UNIVERSITY OF TORONTO

THE surgical spotlight

FOR ALUMNI, FACULTY, RESIDENTS & FRIENDS

OF THE DEPARTMENT OF SURGERY SPRING 2004

chair's column

ALL CHANGED, CHANGED UTTERLY!

Richard Reznick

These words from Richard Smith, editor of the *British Medical Journal* have captured the sentiment of the medical profession in the aftermath of Bristol.[1]

This issue of *The Surgical Spotlight*, records highlights from Professor Richard Simmons' Kergin Lecture. The theme of the lecture, the need for a systematic approach to the prevention of medical error, reverberates loudly in the corridors of hospital structures, government, professional societies, and patient advocate organizations.

Although events in the last seven years have led to an awakening with respect to the issue of medical error and patient safety, it is easy to argue that Bristol rocked a nation into focusing on a new reality of relationships among patients, health care providers and health care institutions. "Bristol" refers to the uncovering of systematically poor results in a paediatric cardiac surgical unit at the Royal Infirmary of Bristol, between 1984 and 1995. Lest we be too cavalier, it is important to believe that Bristol is any nation's nightmare, any hospital's reality.

It is therefore timely to revisit the principles espoused by the Bristol Inquiry[2], chaired by Professor Ian Kennedy, and examine them from the perspective of our Canadian health care environment, one that shares many qualities with the NHS.

The first principle in the

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Chair's Column *continued from page 1*

inquiry's final report is entitled "Respect and Honesty". This section challenges all physicians to develop partnerships with patients, to thoroughly communicate with them, to use existing support services, to improve processes of consent to treatment, to provide patients with feedback from systematic audits of results, and to fully disclose to patients the circumstances and implications of medical error. These recommendations are at the core of what may be considered a new reality in dealing with patients and represent a cultural shift towards full disclosure and a "patients first" approach to health care delivery. This lesson is directly exportable to our Canadian system, where all too often patients receive care that is dictated by hospital priorities, physician imperatives, nursing dictates, or governmental bureaucracy.

It is significant that the last decade has seen an exploding emphasis on communication between patients and health care professionals in Canada. This includes performance based testing of communication skills at all levels, and a dramatically heightened exposure to social and communication issues in undergraduate and postgraduate curricula. This focus now needs to be translated into a culture of augmented communication and a thorough program of audit and quality improvement.

The second recommendation is to assure that health care systems are "well led", by providing structures to deal with issues of patient safety and quality care, and to charge local levels of health care administration with the responsibility for day to day systems.

There is no question that the last two decades have seen a shift away from the physician's historical role at the apex of health care decision making. This is especially true of budgetary and organizational decisions. I would argue that a health care institution leader's phenotype is less important than his or her personal qualities in terms of a fundamental understanding of health care issues, and a sound grasp of management principles. Moreover, governments, health care institutions, professionals, lay boards and patients must work in concert to promote excellence in our health care delivery.

The third section of the report calls for a broader notion of professional competence, a systematic assurance of competence, documented competence in emerging techniques and technologies, and augmented disciplinary mechanisms for colleges and health care authorities. This recommendation, perhaps more so than any other, strikes at the heart of the issue. Historically in Canada, as in other nations, we have focused most of our "educational attention" on attaining and assuring competence at the pre-graduate level. To my mind, the report encourages a shift to the notion of life long approaches to self-education (a concept to which we have only paid lip-service), and to specialty led continuing professional development. We will absolutely need to put into place mechanisms for CPD that rely on more than "just self reporting", and we will need to develop reliable and valid methods of recertification and formal attestation of competence in emerging technologies.

Kennedy's fourth recommendation relates to the safety of care. The report focuses on the need for a culture of trust not blame, of partnership with clear lines of accountability and openness in which the patients and their interests come first. This is a complex issue that requires system wide organizational approaches to behaviour change. We need to work quickly in Canada to develop an independent National Patients Safety Agency to manage a national database of sentinel events and to disseminate lessons learned from data analysis to enhance the safety of patient care.

The fifth section of the report addresses standard of care. It calls for systematic processes of multidisciplinary clinical audit at a local level, a national agency for clinical excellence, and regular monitoring of performance standards. We in Canada would do well to take heed. To date, our systems of audit are immature, we have not totally bought into the message that clinical outcomes are invariably linked to volumes, and despite over one hundred federal and provincial agencies and societies "governing" clinical care, there is not one overarching body setting policy and developing standards. How often have we, as surgeons, aborted our inquiry about an issue or problem because of the Byzantine web of our health care bureaucracy?

