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Anyone who is elected to this office, after the immediate elation, begins to recognize with increasing trepidation that he has to come up with a presidential address. The difficulty of thinking of something of any interest to say to several thousand cardiothoracic surgeon colleagues is stressful to say the least. Usually it seems the first step is to go back and read the presidential addresses of the past presidents to try to get some guidance. Unfortunately, in most cases, this process simply leads to the recognition that someone much more erudite and eloquent has previously discussed most of the important topics. It is inevitable that the presidential addresses tend to focus on the major issues in our field. These challenges include the necessity of change and the imperative of innovation, the difficulty in residency training and attracting qualified young surgeons into our area of specialty expertise, the challenges of the health care system in the United States and its continual pressures on reimbursement and yet increasing requirements for administrative activities, and the responsibilities of our profession to underserved populations around the world. Ultimately, all of these topics share the common challenge of defining, attaining, and maintaining quality in cardiothoracic surgery.

As medicine evolves in the United States, there is an increasing quest for quality outcomes that provide value for dollar spent. The mantra of quality has been taken up by political leaders and major players in the entire health care field. *Quality* is the new buzzword in health care policy. A search of 3 major journals in our field (*Journal of Thoracic and Cardiovascular Surgery*, *The Annals of Thoracic Surgery*, and *European Journal of Cardio-Thoracic Surgery*) since 2000 reveals over 500 articles with *quality* as a keyword. The difficulty in providing quality is perhaps not so much the actual provision of quality care, which we in cardiothoracic surgery have been doing for years, but the ability to define *quality care*. In some respects, *quality* is a bit like pornography. As Justice Potter Stewart[1] said in a landmark obscenity case: ''I shall not today attempt to further define the kinds of material I understand to be embraced within that shorthand description; and perhaps I could never succeed in intelligently doing so. ***But I know it when I see it*** [emphasis added], and the motion picture involved in this case is not that.''

To some extent, *quality* has the same difficulty of identity. We may not be able to define it very well, but we know it when we see it. However, complicating the discussion is the fact that *quality* does not necessarily mean the same thing to everyone. What we as cardiothoracic surgeons mean when we discuss *quality* is usually quality outcomes, whether in an elegant operation, innovative research, or effective teaching. To an insurer, *quality* may mean lower cost and higher profit. To politicians, *quality* may mean availability and affordability, and to the patient, *quality* may mean accessibility, comfort, and efficiency. Thus, we have a ''quality conundrum.'' The *Oxford English Dictionary* defines *quality* as ''the degree of excellence of something as measured against other similar things; or general excellence.'' A *conundrum* is defined as ''a confusing and difficult problem or question; or a riddle.'' We are increasingly challenged to improve the quality of our care, but no one can agree on an accurate definition of quality to provide a framework. Our surgical results are reported publically, yet the data are statistically inadequate to allow valid comparison of outcomes among centers and surgeons. Our reputations and reimbursements may be held hostage to invalid and inaccurate measures of quality. We are expected to innovate, yet chastised for ''failures.'' We are asked to train our successors as quality surgeons, yet are increasingly subjected to work-hour restrictions that limit total operative experience and continuity of patient care. We are expected to do all of these things in an environment of constant pressure to decrease costs. *Quality* is now the political catchphrase for health care policy, just like ''managed care'' and ''relative value reimbursement'' were politically motivated buzzwords in the past. How we solve the riddle of quality is also likely to affect us all.

As the quest for quality continues, there have been increasing numbers of government requirements for public reporting of mortality outcomes, particularly in cardiovascular surgery. The public reporting of mortality outcomes in medicine has a long history.[2] Dr Ernest Codman,[3] who was at an institution in Boston, proposed reporting a hospital's mortality results, believing that this would inform consumers and that other institutions would rapidly adopt the practice. Unfortunately for Dr Codman, his own hospital went out of business shortly after his suggestion and there was little enthusiasm for following his example. The rapid advancement, however, of institutional and statewide databases to collect mortality outcome data has resulted in these data being widely available. There is the temptation, therefore, to use these data as a measure of quality and to compare the quality

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of outcomes between institutions. Whether that goal is in fact achievable is, I think, highly questionable. Needless to say, public reporting of hospital mortality data is a reality now for all cardiac surgeons not just in terms of their own unit's mortality, but also individual surgeon's outcome mortality. In the zeal to provide public reporting and transparency to permit patients better access to quality data, which may impact their choice of providers for care, it is important to not create too many unintended negative consequences. For example, to improve reported outcome, centers could deny care to high-risk patients. The advent of the Internet has made the patient an active participant in the selection of alternatives of care based upon often inadequate data. It could be argued that the patients have not gained significantly from the public reporting requirements that are now increasingly being applied.

