A Mind of Winter

Vincent A. Gaudiani, MD

Introduction

Thoracic surgery has changed profoundly in the past thirty years, and although many of these changes have enabled us to serve patients better, others, particularly within our business environment, do note bode well for the future of our craft. Caseloads are level or declining, catheter based technologies are improving, income is down, and public scrutiny is up. I propose to explore some of these latter changes in our profession and to suggest some ideas that may represent effective responses. Such responses must address two questions: precisely what business are we in, and what is the best way to manage it now. This is a tall order because thoracic surgery is actually a cluster of specialties practiced by surgeons with substantially different outlooks and goals. My own outlook is that of a busy practicing community surgeon without academic affiliation, and without political leadership responsibilities. In order to simplify the problem, I am going to concentrate on adult cardiac surgery because I have suffered a thirty- year addiction to it and because it represents the bulk of thoracic practice.

I want to begin with the simple idea that our field developed rapidly in the past fifty years, and during this time we focused on developing operative techniques and technologies to treat cardiac disorders. When it began, cardiac surgery was a daring forefront; now it is a maturing discipline, best described as a multibillion-dollar business. Cardiac surgery began at a unique time in our national history when there were no large medical technology companies, and our government sponsored the development of huge research universities. Our intrepid founders worked for the most part in those large institutions whose mission included and still includes research and teaching as well as patient care. These were not businessmen. Such issues as quality control, customer service, production cost, and marketing were not part of their vocabulary. For the most part they were interested in saving lives, and for better and worse they communicated their goals to us. This original grace along with its shortcomings persists, particularly in our field so steeped in hierarchy. This simple idea will recur in other portions of this paper.

Perhaps the easiest way to examine the evolution of our craft is to review the changing expectations of our larger society, our customers, our trainees, and our suppliers. These are, of course, interrelated, but perhaps we can tease out sufficient strands to weave a coherent view of the present and the near future of cardiac surgery. In the remainder of this paper I will discuss some of the most troubling aspects of these relationships, and at the end, make specific recommendations.

Society

Our society used to stand in awe of our accomplishments, and cardiac surgeons were considered heroes. We were credited with our successes, and society perceived the cup to be at least half-full. Now, our society is more likely to perceive the opposite. In

general the society is holding medicine and other professions more publicly accountable, witness the Libby Zion controversy with subsequent legislation or the Institute for Medicine's report on iatrogenic injury in hospitals. Early on, we held the only therapeutic options for cardiac patients, but now there are many, and patients are more skeptical. Because we care for so many seriously ill patients, some will die, and the "body count" offers an opportunity to scrutinize our efforts. Several States have passed legislation mandating public reporting of our results, and others are planning similar bills. Such public scrutiny may have improved some weak programs and closed others, but it has yet to cause a major change in the way we regulate our own profession. This is not the result of moral turpitude, but rather the result of our heritage. We were trained to discuss death and complications at morbidity and mortality conference, not publicly. I would venture to bet that none of us ever heard the words "comprehensive quality assurance" during training, and most of us do not meet regularly to discuss quality problems and outcomes with the entire team of surgeons, nurses, perfusionists, anesthesiologists, and allied personnel who serve cardiac surgery patients in our units. How many of us are regularly comparing our results and complications to the enormously useful STS databank? Why have we not used this databank to establish "best practices" and discourage outmoded ones? We re-certify ourselves on the basis of book learning with no provision to present outcomes within one standard deviation of the mean. Our scientific and academic culture has not prepared us to respond to the societal demand for increased accountability as a business, and the time has come to change that.

Customers

Cardiac surgeons serve two customer groups, cardiologists and patients. Cardiologists have always been our prime customers and colleagues, but in the past twenty years, they have also become competitors because they can effectively treat many of the patients they formerly referred to us. This has caused an enormous change in our relationship for two reasons. First, we have difficulty competing with and serving our customer at the same time. Second our customer must choose between referring to us or to himself. The commonest response among cardiac surgeons has been the classic one: "the customer is always right," and we have tried to do exactly as we are asked, when we are asked, because we don't want to lose the business. This is a reasonable response, but it creates some important problems discussed below. Unfortunately some of us have tried a less reasonable response, namely to "market" unproven technologies in order to compete with our primary customers. A few years ago one hospital was advertising itself as the "Heartport hospital of Los Angeles" well in advance of any demonstration that this approach was as safe as more traditional operations. Now, some are touting "robotic surgery," but the same caveat applies. At present in Northern California there are more robotic devices than there are surgeons who have performed 250 mitral valve repairs. Doesn't this strike you as unseemly? Of course we recognize that our customer/competitors have often marketed techniques and technology well in advance of proven utility or safety, but most of their interventions are inherently less dangerous, occur in less ill patients, and/or have cardiac surgeons as safety nets. As the court of last resort, our approach must be different.