The sixth recommendation encourages public involvement in all aspects of decision-making. Medicine is a self-regulating profession. With that

privilege, comes the responsibility of developing processes of shared decision making and structures for collaboration with our internal and external stakeholders. One could argue that Bristol and its North American companion "To Err is Human"[3] are a direct result of the profession's lackluster approach to this concept. If we don't regulate ourselves, we will be dictated to by the press, the politicians and special interest groups. This message should send alarm bells ringing through every jurisdiction in our country.

The last recommendation from the inquiry was the establishment of a National Service Framework for children. Children are indeed special. Their travels through our health care system are often convoluted, and access to services has been problematic. A barometer of any civilized society is the extent to which it cares for its young. The tragedy of Bristol was magnified by the fact that the victims were children. The image of mothers carrying small white coffins in protest in front of the British Parliament is an indelible image in the public's mind.

As Canadians, we must learn from Bristol, and understand how similar our two health care systems are. What happened in Bristol could happen in Toronto, Halifax or Vancouver. It would serve us well to be vigilant in self-reminder, and to adopt policies and professional attitudes that follow the seven messages from the Bristol Inquiry. Summarizing (and editorializing) they are:

Always put patients first,
Promote better management of our health care structures and systems,
Rigorous implementation of programs to assure ongoing physician competence,
Remember that patient safety mandates a shift away from a "culture of blame",
Know oneself and one's results,
Heed the responsibilities of a self-regulating profession,
Acknowledge that children are indeed, special.

1. Smith R.: BMJ. 1998 Jun 27; 316(7149): 1917-8.
2. Final report:
http://www.bristolinquiry.org.uk/final_report/report/sec2chap23_6.htm
3. http://www.nap.edu/books/0309068371/html/

Richard K. Reznick
R.S. McLaughlin Professor and Chair

Martin McKneally

This issue of *The Spotlight* focuses on the trauma program at Sunnybrook as an effective healthcare subsystem. For background on this story, Fred Brenneman advised me to talk to Karen Bachynski, who coordinates the CritiCall Network. He described her as a saint. Karen and all of her superb staff of operator-coordinators each have 10 years or more of experience in CritiCall. They provide expert assistance and advice 24 hours a day from their Hamilton base for any medical emergency. The depth of their knowledge of the nuances of our medical matrix is inspiring and reassuring. They call only staff physicians, know who can make things happen (e.g. which plastic surgeons perform microvascular procedures), and track every bed in the province. Karen, who knew at the click of a mouse where all the negative pressure beds were, personally organized all of the SARS transfers last year.

The conceptual construct of a "health care system" is almost a paradox, a seeming contradiction that contains a possible or partial truth. The traditions of autonomous practice by caregivers and the confidentiality, particularity and uniqueness of our transactions with individual patients combine to resist systematization. American health policy scholars, bemoaning the state of affairs in the United States, sometimes look north to Canada for a "system" based on the single insurance payer model. Provincial and municipal barriers, the paucity of interhospital communication, and other problems illustrated by the SARS crisis, refute the notion that there is an overall health care system in Canada. Nevertheless, some subsystems, like CritiCall, the Provincial Trauma Network, and the Cardiac Care Network, could serve as best practice exemplars for other components of health care.

Dick Simmons, distinguished surgeon-professor and Chairman Emeritus of the Department of Surgery at the University of Pittsburgh, taught us about a system approach to education and active intervention in the prevention of adverse events in the hospital. Some of the highlights of his Kergin Lecture are outlined in this issue, and some of his

slides are available for review on the Surgery Department website.

The Spotlight seems to be coming along. We are picking up on John Hazlett's idea by introducing some notes and reminiscences about William Edward Gallie in a new section entitled "The Living Suture". Evidently, "The Chief" was wiring the head back on patients with odontoid fractures while protecting the cord nearly 70 years ago. We hope alumni will steer us toward some good Gallie stories. We welcome the communications and contributions from graduates and friends of our Department; they strengthen the bonds of our unique fellowship.

Martin McKneally

"Yet subordinates feel that there are costs attached to calling and may be under great pressure not to call because more than a correct response in an interaction game is involved. In addition to the fear of looking foolish, there is the desire to participate early in the intrinsic gratifications of surgery, the belief that one learns from managing new clinical situations, and a sense of dedication to the heroic ideal that one is made or unmade by the quality of one's tests:

> The way you learn as an intern is by being put on the spot and coming through it. You develop a self-awareness that you can handle a lot of situations. The problem is learning what situations you can't handle. There's a lot of pressure not to ask, a lot of fear of appearing foolish (Intern)."

- Charles L. Bosk, Forgive and Remember, Second Edition, October 2003.

