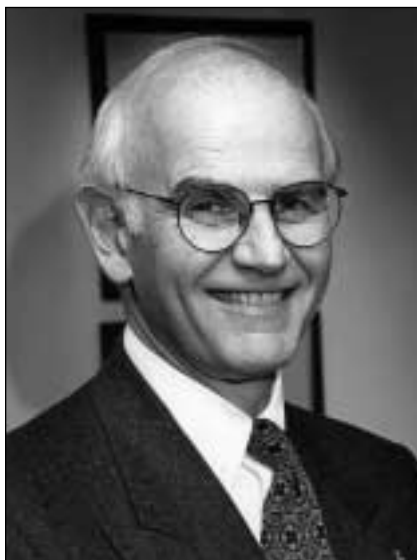


Lifetime Achievement Award Prix de mérite à vie

Charles H. Tator, OC, CM, MD, MA, PhD, FRCSC

Dr. Charles Tator was born in Toronto in 1936 and received his primary and undergraduate education in Toronto. He graduated from the Faculty of Medicine, University of Toronto, in 1961. After internship at the Toronto General Hospital, he entered the School of Graduate Studies at the University of Toronto in 1962 in the Division of Neuropathology, Department of Pathology. He received an MA degree in 1963 and a PhD degree in 1965 under the supervision of Dr. J. Olszewski, Professor of Neuropathology. He then trained in neurosurgery at the University of Toronto and became a Fellow of the Royal College of Physicians and Surgeons of Canada in Neurosurgery in 1969. His neurosurgical and research



Dr. Charles H. Tator

careers began in 1969 as Assistant Professor at the University of Toronto. In 1974 he was appointed Associate Professor, and in 1980 he was promoted to Professor. He was also Head of the Division of Neurosurgery at Sunnybrook Health Sciences Centre. He was the Director of the Toronto Hospital Neurosciences Centre (1993–1998), Associate Director of the Playfair Neuroscience Unit at the Toronto Hospital (1990–1999) and completed a 10-year term as Dan Family Professor and Chairman of Neurosurgery at the University of Toronto (1989–1999). He has been Chairman of the Medical Advisory Board of the Acoustic Neuroma Association of Canada, Chairman of the Scientific Advisory Committee of the Rick Hansen Fund, and Vice-President of the American Association of Neurological Surgeons and the Society of Neurological Surgeons. Since 1969, his principal area of research has been in spinal cord injury, with additional research in brain tumours. He is currently President of Think First Canada Penser d'Abord, an injury prevention foundation. In 2000, he was appointed a member of the Order of Canada.

He has published 258 papers, 41 book chapters and 175 abstracts, mostly in the field of acute spinal cord injury. He has been the supervisor of 23 graduate students for MSc or PhD degrees and 11 postdoctoral fellows from

Canada and other countries. His research achievements began with the development of experimental laboratory models of acute spinal cord injury, which closely simulate spinal cord injury in humans, and he has invented new methods of injury evaluation. Using these models and outcome measures, he characterized several fundamental mechanisms of injury in the traumatized spinal cord, both experimentally and in humans. In particular, he elucidated several major blood vessel and blood flow responses to injury and showed, with a variety of techniques, that spinal cord injury causes major damage to the vessels, including vasospasm and reduction in flow. At the cellular level, he has shown that injury causes pro-

found biochemical effects in spinal cord neurons, such as increased intracellular calcium, and that a variety of therapeutic strategies can ameliorate some of these vascular and biochemical changes. Currently, his major research program is in regeneration of the spinal cord after trauma.

At the clinical level his research has shown that the development of a multidisciplinary acute spinal cord injury unit can reduce mortality, morbidity and costs of care of patients with spinal cord injury. His research into the epidemiology and prevention of spinal cord injury has revealed a rising incidence of spinal cord injury due to sports and recreation, and the effectiveness of prevention programs.

With the vast knowledge that Dr. Tator has amassed in his career, he offers up the following passage to provide us with some insight as to why we do what we do.