One of the consequences of the emphasis on quality is an almost insatiable demand for ''data'' that can be used to discriminate between surgeons and institutions, thus ranking them from best to worst. These data are avidly sought by patients, referring physicians, the press, third-party payers, and governments. However, the data that exist are flawed and often misinterpreted. The ability of the patient, reporters, and politicians to understand the complexity of the other associated variables is quite limited. I am always amused by the comments of a British legislator who, in response to a study of perceived poor surgical outcomes for congenital heart disease in some centers in England (*The Bristol Inquiry*), stated: ''I have just heard that 50% of UK surgeons are ***below average*** [emphasis added]. . . . This has got to stop!''[4] Clearly many interested parties, including surgeons, politicians, journalists, and consumers, do not understand the limitations of risk models.[5] As Dr Bruce Lytle[6] remarked in his presidential address to this Association a few years ago: ''Sometimes there is an overwhelming demand for information and a whole lot less appreciation for the truth.''[6]

The field of cardiothoracic surgery has had a long-standing commitment to the careful study of patient outcomes and the factors affecting those outcomes. In the early years of our specialty, we had the advantage of having a frequent outcome that was measureable and specific, that is, death. Fortunately for our patients, this outcome, although of utmost importance, has become less useful as a marker of quality as the results improve and mortality continues to decrease for most cardiothoracic surgical procedures. Mortality is now infrequent enough in most institutions so that the 95% confidence limits for mortality rates overlap, making statistically valid differences extremely rare between institutions. Despite these statistical limitations, many have tried to ''rank'' institutions and surgeons based on mortality. Similarly, congenital heart surgery outcomes data in The Society of Thoracic Surgeons (STS) database might be used to compare one institution over another.[7] Mortality for congenital cardiac procedures, although higher than for most adult procedures, is low and continues to decrease. In a study of risk-adjusted mortality rates for congenital heart procedures comparing institutions, the hospitals are ranked by outcomes (Figure 1).[8] Yet the overlap of confidence intervals makes any such ranking highly dubious. Only 2 of the 22 institutions had statistically different outcomes, despite the ranking of all 22 (Figure 2).[9] Thus the utility of comparisons based on mortality to discriminate institutional or surgeon quality based on volume or mortality as an outcome is virtually impossible over a reasonable time frame, no matter how many overall cases are collected. Thus, there is increasing recognition that outcomes and quality must be evaluated by some measure other than simple mortality. Other outcomes such as complications, care process, and appropriateness or some type of composite score may be better measures of quality.

We also must acknowledge that a unique aspect of medical practice, and especially cardiothoracic surgery, is the need to take risk and responsibility to effect a change in outcome. If we as surgeons are to be evaluated solely on mortality outcomes, progress may be stifled as we run the risk of being too conservative. An example of this problem is the development of the Norwood operation for hypoplastic left heart syndrome (HLHS), a congenital heart defect that is associated with almost certain death in the first few days or weeks of life. Early in the application of the Norwood procedure for palliation of HLHS, the mortality was almost the same as the natural history. Many centers and many surgeons tried the operation with minimal successes. Had institutional outcomes been published in those early days, the overall programmatic survival rates would have been seriously affected and would have led to criticism of surgical quality in the programs that took on this challenging new therapy. Yet without perseverance, and the acceptance of the risk, the advances that have made the mortality 5% or less for good candidates for the Norwood operation would never have been achieved, not to mention the collateral benefits of the development of infant cardiac transplantation, perioperative treatment and monitoring strategies, and many more areas that have benefited all patients with congenital heart disease.