Accrediting Undergraduate Education in Surgery

The Department of Surgery Undergraduate Education Office would like to remind all faculty of the upcoming University of Toronto Faculty of Medicine Accreditation. The process will occur from May 16 through 19, 2004. During this period, the entire undergraduate program will be assessed, including the Department of Surgery. It is imperative that the Department showcases the high quality effort that our faculty, residents and ancillary staff continuously make with respect to educating our medical students.

What is accreditation?

Accreditation is a voluntary, peer-reviewed process to attest to the educational quality of medical education programs. The Liaison Committee on Medical Education (LCME) accredits medical education programs leading to the M.D. degree in the United States and jointly accredits Canadian M.D. programs in cooperation with the Committee of Canadian Medical Schools (CACMS).

What role do surgeon faculty members play?

As a faculty member in the Department of Surgery you can help in the accreditation process by providing the best surgical education in Canada. Be sure to orient the Phase I and II clinical clerks as they begin their rotation with you and try to incorporate them into the surgical team. As you know, we have now circulated the Surgical Clerkship Orientation & Objectives by email to clerks and faculty prior to the commencement of their surgery rotation. Please read the package and let me know if you have any queries. The document is also posted on the Surgical Clerkship website.

Thanks for your help and we look forward to a successful accreditation process.

David Backstein
Director, Surgical Clerkship

DEPARTMENT OF SURGERY ORGANIZATIONAL CHANGES

As of January 1, 2004, the Department of Surgery effected some organizational changes:

Executive Leadership
In the organizational change, various positions have been created or continued:


Bryce Taylor


John Bohnen


Robin Richards


Ori Rotstein

Associate Chair
Bryce Taylor continues in this role.

Vice Chair Education
John Bohnen has been appointed to this position.

Vice Chair Clinical
Robin Richards has been appointed to this position.

Vice Chair Research
Ori Rotstein has been appointed to this position.

Education Positions
With the new structure, all of the educational leadership positions in the Department of Surgery will report to the Vice Chair Education.


William Tucker


Stanley Hamstra


David Backstein


Sender Herschorn


Helen MacRae


Kenneth Pace

Director, Undergraduate Education
William Tucker continues in this role until June 30, 2004.

Director, Education Research and Evaluation
Stanley Hamstra continues in his role with a new title and added responsibilities.

Director, Surgical Clerkship
David Backstein took over this role from Theodore Ross, January 1, 2004.

Director, Office of Continuing Professional Development
Sender Herschorn continues to head this portfolio.

Director, Skills Laboratory
Helen MacRae continues in this role.

Year 4 OSCE Coordinator
Kenneth Pace continues in this role.

Richard Reznick

Shaf Keshavjee Appointed University Chair of Thoracic Surgery

Bryce Taylor and I are pleased to announce the appointment of Dr. Shaf Keshavjee to the positions of Chair, Division of Thoracic Surgery, Department of Surgery, University of Toronto and Head, Division of Thoracic Surgery at University Health Network. Shaf received his medical degree from the University of Toronto in 1985. He trained in General Surgery, Cardiac Surgery and Thoracic Surgery at the University of Toronto and

Shaf Keshavjee and a picture of his successfully stented patient.

completed a Master of Science degree in our Surgical Scientist Program. As a McLaughlin Fellow, he acquired further training in tracheal surgery at Harvard University and at the University of Bordeaux, France; and in Heart-Lung transplantation at the University of London in England. Since joining the faculty in1994 Shaf has been highly productive. His many awards include selection as one of Canada's "Top 40 under 40" and the George Armstrong Peters Prize for Surgical Research in our Department. He is currently the Director of Thoracic Surgery Research at UHN and U of T and Director of the Toronto Lung Transplant Program. He was promoted to Associate Professor in 1998 and Professor in 2002. Shaf directs a highly productive CIHR funded research program with a special interest in lung injury.

Please join Bryce and me in congratulating Shaf, and welcoming him to these leadership roles in our Department and at UHN.

Richard Reznick

The Thoracic Surgery Division

Shaf has developed a worldwide reputation for his clinical contributions, and his laboratory research in lung preservation and transplantation. Peer reviewed grants to his research program total over 2.2 million dollars during the past five years. The program performs 50 to 60 lung transplants per year; it is one of the highest volume programs in the world.