Our secondary customers, the patients, are a part of the larger society and hold us accountable, but unlike other citizens, they are sick and therefore frightened. They are particularly vulnerable to misinformation. When they face a major operation, they need good advice, reassurance, and time to prepare themselves and their families. It is difficult and time consuming to achieve informed consent in such situations, and nearly impossible when they have just undergone a cardiac catheterization. Yet many such patients are operated upon within a day or two during the same admission at the request of our primary customers. In true emergencies, this is unavoidable, but in general this creates a conflict of interest for cardiac surgeons who must choose between the patient's needs and the request of the cardiologist. This conflict was less acute when expectations were lower, but now we have seen a program in California close because of lawsuits that allege improper decision-making by physicians. How many of these cases would have been averted if the patients had been sent home after evaluation, had met and reviewed findings with their surgeons, and been scheduled at a time of mutual convenience?

Trainees

It is difficult to imagine a more fulfilling career than to wrestle with the challenges of repairing the human heart, but now fewer trainees are applying to learn our craft. There are as many explanations for this as there are wise men and fools, but most businessmen know that the market doesn't lie, so we must accept reduced interest in cardiac surgery or make it more attractive. The training is long and arduous, personal and family sacrifices are great, income per case is down at least 50% in 1988 dollars, the forefront appears to be in catheter based technologies, and good jobs are difficult to find. Why would anyone want to follow us? The last few sentences summarize a paradox that we must resolve, but the resolution requires some assumptions about what the future of cardiac surgery will be, so I will defer that until the end of this paper.

Suppliers

Our suppliers developed intellectual capital from the research universities and entrepreneurs inside and outside of medicine, and they obtained financial capital from the business world. They have grown with us and enabled us to serve patients better. The challenge in our relationship with our suppliers involves some interlocking conflicts of interests. Surgeons want to be at the forefront of technologies that may help patients. Suppliers need sales to meet Wall Street expectations and to innovate. Entrepreneurs need to go public or be purchased by a large company in order to achieve liquidity. These are all legitimate goals, but taken together they can conflict with our sworn obligation to first do no harm. The rush to improve and simplify the Cox maze operation provides a current, but by no means isolated example. I doubt that there are 25 surgeons in the United States who have performed more than 50 mazes, but most of the technology companies are now mass marketing devices that ablate atrial tissue without cutting, sewing or cryoablating, the only proven techniques to cure atrial fibrillation. Surgeons are purchasing these devices because they want to help those with atrial fibrillation and because coronary bypass volume is down. Suppliers want to sell them for the reasons noted above, but what about the patients? No one really knows the appropriate lesion set for these devices, the FDA has approved them in a generic way, not to cure atrial fibrillation, and there are no studies yet that convincingly demonstrate that they are

effective. This is not right. Our laudable willingness to innovate must be tempered by the efficacy of the alternatives available and by statistical evidence that the innovation is at least as safe as current therapy.

What is our business?

At the outset of this discussion, we identified two important questions that we must answer, what business are we in and how should we manage it now. Along with understanding the conflicts posed above, the answers to these questions will guide appropriate recommendations. First of all, we are not primarily in the business of performing cardiac operations although many of us have been reduced to this role. We are primarily in the business of providing information about operable cardiac diseases to other physicians and their patients. In the process of doing this, we offer an invaluable service to our customers. To the extent that we simply operate when asked and do not provide information, we are failing in our primary business function, and we invite our marginalization. Secondly, we are managing a declining business. This does not imply disaster, but it does require understanding. Improvements in less invasive intervention and medical therapy are likely to grow faster than our aging population so we should plan accordingly. In addition, percutaneous coronary intervention no longer requires cardiac surgery back up, and we expect some contraction in the number of programs when licensing agencies figure this out. Other businesses have faced the challenge of decline including railroads and coal mining; they are both still around. How should we react?