The essence of a surgeon

I often wonder whether specific personalities choose specific fields. What is the make-up of your average dermatologist? How does a family doctor differ from an orthopedic surgeon? Is there a surgical persona? Whatever possessed me to choose neurosurgery for a career? Of course, our smart-alecky residents in 2002 would put this question differently: Do the

cutters express a specific constitutively developed genetic makeup? (Some physicians and administrators would substitute the word “disorder” for “makeup.”). Are surgeons different? I think so, and over the years I have written some columns for the surgical alumni newsletter at the University of Toronto in an attempt to capture the essence of my knife-wielding colleagues. So, the invitation from John Hurlbert to provide some personal notes on the occasion of receiving the Lifetime Achievement Award of the Canadian Spine Society was a great opportunity for me to assemble these random thoughts on a page or two. Let's see if I can capture something about the spirit and soul of you and me.

Surgeons as creators

I believe that surgeons are very creative people. Banting and 8 other surgeons have won Nobel Prizes. Think of the types of skin flaps that have been devised or the various approaches to expose a deeply located organ or lesion. When it comes to examine the origins of such surgical creativity, it is the old story of nature versus nurture. It seems to me that it's in our genes to be creative, but it is also what we face daily that forces us to be creative. For example, in the operating room, we are continually challenged to create the right conditions for success, and with our creativity we can snatch success even from seemingly impossible situations. We also do this creativity thing in our offices and clinics, and some of us also do it in administration, teaching or research. Indeed, today's environment often makes it necessary for us to create uniquely surgical pathways (fend for yourself!), although we also are creating collaborative pathways. We have to create the right surgical conditions. I don't let myself dwell on the negative forces out there, but one must be aware of the bias that many organizations and special interest groups have toward surgeons who want to create. For example, do you think that our grant requests and fellowship applications get a fair and so-called “peer-review” by our national granting agencies when there are often no surgeons invited to sit at the review table? One remedy has been to create our own funds for our own young people, especially at the beginning of their research training when their applications to the “biggies” are usually rejected. Surgeons have created many Chairs in the surgical disciplines to provide seed money to our young researchers and educators, and many of you have contributed generously to the various Chair funds. Daily, we encounter the need to craft solutions, and in today's jargon, we are great problem solvers. Parenthetically, most of us learn the hard way that it is so easy to create problems. Eventually, we learn that in the end it is easier to create solutions. Although some surgeons of the previous generation, whom I encountered, ruled by creating fear or intimidation; nowadays I see surgeons who create by leadership and dedication, by sweat and determination. Banting said 90% of creativity is perspiration and 10% inspiration, and I believe that.

Perhaps, most noteworthy of all is the creativity we have shown in our research projects. We have demonstrated our ability to move forward in new knowledge spheres such as molecular biology and research in surgical education. I am sure that many of you are like me and do not know *ras* from *fas*, but our young surgeons and their fellows and students are using

molecular approaches in their research into surgical diseases. The titles of our Residents' Research Day presentations now resemble the contents page of a molecular biology textbook.

So, by our nature and nurture, we are creative souls in surgery. By the way, we have not created immortality, and you should think about bequests to your Department of Surgery to nurture creativity as you “create” your wills.

Surgeons as teachers and mentors

I believe it is part of the surgical psyche to put great effort into teaching and nurturing the next generation of surgeons, because if we don't there may not be a next generation prepared to do the job. We respond to the possibility of future decline in numbers or quality by passing on our knowledge as a matter of urgency and survival. We are urgent about teaching, and this has made many of us into great teachers, and by being great teachers, we have assured our longevity and heritage through our efforts to nurture our young trainees and surgical colleagues. We have all been given great stores of knowledge by generous and masterly teachers who have endured our inane questions, naïve opinions and uncoordinated hands. These masters persevered, and now we share the heritage as proud and grateful successors. It's not that we live in a hostile environment, but we have to nurture our own. For example, why did we create the Surgical Scientist Program at the University of Toronto? We did it to nurture academic pursuits because we knew that unless we established the right conditions, excellent surgical research would not get done. For example, it takes one of our Surgical Scientist Program research fellows about 2 years of research training to convince the Canadian Institutes of Health Research that a CIHR Fellowship should be granted. In the meantime we pick up the bill, and if we didn't, this surgical scholar would not exist. The Canadian Association of Surgical Chairs developed the Research and Development Committee to plan and lobby for surgical research. The Canadian Orthopaedic Research Society has been a great nurturing agency.