Shaf's vision is to make the division the leading thoracic surgical program in the world. He is well on his way toward this goal, having recruited Mingyao Liu, Tom Waddell, Andrew Pierre, Yaron Shargall and Marc DePerrot. It is reasonable to say that the lung transplant program has already achieved that distinction because of the laboratory research and clinical trials that complement the high clinical volume and outstanding results. Currently these trials are focused on immunosuppression, ischemia-reperfusion injury, and chronic graft injury from inflammation, reflux and abnormalities of tissue regeneration. His future plans include development of a multidisciplinary Lung Biology Research group, and strengthening of the thoracic oncology program. When I interviewed Shaf he was placing an expandable stent endoscopically in an esophageal cancer patient on preoperative chemotherapy.

Shaf is married to general surgeon Donna McRitchie, who leads critical care at North York General Hospital, in addition to her busy surgical practice. Their six-year-old daughter Sara plans to be a kindergarten teacher.

M. M.

New Staff

The Department of Surgery warmly welcomes the following individuals who have joined our Department.

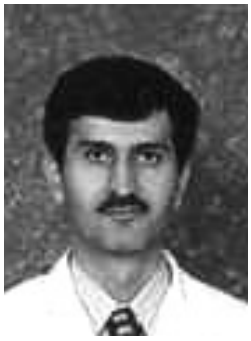
Christopher Caldorone

Dr. Christopher Caldarone was appointed as a Staff Surgeon in the Department of Cardiovascular Surgery at the Hospital for Sick Children in June 2003.

Dr. Caldarone did his cardiac surgical training at the New England Deaconess Hospital / Harvard Medical School with congenital heart surgery training at Boston Children's Hospital and the Hospital for Sick Children. He spent five years at the Children's Hospital of Iowa where he held the position as Director of Congenital Heart Surgery and as an Associate Professor at the University of Iowa.

Dr. Caldarone is presently an Associate Professor at the University of Toronto and an Associate Scientist in the Research Institute at the Hospital for Sick Children. He manages a research lab evaluating apoptosis-related alterations in mitochondrial function after neonatal cardiac surgery, and is funded through a Scientist Development Grant from the American Heart Association.

Richard Weisel
Division Chair, Cardiac Surgery



Farhad Pirouzmand

Dr. Pirouzmand completed his residency in the neurosurgery training program at the University of Toronto in 1998. He then completed fellowships in skull and reconstructive surgery and in spinal trauma and peripheral nerve surgery. Prior to his joining the neurosurgical faculty at the University of Toronto, he was the Program Director of Neurosurgery at the University of Saskatchewan. Currently, Dr. Pirouzmand is completing his Masters in Epidemiology. His thesis is on skull topographic organization. His main areas of interest are skull base, spine and orbital reconstructive surgery. He will also be involved in coordinating clinical trials in neurosurgery. The Division of Neurosurgery welcomes Dr. Farhad Pirouzmand as a new faculty member at Sunnybrook and Women's College Health Sciences Centre.

James Rutka
Division Chair, Neurosurgery

THE LIVING SUTURE

"The meeting then adjourned to the Hospital for Sick Children for cocktails and a very excellent luncheon.

The afternoon programme was opened by Professor W.E. Gallie who discussed fracture dislocations of the cervical spine with particular reference to fractured odontoid. The Chief pointed out that the three main contributions of recent years to the treatment of fractured odontoid are that:

1. Open reduction and a bone graft can be done without getting a cord lesion.
2. The laminogram is of great value in the diagnosis.
3. Without adequate internal fixation these fractures have a tendency to slip months or years afterwards.

It appears that after the fusion of the atlas to the axis the amoung of limitation of the head and neck is minimal. Strangely enough, even years after the fracture of the odontoid you can put ice-tongs on and reduce the fracture with ease. Dr. Gallie then described the operation for fusion of the atlas to the axis."

- Excerpt from "William Edward Gallie: Surgeon, Seeker, Teacher Friend"

The Kergin Lecture: Friendly Fire and Negligent Homicide

Richard Simmons relaxing in the Lister Library.

Using the arresting example of 'Friendly Fire' from U.S. aircraft and ground forces killing Canadian and British military personnel in Afghanistan, Richard Simmons gave a memorable Kergin lecture about his work in Pittsburgh on patient safety. Root Cause Analysis of those tragic incidents, like many Preventable Adverse Events (PAE) in medicine, revealed non-communicating systems coupled with highly dangerous technologies. Failure to detect and correct the causes of PAE is analagous to negligent homicide in Simmons' view.

A highly productive surgeon immunologist, Dick Simmons was a world authority on transplantation and surgical infections throughout his distinguished career at the University of Minnesota and the University of Pittsburgh. Richard Reznick thanked him for an invaluable contribution to Canadian surgery — training Ori Rotstein in laboratory research during his tenure at Minnesota. A generation of outstanding surgeon scientists, developed under Ori's leadership, is part of Simmons' academic legacy.

