challenged by the topic. In addition, the subjects on which you publish and are deemed an expert will influence the scope of your clinical practice. Consider this carefully as you select your academic focus.

Acquire the Correct Skills to Pursue Your Academic Focus, Even if this Requires Some Retooling After the End of Clinical Training

For instance, it is fairly common for surgical residents to spend 2 years in the laboratory in the midst of clinical training only to decide later on that they prefer to be clinical investigators or educators. They then start their careers without the requisite skills for these career pathways. Given a supportive division chief and the appropriate infrastructure, additional training leading to a Master’s degree in fields such as clinical investigation, biostatistics, or education can be combined with starting a clinical practice and will greatly enhance the productivity and skill sets of a young academic surgeon.

Become a World’s Expert by Studying Your Chosen Academic Topic to an Unparalleled Degree

Ask and answer fundamentally important and well-designed research questions about your primary area of interest. Do not publish trivia or superficial studies. Do not allow yourself to become academically diffuse, publishing on such a wide range of topics that you become the jack of all trades and master of none. Apply to your research the same drive for excellence that thoracic surgeons bring to clinical care.

Build the Correct Infrastructure for Your Research Because You Cannot Do it All Yourself

Such infrastructure is more easily defined for laboratory investigators where there are traditional parameters for surgical fellows, laboratory technicians, and postdoctoral scholars. Clinical and translational investigators require different and varied infrastructure such as data managers, research nurses, and tissue banks.

Develop Collegial and Productive Collaborations

Whether your research is clinical, translational, or basic science, the best research these days is multidisciplinary. Be inclusive and supportive of your research collaborators, especially with respect to publications and grants. Cross-disciplinary research is interesting, fun, and rewarding.
Seek Mentors

Peer review and senior advice is frequently helpful and most senior academic physicians are delighted to provide this. Mentors may be surgeons but are also often found in other specialties or even nonclinical settings.

Carefully Guard Your Most Precious Commodity: Time

Balancing clinical care demands with academic work and your personal life is extremely challenging and only becomes harder as you advance in your career. Figure out what really matters to you academically, create time for it, and do not be afraid to say no to other demands on your time, especially tangential administrative ones.

Develop 5-Year Plans

It is important to take stock every few years (and 5 is usually a good number) of what you have accomplished and where you are heading. Consider whether your goals and interests have shifted. Plan for where you want to be academically in 5 years. Make midcourse corrections, but systematically and strategically.

Developing a successful academic career is difficult given today’s many competing demands on every surgeon’s time. It is hard not to be overwhelmed by the need to sustain a busy clinical practice, by ever-increasing regulatory requirements and administrative tasks. Setting the parameters that allow academic success through meaningful contributions to our field is challenging.

It is hoped that some of these guidelines, garnered through life lessons, will help younger surgeons achieve their academic goals.

DAVID J. SUGARBAKER, MD

The path to establishing yourself as a general thoracic surgeon is unique for every individual. No single formula exists. Concrete factors that influence the direction your career or practice will take include geographic location, patient demographics, local competition, referral patterns, and whether you are operating in an academic or private setting. Although areas under your direct control, like refining your craft and acquiring new technical skills, may consume much of your time when you are starting out, establishing yourself as a leader is one of the best and quickest ways to build a practice and effect change. When patients and consultants need a thoracic surgeon, they seek the local, regional, and sometimes national leaders in the field. In this regard, it is difficult to overestimate the value of being a good communicator.

What are the elements of leadership in surgery? Scientific advancement is certainly paramount, as is identifying changes that will result in quality improvements in services provided at your hospital or medical center. Being willing to get involved with hospital administration and the local medical community is also key. The overriding question you must ask yourself is “How can I, as a thoracic surgeon, take action to initiate change that will improve patient outcome?”

Leadership begins at the local level. Tiny steps that initiate improvements in the delivery of medical care in your local hospital or community can lead to sweeping changes. Actions you take may affect the physical outcome of your patients. What can I do to avoid complications or enhance therapy or improve my patient’s functional status measures? Other actions may improve service outcomes. These actions affect the physician-patient relationship. Such actions are measured in terms of satisfaction, and the benefits extend to families, communities, other caregivers, vendors, and employees. You might ask, “How can I make changes that turn the experience of being a patient or caregiver from a hassle to a convenience?” Other actions important to the modern era include cost outcome measures. How can I reduce the cost of a clinical process to make it more affordable for patients? How can I stretch the health care dollar? How can I reduce the overall financial burden of disease on the health care system?