An additional difficulty in evaluating quality is that comorbidities and other patient factors may have more to do with the surgical outcome in many cases than the actual technical procedure itself. In addition, there is widespread recognition in the field of cardiothoracic surgery that outcomes more commonly reflect team performance rather than individual surgeon performance and the technical procedure. Cardiothoracic surgeons have initiated and led significant efforts to identify patient, institutional, and management factors that may modify outcomes. Current risk adjustment models fail to capture the entire complexity of patient comorbidity needed to enable accurate comparisons of outcomes between institutions or between surgeons in the

	All cases		All cases in risk category		Adjusted for risk category		Adjusted for risk category and additional clinical factors			
Center	MR	Rank	MR	Rank	Expected MR	Rank	Expected MR	SMR	95% CI	Rank
C	2.5%	1	1.9%	2	4.5%	2	4.5%	0.43	(0.09-1.25)	1
D	3.6%	7	2.2%	4	4.8%	3	4.7%	0.48	(0.15-1.11)	2
H	2.7%	3	1.7%	1	4.1%	1	3.3%	0.51	(0.10-1.48)	3
E	2.9%	4	2.4%	5	5.0%	4	4.6%	0.53	(0.27-0.92)	4
M	3.7%	8	3.4%	7	5.1%	6	5.3%	0.64	(0.32-1.15)	5
F	2.5%	2	3.0%	6	4.7%	5	4.5%	0.67	(0.13-1.96)	6
G	5.5%	11	5.6%	17	6.6%	9	7.0%	0.80	(0.50-1.23)	7
S	3.1%	5	2.0%	3	2.7%	7	2.4%	0.83	(0.09-3.00)	8
U	6.3%	15	4.2%	9	5.2%	8	4.7%	0.89	(0.44-1.60)	9
I	5.6%	12	4.2%	9	4.4%	10	4.5%	0.92	(0.49-1.58)	10
T	4.8%	9	4.5%	11	4.1%	11	4.2%	1.06	(0.34-2.49)	11
V	3.4%	6	3.9%	8	3.5%	12	3.4%	1.12	(0.30-2.86)	12
R	6.1%	14	5.1%	13	4.5%	14	4.3%	1.20	(0.44-2.60)	13
K	6.4%	16	5.2%	14	4.5%	13	4.3%	1.21	(0.60-2.16)	14
J	6.5%	17	6.2%	18	4.9%	16	4.9%	1.25	(0.67-2.14)	15
Q	6.7%	18	5.5%	16	4.3%	17	4.4%	1.26	(0.70-2.07)	16
L	8.8%	19	7.8%	19	4.3%	19	5.3%	1.47	(0.63-2.89)	17
A	5.0%	10	4.6%	12	3.7%	15	3.1%	1.50	(0.40-3.85)	18
O	6.0%	13	5.4%	15	3.6%	18	3.6%	1.51	(0.55-3.28)	19
N	11.4%	22	10.1%	21	5.1%	20	6.5%	1.56	(0.80-2.72)	20
P	10.0%	20	9.8%	20	3.9%	22	4.8%	2.02	(0.92-3.84)	21
B	10.7%	21	11.0%	22	5.2%	21	5.2%	2.11	(1.40-3.05)	22

FIGURE 1. Observed and expected mortality rates by institution. *MR*, Mortality rate; *SMR*, standardized mortality ratio (ie, observed MR/expected MR); *CI*, confidence interval.

same institution. As an example, extensive efforts have been focused on developing risk stratification methodology for congenital cardiac procedures. These efforts have identified important factors such as age, weight, and associated genetic or noncardiac abnormalities. However, with increasing recognition of risk factors, the number of patients in each risk category becomes increasingly small even for very high-volume programs, further compounding the problems in comparing surgeons and institutions.