Surgeons as blenders of change and stability

I believe that surgeons have an innate ability to strike the right balance between the forces of change and the need for stability. Surgeons are faced with change every moment of their training and practice, and we excel at blending and balancing the need for change with the need for stability, consistency and conformity to standards. Unfortunately there is no word in the English language that encompasses this surgical quality of balancing change and stability. When we make rounds in the morning, and when we expose the tissues in the operating room we are faced with an ever-changing environment. The sudden appearance of a thrombosed leg vein in an otherwise normally convalescing patient, or the sudden and unexpected detection of an artery that normally is not present in that particular surgical exposure requires us to confront change and alter our course. Thus, it is in our nature to be able to incorporate new methods of dealing with surgical diseases such as the use of endoscopy, intravascular therapy and surgical navigation. We learn to handle change in order to be effective surgeons. Yet, we also need a map outlining the usual way to get from A to B, which works in most instances, and

this map has been established by our teachers and predecessors and is an anchor in times of turbulence. The sternomastoid muscle is the anchor for so many neck dissections: once we find it we know where we are and where we are going.

Surgical research is a good example of the need to constantly change. In each era, surgeons who have elected to do research have been faced with an environment that is constantly changing. In fact, that is the essence of being a researcher, to be at the leading edge where the ground and the horizon are changing constantly. So you might say, "What is different about today? Change is nothing new." Well, I'll tell you what is different. Everything. Everything from the subjects being studied to the way research grants are handed out, and it is especially with respect to the latter that the changes are occurring at such a frantic speed. Unless we are careful, the shifting ground of the previous eras will become the quicksand of the current and future generations of surgical scientists. We must adjust and be active participants in all these changes, including technological advances, but not be consumed by them. To our credit, we have learned the new disciplines of molecular biology and the spin-offs of proteomics and genomics, but we also need to learn the new rules about where the research administrators and agencies are now hiding the treasures. Today, they are hiding the goodies in CRCs, NETs and CFIs and a whole bunch of other new programs dreamed up by each new batch of administrators who want to make a mark. If we want to stay in the swim, we will have to learn the new strokes. We can't say, "But I was in the operating room when the announcements were made." Surgeons tend to be individualists, and that is OK, but we must also be team players in today's research environment where collaboration and networking are being emphasized. Hospital research institutes have become more powerful, and left to their own ways would become increasingly remote from clinical matters. Don't let them divorce themselves from the hurly-burly of clinical matters. The stabilizers of involvement in research are still time protection and income protection. We have to nurture our young and protect them from the predators who say, "Surgeons can't do research."

Surgeons as decision-makers

It is part of the surgeon's makeup to be able to make decisions — both slow, carefully crafted decisions and fast, decisive ones. Slow decisions are those we make when advising patients about considering surgery as a treatment option or as a necessity. Fast decisions are the life-and-death ones we make in the emergency department or the operating room. For example, can that bleeding artery be occluded without causing permanent damage? Indeed, part of the learning process in surgery is identifying those decisions to be made slowly, and [those to be] made quickly. We learn to weigh the odds and assess the risks in each of these situations, and we learn how to communicate those decisions and risks to the patients and to the other members of the team. How do we learn this decisiveness? As in all other aspects of our training we learn it from the vantage point of our teachers and our experiences. Here is where our heritage as trainees and fellows of our respective training programs swings into action. Most of us have been privileged "to stand on the shoulders of giants" during our training. I am speaking about the local giants who taught us eyeball to eyeball, and also about the giants elsewhere whose

teachings our local greats incorporated into their own. From this vantage point, we trainees were able to see the full spectrum of the old and the new, to recognize the gains due to research, but also to heed the tried and true. In my practice, I use this vantage point regularly, and I am grateful for the perspective that I have gained. Thank you giants!