Leadership at the national/international level relies on scientific advancement, multidisciplinary collaboration, and participation with peers through membership in professional societies. Scientific advancement at the basic research level takes time because of the complexity of the biologic systems involved in the interpretation of disease in this molecular-genomic-proteomic-informatics era. In this regard, it is helpful to focus your efforts on a particular thoracic disease or difficult clinical problem. Become an expert. Establish a record of excellence through the publication of your ideas.

In our profession, we have all experienced the unique benefits of mentoring. We can learn a great deal from these relationships, whether you are the mentor or mentee. You do not have to be in academic practice to get involved in mentoring, teaching activities, and CME. Medical conference participation may arguably be more important for individuals in private practice than staff surgeons at an academic center where there is greater exposure to interdisciplinary case conferences,
teaching conferences, and lecture series. If you are working with mentees in the academic environment, as a chief or program leader, there are several important goals to bear in mind. First, you must help them develop their personal skills by providing the necessary resources. Second, you must guide them to find a clinical niche that best matches their experience, skills, and interpersonal abilities. Third, you must help them identify their academic niche. Where can they best apply their knowledge? Where can they make a difference? What questions need an answer? Forth, and most important, you must help them to define the next step. What are your expectations of them? What should they do to get to the next step scientifically or personally? What is keeping them from advancement or promotion?

In the end, we are all grounded by what we do in the clinic and in the operating room for our patients and their families. The decisions we make on a daily basis are often difficult and demand preparation, attention to detail, patience, and sacrifice. We cannot be afraid to make tough decisions or take difficult stands. Our reward comes from knowing that we have made an important contribution, whether to science, surgery, or society.

MANOEL XIMENES III, MD, PHD, FACS

My first role models in surgery were my professors of surgery at Ceara University School of Medicine in northeast Brazil. My interest in thoracic surgery began during my internship at Euclid General Hospital in Ohio while watching 2 general surgeons, Drs J.W. Coburn and Jorge Medina, care for patients. After finishing my internship and considering many options in both Canada and the United States, I decided to train in the Huron Cleveland Clinic Health System. During my senior year as Chief Resident, I had the privilege of meeting Dr John Storer, Head of Thoracic and Cardiovascular Surgery. Dr Storer was a skillful surgeon who taught me a variety of procedures including valve replacements under extracorporeal circulation, peripheral vascular surgical techniques, as well as bronchoscopy and arteriograms. Dr Storer also taught me how to start, write, and publish a scientific paper involving clinical case reviews and prize-winning basic science work from the laboratory.

On my return to Brazil, I worked at Federal University of Rio Grande do Norte in Natal, RN. In 1974, I became a full Professor of Surgery at University of Brasilia and Head of Thoracic Surgery at Hospital de Base of Federal District where I am currently located. To date, we have cared for more than 10,000 patients at both the private and public hospitals. In my position as Professor of Surgery, I was able to complete my PhD degree.

To learn and practice new techniques I visited several medical centers including: TGH to learn mediastinoscopy with Dr Pearson and lung transplantation with Drs Patterson and Cooper, University of Michigan to learn transhiatal esophagectomy with Dr Orringer, Maine Medical Center to learn lung resection techniques with Dr Hiebert and the Massachusetts General Hospital to learn surgery of the trachea with Dr Grillo. For more than 30 years, I have attended the Toronto Refresher Course and all the information obtained in these meetings has been conveyed to allied health professionals, residents, and attending staff. I would also recommend the postgraduate course at Oxford University, England, as a source of good learning.

In 1976, we established a training program in general thoracic surgery and have graduated 27 thoracic surgeons thanks to our affiliation with the University of São Paulo. All of our residents are encouraged to do research and write papers. To date, our group has published 173 scientific papers, 3 textbooks, and 25 book chapters, and has given 1250 presentations at various surgical meetings. Our residency program also has a strong commitment to education, with most of our residents completing a 3-month rotation at a major medical center such as the TGH, Cleveland Clinic, and Mayo Clinic. Our teaching program also includes journal clubs and weekly grand rounds with case presentations and didactic presentations.