Here are a few dramatic highlights from his Kergin lecture:

1. Teach and use the "escalation pathway" to deal with critical events to get the most appropriate caregiver to evaluate, treat and prevent problems early. We should abandon "delegation to the dumbest". This teaching technique (sending the student who calls the intern who calls the resident) became enshrined in medicine when doctors couldn't do much to help or harm the patients.

2. "Call the code before the crash". Simmons' analysis of code blue reports revealed that events discoverable well before the crash (changes in rhythm, pulse, oxygen saturation) should lead to pre-emptive expert intervention. These changes require calling a "Condition C" indicating the need to call the code team to take or advise preventive action in a critical situation.

3. "Medical residents don't do central lines". Specialized training for bedside procedures leading to credentialing is necessary. This training is available in critical care, anaesthesiology and surgical training programs. Casual supervision has no place in the performance of blind invasive procedures.

4. "EAT – the enteral alimentation team must be called to supervise the placement of feeding tubes". This rule has eliminated the incidence of pheumothorax by stylet perforation of bronchi. The EAT team knows a chest x-ray must be done when the tube reaches the 30 cm mark; only tubes proven to be in the esophagus should be advanced.

5. Centralize the collection and dissemination of lessons learned from Root Cause Analysis of adverse events.

These and many of the other striking, action oriented recommendations from the Patient Safety Program at Pittsburgh could be immediately adopted in Toronto. A selected group of Dick's slides will be posted on the surgery department website.
(http://www.surg.med.utoronto.ca/)

M. M.

IN MEMORY OF ROBERT H. WILKINSON

A Caring Surgeon

Bob Wilkinson, an old friend of the Department of Surgery, University of Toronto, died on January 1st, 2004 at the age of 74 after a long illness.

After medical school, Bob interned in Toronto and then spent three years in Port Arthur as a family practitioner. It was during that time that his interactions with Cam Pearson, a well known General Surgeon in the Lakehead area, stimulated Bob to return to general surgical training. He was a McLaughlin Fellow for a year after training, and then returned to the Toronto Western Hospital. He later succeeded Owen Gray as Head of General Surgery, and during that period established himself as a true generalist, a superb clinician, and a kind, supportive teacher. He was a gifted technician whose respect for tissues reflected the kind of respect he had for everyone around him, including healthcare workers and hospital employees at every level. His patients simply rarely got into trouble!

Robert Wilkinson

Residents who worked with him always remembered his fastidious attention to detail. Who can forget a few days after a major abdominal procedure, Bob's personal orders of "clear fluids, no citrus juices, no carbonated beverages" as the first order for oral intake? This was meticulously written with his natural left hand; it was Cam Pearson who had persuaded Bob to learn to operate with his right hand, convincing him that operating rooms, instruments, and in fact human anatomy were designed for right-handed surgeons!

In 1982 Bob changed direction and was appointed Chief of Surgery at North York General Hospital where he ultimately concentrated on the care of breast cancer patients. He was one of the first general surgeons to enthusiastically support the concept of conservative breast surgery long before it was generally accepted in North America. In fact he was responsible for the establishment of the Breast Diagnostic Centre at North York General Hospital.

Bob had many outside interests, none more important than Lenore and his five children, Diane, Paul, Wendi, Sandra and Ross. He was an enthusiastic athlete, active in especially hockey and golf, and was an accomplished carpenter and electrician.

Those of us who were mentored by and who were colleagues of Bob remember him as a skilled, competent general surgeon who taught by example, who was a wonderful role model for residents and colleagues, and who exemplified the strong mutually supportive educational atmosphere which endures at the Toronto Western site. He was an accomplished but modest General Surgeon who *cared* about his patients, his colleagues, his family, in fact everyone around him. As Wendi said at his tribute, "he really *listened*".

Bryce Taylor
Division of General Surgery

The Vascular Surgery Division: Managing Variability and Disruptive Technology

Wayne Johnston, George Oreopoulos & Mohammed Al-Omran

Tom Lindsay and the "Dirty Dozen" are the thirteen vascular surgeons comprising the university Division of Vascular Surgery. They provide elective and emergent vascular surgical care at St. Joseph's, Toronto East General, St. Michael's, Sunnybrook and UHN. Each year the vascular surgeons manage a thousand abdominal aortic aneurysms, ten percent of which are ruptured. All of the hospitals performing major surgery depend on them for managing other vascular emergencies that arise in the course of extensive resections and other interventions. The "management of variability" problem (400 urgent consults and 100 emergency operations per year at Toronto General Hospital alone) challenges the division to develop a system solution.