Surgeons as team players

Surgery is a great example of team play. When I encountered a reversal of roles recently, the team aspect of surgery was very evident. Of course, as most of us have said repeatedly to our residents, every surgical team needs a captain, and this has become even more clear-cut (pun) to me, now that I have been a patient. However, from the patient's perspective, it is the other team members who make the real difference after the actual surgery. During my hospital stay as a patient, the nurses were numero uno, followed by the residents, then the surgeon, and then a whole range of other members, and lastly, the administrators (and I love telling them that). The collaborative functioning of the team was an enormous comfort to me through each step toward recovery. The well-informed team provided me with confidence that all members were on the same wavelength. There is no doubt that as a surgeon I received VIP treatment, but that was only a veneer (although it was greatly appreciated). Beneath, was the real thing. The genuine concern and sympathy shown by the nurses for an ailing fellow, the willingness and energy to provide compassion, gentleness, friendliness, encouragement and warmth. Yes, I received all these from the nurses. And all the more meaningful, because these human feelings were offered by the nurses in a milieu of competence, timeliness, efficiency and extreme overwork. During a time of reflection, after a very poignant encounter with one of my nurses, I recalled a "dust-up" that occurred about 40 years ago in time, and about a hundred feet in space from where I lay. I was then a first-year resident, and one of the neurosurgical nurses took me aside to clue me in about the nurses' evaluations and expectations of me, and about my place on the surgical team. After this combination of admonishment and advice, I became "team obsessed" for the next 4 decades. Then, from a horizontal perspective, I witnessed the true meaning and significance of the surgical team, and I knew more than ever what a fortunate event had occurred 40 years earlier. Years later at Sunnybrook, I worked side by side with this excellent nurse (Janet Smith) for about a decade, she as head nurse, and I as chief of service. We led a great team. Thank you, nurses!

Surgeons as ethicists, humanitarians, volunteers, advocates, communicators, public advocates, politicians and citizens

Phew, that's a long list! Our nurture and nature as surgeons trains us and requires all of us to function as ethicists, humanitarians, volunteers, communicators, public advocates, politicians and good citizens. Also, there are wonderful examples of surgeons who have shown a huge talent and commitment for one or more of these areas, and may even concentrate on one or more as a career pathway. Some surgeons have made huge contributions in these roles. Unfortunately, surgeons have not learned how to expand the 24 hours in a day,

7 days in a week time constraints, and so we don't do all of these things so well. The burden of surgery is the cause of our shortcomings, and also the excuse. We use our creativity, balancing and decision-making skills to get us through this list of choices and obligations. We are offered these opportunities to participate in the greater picture, but 24×7 constraints require us to choose carefully. I love it when we participate in these activities (but see below)!

Surgeons as family members

Perhaps, because of the attributes listed above, most surgeons are only so-so family members, although there are exceptions at both ends of the spectrum. Some of us have managed to spend enough time and effort to be committed and wonderful spouses, parents and children, and some have been horrible at this, but the majority has only been of middling quality. Unfortunately, time and timing are of the

essence, and so many of us are failures because we provide too little family time, and when we do participate, it is often at the wrong times. Being one of the failures, I can speak with experience, but not with any confidence from having developed any great remedies. All the effective remedies require a reduction of surgical activities in order to succeed as a family member. So, fellow surgeons, direct your attributes of creativity and the others listed above to reduce your surgical activities and increase your family ones.

So, dear colleagues, do you recognize yourselves? Have I got it right? Physicians snooping at this column will likely conclude "I knew it! Those surgeons are all conceited about their creativity, paranoid, spend too much time in the OR, and neglect their families." But you and I know otherwise. We are creative, driven and decisive, and most are great teachers and team players. However, there is room for improvement!