Recommendations

For the sake of discussion, we will make recommendations aimed primarily at clinicians, academicians, and the societies and boards that represent us with the clear understanding that these groups overlap. At the outset, I recognize that I have no experience in academia or the societies that qualify me to offer advice. These ideas just make sense to me, but *caveat emptor*. Clinicians should take three steps immediately. First, make sure you are organized to provide maximum information to patients and cardiologists. This means avoiding operating on hospitalized patients who are not truly emergencies, but discharging them and consulting with them as outpatients. If the catheterization was elective, the proposed operation should also be elective. Our goal should be to see 80% of patients in the office before scheduling an operation. This is about the rate in Canada. Second, establish comprehensive quality assurance in your hospital. This is not the pro forma expiation that meets JCAH requirements, but a determined attempt to improve customer service, outcomes, and process within the hospital. This cannot be done without reporting your results to the STS databank and trending your outcomes and complications against the national STS norms. Third, avoid using technology as a marketing device. Unless you have extensive experience in a given area or are part of a controlled trial, do not adopt “hot” new ideas until there is at least one large trial demonstrating equivalent safety and improved efficacy in the new technique. You cannot give informed consent without this minimum. As a business matter, the major technology changes have not had a very good track record. The Ross operation in adults, the Heartport approach, and off bypass CABG have not revolutionized our craft. They each contain interesting and useful ideas that were not sufficiently tested before being touted as improvements.

Academicians may wish to consider two additional steps. First, reorganize to care for patients without residents. Many private groups get excellent results without house staff. Find out how they do it. The classic academic clinical service layered with attendings, fellows, residents, interns, and now PA's, is an expensive relic of a time when hospitals controlled pricing. Those days are obviously past. A busy private practice can manage about 250 patients each year per senior surgeon and PA. If this level of productivity is reduced by half to permit the academic surgeon to pursue research and teaching, many units still employ too many people. Junior house staff should be entirely elective, and this group, as well as fellows, when available, could join the service primarily to learn. This will permit you to, second, train fewer people and improve the profitability of cardiac surgery. This is appropriate for a declining business, but one that must train only the best. We doubt that cardiac surgery will get easier in the next decade; we all recognize it became more difficult in the last decade. If you reduce the number of trainees by 50%, you may eventually create a shortage of heart surgeons. That would be a welcome change, and some recent interviews with finishing trainees support it. When an excellent candidate shows up, he or she can be treated as a junior or apprentice staff member and paid as much as a topflight physician's assistant. Training in this environment will be more relevant to the "real" world for two reasons. First, most heart surgeons do not function with three levels of residents as well as physician's assistants. Second, trainees need to learn not only how to operate, but how to manage a safe, efficient system of patient care. Finally, the improved profitability from these efficiencies may not change your income, but it increases your power within the institution.

The American Board of Thoracic Surgery accredits us and is therefore a regulatory body, and the STS is our largest learned society. Learned societies have a rich history of intellectual advancement and political intrigue that dates back at least to the Royal Society in England. That tradition is alive and well, and we hope it will always continue. New ideas require a forum for discussion, debate, and review. This function must be sharply distinguished from that of the regulatory body that assures the public that its members meet certain standards of performance and from the political functions of STS. I want to focus on these latter two functions and respectfully suggest the following ideas.
First, re-certification should require all cardiac surgeons to submit all personal and corporate (private and university) operating results to the STS databank. We cannot set standards to reassure the public unless we doggedly measure our individual and corporate outcomes. We cannot improve unless we trend our own outcomes against STS norms. Second, re-certification should require evidence of a robust quality assurance mechanism that hunts down the causes of deaths and complications that exceed STS norms. The privileges of membership must be denied to those who will not contribute. Third, ABTS and STS should regularly produce lists of preferred as well as outmoded practices and publish them along with the supporting evidence. They should focus on specific technical issues. A surprising number of us still cool to 28 degrees for routine cases, side bite the aorta to perform proximals, and use other outmoded techniques. Such issues are not at the forefront of surgical research, so our regulatory and political functions should identify them and discourage their use. Finally, our regulatory and political functions should monitor major, new technological innovations and label them as

experimental, possibly useful, or established. This might discourage willy-nilly marketing of the unknown to the unwary and help establish legitimate clinical trials for new ideas.

Our extraordinary craft began with a set of ideals to repair the heart and prolong useful life. They remain valid today. However, our extraordinary craft began in a business environment that no longer exists. Some of the problems we face loom large because we have not adequately separated our true inheritance from the inevitable anachronisms that accompany it. Now each of us is part of a large, regulated, mature, scrutinized business that may be declining, but is not likely to disappear. To chart a course for this craft, we must begin with a re-evaluation of how we ourselves think about this craft, and how we can best serve in the current environment. This is what it means to have a "mind of winter" in Wallace Stevens' poem *The Snowman,* the capacity to decipher a difficult environment, recognizing our emotional connection to it, yet retaining analytic capacity. I hope that this brief outline will help to chart the course.