Lack of accurate data is also a major issue. Many government agencies and third-party payers utilize administrative data sets to assess outcomes and quality. The difficulty with all administrative databases is the fact that the data are only valid to the extent that they are accurately and completely acquired and there is independent verification. Such processes require large amounts of infrastructure and are expensive to perform. Although there has been increasing call for application of the electronic medical record, which may have the ability to capture some of these data, there has been virtually no support either from public or private sources for the systems and especially the manpower necessary to collect and validate these large amounts of clinical data, not to mention the restrictions placed on institutions by the HIPPA requirements for patient confidentiality, which

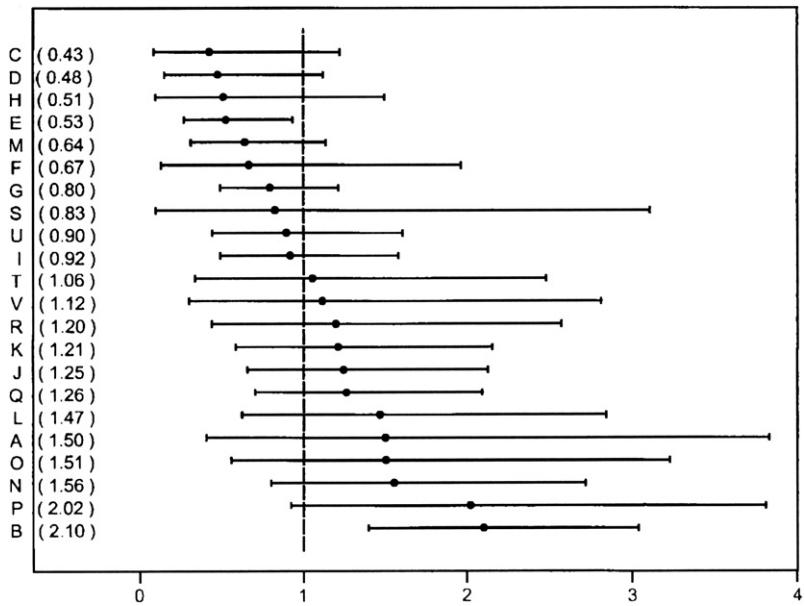

FIGURE 2. Standardized mortality ratio.

have interfered with the acquisition of clinical data and research.

Despite all of the restrictions and inaccuracies, we as cardiothoracic surgeons, more than perhaps any other specialty, have been leaders in embracing the collection and reporting of our outcomes to improve the counseling of our patients. The STS database now contains the results of many thousands of operations performed over the last 10 to 15 years at a large representation of the units practicing cardiothoracic surgery in the United States. Despite this huge data collection, it is extremely difficult to discriminate quality among the outcomes of different institutions. This is true even when volumes of procedures are quite high, which can provide adequate numbers for most comparisons. Having stated this fact, however, the value of these large multi-institutional databases, like the STS database, is very significant. They enable us to see what the overall success rates are for various surgical procedures and give a perspective we can share with our patients.

As cardiothoracic surgeons, we must be honest about the implications of the data that we are collecting. We as surgeons must be able to discuss with our patients the expected outcomes and put the variability in perspective. We have to take the responsibility for educating the patients as to the value and comparative effectiveness of our procedures; only by continually collecting and examining data can we achieve this.

So how then can we evaluate quality and improve it over time for a population of patients? One suggestion that has been proposed is rather than focus on mortality as an outcome, we need to focus more on care process and appropriateness. Increasing numbers of guidelines are being developed for the care of various cardiac conditions by major associations such as the American Association for Thoracic Surgeons (AATS), STS, American College of Cardiology (ACC), and American Heart Association (AHA). Rather than focusing on purported ''quality measures'' such as the timing of antibiotic administration in the operating room or the duration of ventilatory support or hospital stay, which can be influenced greatly by the nature of the procedure, whether emergency or elective, or the other comorbidities of the patient that may be difficult to collate, the application of the appropriate treatment for the appropriate patient at the appropriate time could possibly be tracked. A risk, however, in this approach is the fact that guidelines are just that and there will always be exceptions. Group mean data doesn't necessarily tell you much about an individual patient or how he or she will respond to treatment under the guidelines. There is always significant interpatient variability, the reasons for which we rarely understand. Identical treatment is not always equally effective treatment. Perhaps, exceptions to guidelines should be individually analyzed and not placed in the database with other patients, but each case separately analyzed for outcome, such as how we use morbidity and mortality conferences in all of our surgical specialties. We cannot ignore the fact that clinical decision making remains as much an art as a science. Routinely reporting the use of ''appropriate'' medical management, discharge planning, and rehabilitation may be just as important in determining quality outcome as simply publishing differences in mortality rates.