At 65 years of age, I considered retirement; however, 10 years later, I continue to perform the same tasks that I am used to doing (ie, teaching, operating on major cases, keeping long office hours, and attending surgical meetings all over the world). I also enjoy walking (no elevators) and regular tennis and fishing.

In summary, if a young individual wants to become a thoracic surgeon, my advice is to (1) be prepared to deal with difficult cases, (2) love the specialty, (3) be available to patients and colleagues 24 hours a day, (4) pass on all the information and share your experience, (5) be open minded to learn from success and mistakes, (6) read every day, and (7) recognize that it is time to retire when you no longer are capable of doing your everyday routine.

ANTHONY P.C. YIM, MD, FRCS, FACS

It is truly an honor to be asked to contribute to this monograph as the only surgeon from Asia. I received my medical education in the United Kingdom and surgical residency in the United States. I returned to Hong Kong in 1992 to
practice. This experience allowed me to gain first-hand information on health care delivery in some vastly different systems. I would like to offer the following advice to our younger colleagues drawn from my own experience.

**Attention to Detail**

If I have to single out 1 character to differentiate a good technical surgeon from an average one, attention to detail (almost to the point of obsession) tops my list. For a technique-based specialty like surgery, this is crucial to achieve consistent, reproducible results. During residency, we were exposed to a wide spectrum of perioperative routines adopted by our attendings. Variations breed selection. With time, we formulate our own routine. However, learning does not and should not stop after residency. The biggest enemy of success is complacency. We must be reminded not to let our best performance so far set the standard for the rest of our career.

Attention to detail also does not stop at technique. When you are treating a patient, you are not just treating a disease, but a person (and sometimes a family). Patients and their families often take to heart every word we say to them. A good surgeon is someone who does not only know how to operate but also knows how to effectively communicate with others.

**Think Outside the Box**

Cardiothoracic surgeons, by their nature and training, tend to be conservative. We spend nearly a decade of training to do just a few operations well. We inherit a set of routines from our teachers, and we tend to resist changes that, by their nature, introduce an element of uncertainty to the outcome. Although there is nothing wrong with this approach from a purely technical standpoint, this mindset does not prepare us well for a rapidly changing world. We therefore must keep an open mind to new ideas, even though they may seem farfetched at first sight. A good case in point is VATS lobectomy. Two decades ago, this was a heresy. Today, it has become the approach of choice for early lung cancer.13

It is important to look beyond our own field, because the role of surgery as we know today will change. MIS will become more refined, and more procedures will become either catheter based or endoscopy based. The boundaries between surgery, interventional radiology, and interventional endoscopy will eventually disappear. Many medical specialties of today will be transformed into the organ-specific, integrated disciplines of tomorrow.

**Stay Focused**

If you are pursuing an academic career, it is important that you should stay focused on your area of research. You should also collaborate with your peers, both within and outside your field. Early in my career, I saw the great potential of applying the minimally invasive technique to the thorax, which arguably is the most ideal body cavity for this. During that time, several groups of surgeons in the United States and Europe were pursuing the same goal. It did not take long for me to get to know each of these great individuals well, and some of them remain close friends to this day. We published together our collective experience, and the initial success of my career owes a lot to this collaboration. Within my university, we have collaborated with departments outside surgery to look at MIS from other perspectives, such as with the Department of Physiology on immune function, and the Department of Engineering on virtual reality training modules. When you have written more than 20 major publications on the same theme, you will be recognized by your peers as an expert in that field. Once you are a recognized expert on 1 subject, it will be much easier for you to expand your research scope into other fields.

**Watch Your Back**

Whenever you become successful in your own field, you are prone to become a subject of jealousy. There is an old Chinese saying, “Only the fools don’t attract jealousy.” Your very existence could be perceived as a threat to others (and not only to your peers). This jealousy is human nature and we are bound to face challenges. We should be constantly reminded that our primary responsibility is to our patients. Success is not only measured by how smooth your career sails, but by the tenacity and determination to rise again after a fall.

**SUMMARY**

In conclusion, I would like to thank the contributors of this article who have been recognized as outstanding leaders in thoracic surgery. From their own unique perspectives, they have each provided valuable insights that are important in developing a successful thoracic surgical career.

**REFERENCES**