New endovascular technology is shifting much of vascular surgery to minimally invasive approaches. The *Journal of Vascular Surgery* recently reported that 50% of abdominal aneurysms in New York State were treated using endovascular techniques with a mortality rate of 0.8% (versus 4.2% for open operations). Carotid stenting has become a standard procedure. All of the stents and equipment are expensive, and the financial return on this hospital expenditure is passed on to the community and to employers, rather than to the hospital. This discourages hospital CEOs and managers from celebrating and investing in these disruptive advances, perceiving them instead as another new problem under their fixed global budgets. For the same reason, very effective mechanical thrombectomy devices now in use in the United States have not yet been introduced in the Greater Toronto area.

The laboratory research in the division addresses a broad spectrum of vascular problems. Tom Lindsay's work is focussed on the inflammatory response that follows a second stimulus after hemorrhage. Clamping the aorta after abdominal aortic aneurysm rupture is an example of such a stimulus, evoking a profound secondary response. When the clamp is applied, a secondary response leads to systemic inflammation and ARDS. Tom believes that this sequence is responsible for the observation that the mortality from treating ruptured aneurysms of the abdominal aorta has decreased only slightly over the past fifty years. The same pathophysiology is operative when a trauma patient has broken legs in addition to a ruptured spleen.

Wayne Johnston's research translates flow mechanics into understanding of atherosclerosis and precise measurement of vascular lesions using doppler ultrasound. Wayne's models of the carotid enable precise doppler calculation of stenotic lesions. Al Lawson's research in the biochemistry of elastin and collagen strengthens our understanding of the degradation of the aorta that leads to aneurysm growth. Daryl Kucey is auditing the results of carotid endarterectomy through ICES and studying the outcomes from angioplasty and bypass in vascular disease. Barry Rubin is researching the pathobiology of ischemia / reperfusion and the regulation of myocardial gene espression and neutrophil activation.

Vascular surgery is a tertiary and critical domain of surgical care, but because it has not been designated as a priority program in the teaching centres, it competes for resources on an equal footing with all other services. Separating out transplantation, cardiac surgery, trauma, cancer care and other priority programs has led to significant systems improvements and predictability for those programs as well as volume based funding from the Ministry of Health. In contrast, unpredictability interferes with recruiting, training and funding of new technology in vascular surgery. A regional health authority might provide an oversight mechanism to assure more stability and

predictability in delivering surgical care of this magnitude and complexity. The Ministry of Health is reviewing this issue for the vascular surgeons as we go to press, guided by the distinguished Vancouver vascular surgeon Charles Wright.

M. M.

An Abiding Gift for Anatomy

A bequest to the Department of Surgery fulfills Carlton and Rita Smith's life-long dedication to the university

Carlton Smith

Rita Smith

"Would you like to know about Carlton Smith the educator, scholar, eternal optimist, world traveler, athlete, avid photographer, philanthropist, walking history book, life-long learner, true gentleman or friend?" asks Dr. Anne Agur, former student, colleague and later close friend of Dr. Carlton G. Smith (1905-2003). Dr. Smith's spirit and dedication to the university will live on through his legacy.

Carlton Smith was born in 1905 and grew up in Kitchener, Ontario. His long and distinguished academic career began at Victoria College at the University of Toronto. He obtained a B.A. in science in 1928, followed by an M.Sc. at the University of Western Ontario. He returned to U of T to study in the Faculty of Medicine, and received an M.D. in 1935 and Ph.D. in 1936. Throughout these years he received many honours and awards, including the Banting and Best Research Fellowship, Aiken Scholarship and the S.H. James Silver Medal.

He joined U of T's Department of Anatomy in 1937 as assistant professor. For thirty-five years he distinguished himself as an outstanding teacher, researcher, author and colleague. In 1976 he retired as Professor Emeritus from the Faculty of Medicine, Department of Anatomy. Following retirement, he married Marguerite (Rita) Harland, an anatomist and fellow professor, whom he had first met during the Second World War while both served in the armed forces in Halifax.

He remained involved with the Department of Surgery after his retirement through annual visits to campus and his personal philanthropy. In addition to his many academic and administrative contributions, Dr. Smith has given constant and significant financial support to his university department. Benefactions were always made with great consideration of the present and future priorities of anatomy: he established several scholarships, endowed the Carlton and Marguerite Smith Lectureship in Anatomy, and made possible the renovation of Grant's Anatomy Museum. This museum houses the dissections that were illustrated in Grant's Atlas, written by former chair, J.C.B. Grant. This text has been the reference standard for anatomy students throughout North America, as have other texts produced by the division before it joined the Department of Surgery.