One risk, of course, with use of guidelines is the fact that ''best practice'' guidelines may stifle innovation if new approaches to medical conditions are not permitted. A good example in the field of pediatric cardiac surgery is the application of the arterial switch procedure for transposition of the great arteries. At the time of the introduction of the arterial switch operation in the newborn period, the mortality rate for a standard atrial switch operation had decreased to around 3% in many centers. Even the most experienced centers beginning the arterial switch operation had mortality rates of 10% or higher. It is hard to believe that such a procedure could be applied in the current environment where acceptance of a higher mortality rate for the possibility of long-term benefit in quality of life would be difficult to get past an Institutional Review Board or gain the approbation of our referring cardiologists!

Monitoring and even mandating care based on application of ''best practice'' consensus guidelines and ''quality metrics'' can sometimes result in wrong and even dangerous consequences for our patients. In an excellent editorial by Jerome Groopman and Pamela Hartzband[10] published in *The Wall Street Journal* entitled ''Why 'Quality' Care Is Dangerous,'' the authors discuss the limitations of pay-for-performance schemes that are becoming increasingly popular in Medicare as well as private insurance programs. Physicians who do not conform to defined quality guidelines may be penalized both in public stature and in payment, and patients are financially discouraged from receiving care from them. Yet the level of evidence for most clinical guidelines is remarkably flimsy. In a study of 16 ACC/AHA clinical practice guidelines by Tricoci and coauthors,[11] only 314 of 2711 (11%) recommendations were classified as level of evidence A (evidence based on multiple randomized trials or meta-analyses), whereas almost half were level of evidence C (based on expert opinion, case studies, or standard of care). Much of what we think we know will eventually be proven inaccurate, or simply wrong, as information evolves. Rigid application of guidelines may actually be harmful, as noted by a recent study of the effect of tight glucose control in diabetics. Rigid control of blood sugar is a guideline currently recommended by the American Diabetes Association and The Joint Commission has adopted it as a quality metric. But a recent study has shown that, in fact, mortality was *increased* in a population of patients where rigid glucose control was applied.[10,12] Similarly, studies of the outcomes of hip and knee replacement showed that the application of Medicare pay-for-performance quality metrics had no effect

on the complications or clinical results of surgery. The advance of our field requires that we be surgeon-scientists, that we remain skeptical about ''proven'' therapies until there is a preponderance of evidence, and that doubt is our constant companion.

Quality care in cardiothoracic surgery requires attracting and maintaining quality providers. Residency training in cardiothoracic surgery remains problematic. Every year, the number of qualified applicants for residency positions appears to be dropping and more and more residency training programs are closing. The work rules that were created in response to a case in New York, now over 10 years old, have resulted in increasing restrictions on the ability of surgical residents to participate in the operating room consistently and on their ability to provide comprehensive patient care over the time course of a patient's hospitalization.[13] Good clinical judgment comes from experience, and experience is the opportunity to learn from bad judgment, and also to learn to live with the result. Despite all of the emphasis on limiting the workweek for residency training, there have not been any consistently validated studies that have shown an improvement in overall clinical outcomes or for that matter in residency competency and training. If anything, the pass rates on the board examinations in cardiothoracic surgery, both the written and oral, seem to be lower than they were a mere decade ago. Our current residents like the less onerous work hours, but it will be incumbent upon us in academic medicine to craft education programs that give training opportunities that result in a cardiothoracic surgeon coming out of training with the skill set necessary to succeed, despite very limited hours in which to achieve such training and experience. The joint effort by the AATS, STS, The American Board of Thoracic Surgery, the Thoracic Surgery Resident Directors Association, and Thoracic Surgery Foundation for Research and Education have supported the recruitment of a Director of Surgical Education, Dr Ed Verrier, to coordinate educational activities in cardiothoracic surgery, which may be a major step in this process; however, ultimately it will only succeed if the individual institutions providing residency training provide the mentorship, financial and administrative support, and educational curriculum necessary to develop the leaders of the future. In this regard, it may well be that the number of residency positions should decrease and be concentrated only in centers that have the breadth of clinical activity, dedication, enthusiasm, and perhaps most importantly, the human and financial resources required for residency training.

It is extraordinarily gratifying to see the number and quality of women who are entering our field despite the difficulty of balancing lifestyle and family life with the demands of the high-pressure specialty of cardiothoracic surgery. Despite our lamentations that the number of applicants has decreased every year, I still believe that the quality of product at the end of our training in most cases is just as good today as it was 15 years ago. Why is it then that there is not a larger body of residents who wish to enter cardiothoracic training? The answer is obviously multifactorial, but clearly the core values of our specialty as beautifully described by Bruce Lytle[6] in his presidential address ''include assumption of personal responsibility, demand for technical excellence, leadership, intellectual credibility, and mentoring.'' To that list I would add courage and sacrifice. What we do is hard. We cannot lower our standards, nor should we for our patients' sake. Young surgeons who share these values will still enter our profession provided that at the end of their training they can get a satisfactory employment opportunity that will be rewarding to them and provide both virtue and respect.

Another fundamental area necessary in any discussion of quality is that of change and innovation in our specialty. There is no question that innovation is imperative for all areas of investigation and our field has changed dramatically; however, we have always been able to adapt to change, and our specialty has thrived based on its ability to analyze itself to constantly try to improve the technology to benefit our patients and to make modifications that will ultimately be to their advantage. Some innovation is not progress, and there will be, as in the past, many procedures that will go by the wayside as newer, more innovative, and better approaches are introduced. The advent of the Internet has made the patient an active participant in the selection of alternatives of care based upon often inadequate data. Because some newer procedures can be done in a less invasive way that minimizes discomfort and immobility and maximizes early return to work and family responsibilities, the public today is actively seeking these new procedures that are less effective and possibly less durable than our older procedures. As these technologies continue to flourish, it will be our greatest responsibility to analyze the outcomes and to be sure that the compromises we make for less morbid approaches to intervention do not ultimately compromise our patients' long-term outcomes for the sake of cosmetic benefit or short-term gains.

In many ways, we in the field of medicine should constantly strive for our own obsolescence. As we develop more innovative techniques and medical treatments, what we think of as surgery today will be considered archaic in only a fairly short time. The topics discussed at the first meeting of this Association would be barely recognizable today, and the topics of this meeting I am sure will be similarly obscure 20 years from now. We are ever changing, reinventing ourselves, and evolving as a specialty. Even the technologies that have replaced ours, such as percutaneous stenting of coronary arteries, are now coming under increasing pressure, and the volume of these procedures is dropping as better recognition of the genetics and pathobiology of coronary disease and medical treatments and lifestyle changes decrease the incidence and severity of coronary vascular disease.

In the area of health care policy, it is clearly time for change in America. The system of multiple private health insurers with different claims forms and different payment schedules, the increasing number of citizens without any adequate health care coverage, and the pressures on health systems from burdens of paperwork and regulations continue to make the US health system the most expensive in the world and arguably the system with the least value per dollar spent. Recent well-publicized studies suggest that we are spending more than any other country on our health care and receiving the least ''amount'' of health. Most major indicators, such as infant mortality and incidence of obesity and many others, suggest that the United States falls well behind other developed countries in the overall health of its population. Although many of these changes could be ascribed to the unique character of our nation, with a large and constantly changing immigrant population and a wide disparity in wealth limiting the access to care, I think also some blame has to be apportioned to the concept that health care is a privilege, not a right in our country. The private insurance industry has been effective in *managing* care, but at the price of administrative costs and return on shareholder investment, which actually take dollars out of the health care system and away from actual provision of patient care. No other industrialized country has a health system that works in such a fashion. It seems well past time for there to be a general level of medical care for all citizens regardless of age, or ethnic background, or level of income. Such a level of a care must be provided by a government- authorized, if not necessarily government-run, system that can be distributed equally across all state lines, resulting in administrative savings that can be placed back into the system to provide more care for our population. It is important to note that health care will still be expensive. Despite the calls to increase preventative health care, there is little evidence that such an approach will decrease cost. Cancer therapies will likely become more expensive, as cancer treatment, like the treatment of AIDS, becomes treatment of a chronic disease rather than a short-term ''cure.'' Private insurance may well then, as in many other countries, become a supplemental insurance that can provide higher levels of technology and care to those that are willing to pay the cost. Such systems are never perfect, and inevitably in some way must ration care, as the ability to have unlimited care at restricted cost is a fallacy that I don't believe can ever be reconciled. The fundamental problem is that people want state-of-the-art care, on demand, at low cost. As the population ages and technology evolves, you may be able to have 1 or 2 of these needs met, but not all 3. Complicating the issue is the need for patients to take responsibility for their own health. Society has a moral obligation and responsibility to provide health care as a ''safety net,'' but in a free society, adults must accept some personal responsibility. What do we do with the smoker who cannot or will not quit, or those who will not lose weight or take the medications necessary to control their blood pressure? Provision of health care is a 2-way street, and the physicians must not be held solely responsible for health outcomes that are also the patient's responsibility.