While teaching neuroanatomy, Dr. Smith became concerned about the increasing shortage of human brains for study by medical students. To alleviate this shortage, Dr. Smith started developing models to accompany his book *The Serial Dissection of the Human Brain*. With Rita's assistance, he eventually developed twenty-four models. After Rita's death in 1996, Dr. Smith donated two sets of the models to every medical school in Canada in her name.

His ultimate gift has now been realized through a provision he made in his will. Dr. Smith left the residue of his estate, worth over $800,000, to the Department of Surgery's Division of Anatomy to found the Carlton and Marguerite Smith Medical Research Fellowship.

"Carlton and Rita both taught and influenced an infinite number of medical, dental, physiotherapy

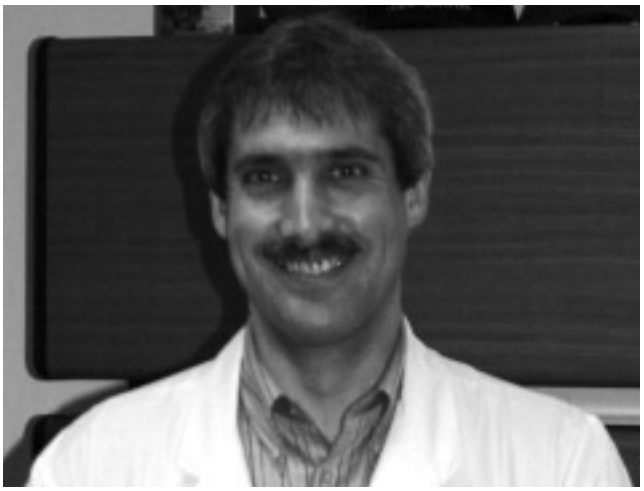
and occupational therapy students over many years. Carlton's mission was to support his students. He believed the work they did would carry on his own in advancing knowledge in the field of anatomy," says Dr. Michael Wiley, Chair, Division of Anatomy.

For the Smiths, this gift makes a resounding statement about the priorities and values that shaped their lives.

"Dr. Smith is an example of the many alumni and faculty of the university who have provided for the University of Toronto through bequests," says David Naylor, Dean of the Faculty of Medicine. "For three-quarters of a century, Carlton Smith has helped this Faculty reach its vision of being an international leader in health research and education. He is a shining example for all of us as an alumnus, professor and benefactor."

Rebecca Davies
Senior Development Officer

The Trauma System at Sunnybrook: Making Order Out of Chaos



Fred Brenneman on the run though his office.

The Provincial Trauma Network comprises eleven centres, nine adults and two paediatric. They are priority programs with a close and effective working relationship with the Ministry of Health. Fred Brenneman and his team at Sunnybrook recently presented a description of their system at University Department of Surgery Grand Rounds. Ontario's Provincial Trauma Network is chaired by surgeon Murray Girotti from London. Members of the Ministry of Health attend, listen, learn and fund the regular meetings of the network. (When I interviewed Fred there was a Provincial Trauma Network meeting scheduled for the following day. He anticipated all twenty-two coordinators and directors would attend.) Trauma team leaders have line item funding that ensures recruitment of excellent personnel. Trauma is a designated priority program in each of the centres.

The excellent morale among the trauma team leaders and network members is based on pride in their proficiency and the challenge of their work. Regular rounds two times per week, including trauma radiology rounds, strengthen the skills of the team. The educational programs for the nurses under Educator Karen Johnson is a model of nursing organization. High morale and expertise are maintained

through a graduated 3 to 4 year educational program sponsored by Sunnybrook, to assure excellent retention, recruitment and practice. Karen is running a day-long symposium "Nursing Care of the Critically Injured Trauma Patient" for 500 nurses on February 25th. Registration was closed at 500 participants well in advance of the meeting. She teaches a broad range of certifying programs at Sunnybrook, including pediatric trauma, adult trauma, emergency nursing, and advanced life support.

MANAGEMENT AT THE SCENE

Fred explained how the system works.

1. Recognition: emergency room and ambulance personnel in peripheral hospitals are educated through continuing medical education courses and visits to recognize the need for immediate transport of critically ill trauma patients. "Speed determines the outcome."
2. Communication: CritiCall is immediately engaged, a highly effective factor in the trauma system. It is run out of Hamilton under the tireless and skilled guidance of Karen Bachynski. CritiCall puts the peripheral hospital emergency room personnel in telephone contact with one of the nine trauma team leaders on the staff at Sunnybrook. This brings skilled senior team leader judgement immediately into the analysis and management. CritiCall stays on the line while checking helicopter availability. The helicopter paramedics are the best in the country. They have had a huge impact on the program, enhancing the effectiveness of the on-scene response and shortening the critical out of hospital time.