How, then, do we maintain and promote excellence in an environment of increasing oversight, regulation, and litigation? If we are going to increasingly be subject to reporting of outcome measures, then it is incumbent upon us to provide better education of the public and providers on how to interpret and use this information. We have to find better methods for summarizing complex patient characteristics and find care processes and composite outcome measures that are meaningful and reflect the goal of optimal patient outcomes. In all of these approaches, the goal should be to promote quality improvement, not to increase our individual market share.

How can we solve the ''quality conundrum''? First, I believe we as a specialty have always provided high-quality care and value for our patients and we will continue to do so. The AATS has developed its mission to model quality and excellence in the areas of clinical care, teaching, and research through its support of research programs and grants, its leadership development courses and educational scholarships, and its annual meeting. If we are to solve the quality riddle, we must continue to collect clinical outcome data, critically evaluate the data we collect, and appropriately recognize the patterns that produce improvements in overall results. We must share with each other processes that are successful rather than attempt to rate or rank institutions and individual surgeons. We must train the next generation of surgeon-scientists not just in basic science but in clinical outcomes analysis to give them the tools to succeed in this changing health care environment. Surgeon-led research in areas pertinent to our specialty has never been more important than it is today, and must be supported at every level.

I believe that the field of cardiothoracic surgery offers the greatest opportunity in medicine for personal responsibility. When we enter the operating room, the patient's life is literally in our hands. In my specialty area of congenital heart surgery, there is nothing more gratifying than to perform a procedure that may provide a child a chance at a long and productive life. There is little that is better than that! If we value the virtues of risk and responsibility, then respect will surely come and compensation will surely be adequate, if not lavish. We still are a profession that is well respected even among people who know very little about what we actually do in the operating room. I was on an airplane recently, sitting next to a businessman who in the course of conversation asked me what I did for a living. I said, ''I am a pediatric cardiac surgeon.'' His answer was ''Thank you,'' and yet I have little doubt that he knew virtually nothing about what actually takes place in the operating room in pediatric cardiac surgery or had any personal experience with it.

Perhaps the most dangerous statement in medicine is ''because we always do it that way.'' True excellence comes not just from good clinical outcomes, but from the constant dissatisfaction with the status quo. Changing our procedures and systems takes calculated risk, often a leap of faith, and sometimes the new approach will fail. But we must have the courage to realize that the easy way is not always the best way. We must constantly examine and modify our practices despite the risks to improve patient care.

Health care policies are often instituted based on political whim or the current fashion. We must continue to educate politicians, the press, and the public about the limitations and unintended consequences of these often well-meaning, but poorly designed, initiatives. It is critical that we remain leaders in the collection and analysis of outcome data and the development of new health care policy.

Finally, I believe that quality (excellence) may best be defined by willingness to take risk to benefit our patients, and to assume responsibility for the results of that risk . . . characteristics that practitioners of our specialty of cardiothoracic surgery have like no others. As Teddy Roosevelt[14] once said:

> It is not the critic who counts; not the man who points out how the strong man stumbles, or where the doer of deeds could have done them better. The credit belongs to the man who is actually in the arena, whose face is marred by dust and sweat and blood; who strives valiantly; who errs, who comes short again and again, because there is no effort without error and shortcoming; but who does actually strive to do the deeds; who knows great enthusiasms, the great devotions; who spends himself in a worthy cause; who at the best knows in the end the triumph of high achievement, and who at the worst, if he fails, at least fails while daring greatly, so that his place shall never be with those cold and timid souls who neither know victory nor defeat.

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