Half of the trauma patients entering the Sunnybrook system come directly from the scene in the GTA. Paramedics and emergency room personnel know that penetrating trauma and other serious injuries should not go to local hospitals, but should be taken immediately to Sunnybrook or St. Michael's Hospital, the other Toronto trauma centre. Toronto triage guidelines are uniformly applied.

TRAUMA CENTRE CARE

Once the patient enters the trauma centre, a well-established and integrated in-hospital management system is activated. The trauma room is fully staffed with trained personnel and equipment including its own blood bank and ultrasound machines. Stabilization in the trauma room prepares the patient for transfer to the operating room. The operating room is fully equipped with blood, laboratory and radiology diagnostic equipment. Though there is not a constantly open and ready trauma operating room as in some U.S. centres, access for the first operation is nearly immediate and extremely well-coordinated by the operating room managers and staff. Areas for improvement include access for the second and third operations that trauma patients often need e.g. grafting, plating and fixation procedures. These currently compete with scheduled surgery. The third major node in the system within the hospital is the intensive care unit which has strategic priority access for trauma patients. The high volume and coordinated action of the thirty or more people who are involved in a trauma patient's care in the first hours after admission fosters caregiver expertise and tacit knowledge that leads to remarkable outcomes. The keys to the success of the system, in Fred's estimation, are: 1. Communication; 2. Planning for the unplanned but predictable; the system is always at "ready, set ..." so when the "go" signal comes in, there is no delay; 3. Making the management of even the most remarkable injuries routine; this minimizes the need to figure out complex problems on the spur of the moment.

The management lessons from the Trauma program should have broader application to systematize health care throughout the province.

M. M.

Ross Tilley Burn Centre Specialist Receives $160K For Burn Assessment Study

Dr. Joel S. Fish, medical director of the Ross Tilley Burn Centre at Sunnybrook and Women's College Health Sciences Centre has been awarded a $160,000.00 grant from the Physician's Services Incorporated Foundation (PSI) for his research study: "Assessment of Burn Depth Using Near Infrared Technology". This is a collaborative research project with the National Research Council in Winnipeg where the technology has been developed for medical applications. Co-investigators of this study are Lorenzo Leonardi and Michael G. Sowa from the Institute for Biodiagnostic Research of the National Research Council in Winnipeg, Manitoba. The purpose of this study is to determine the capabilities of near infrared spectroscopy and imaging for the assessment and monitoring of burn wound depth.

Joel Fish

The main advantage of near infrared light is that it can penetrate deep within the tissue painlessly and atraumatically to provide vital burn injury information as opposed to a visual diagnosis by the burn specialist based on the surface appearance of the wound. The probe and camera work on the same principle as the familiar pulse oximeter for monitoring arterial oxygen saturation. Clinical determination of burn wound depth shortly after injury is quite accurate if the burn wound is very deep or very superficial. However, even experienced clinicians can have difficulty in making an accurate and early determination of burn depth when the injury is intermediate in nature. Furthermore, burn wounds evolve constantly during hospitalization, and assessments are frequently made by different observers. The final diagnosis and subsequent treatment is largely based on the visual appearance of the wound, which is subjective and largely influenced by the experience of the physician who examines the injury.

In the case of massive burn injuries the ability to accurately diagnose the partial thickness burn wound, the most difficult to categorize by visual assessment, can be the difference between life and death in some cases. Errors can lead to prolonged hospitalization for deep burns and unnecessary surgery for shallow burns. In life-threatening burns, where donor sites are at a premium, it is imperative to distinguish between full and partial-thickness injuries. There is, at present, no gold standard to make an early prediction of burn wound outcome.

"The advantages of accurate determination of which burn wounds require surgery using the near infrared spectroscopy and imaging include: early decision to perform surgical excision and skin grafting, potential to reduce in-hospital complications, early patient recovery, and early return to patient's pre-injury normal activities," said Dr. Fish. "All of these advantages potentially contribute to improving the treatment of burn injuries, for which more than 5,000 Canadians are hospitalized each year.

Manuel Gomez
Research Associate, Ross Tilley Burn Centre

Promising Technology For Burn Assessment

Karen Cross, a plastic surgery resident, is developing and validating infrared spectroscopic analysis of burn depth as her Masters project in the Surgeon Scientist Program. Working with Joel Fish and colleagues from the Institute of Biodiagnostics in Winnipeg, she measures oxyhemoglobin, hemoglobin, water content

Karen Cross and Ross, the founder and the future of burn care.

and other parameters in the burn wound as an indicator of tissue viability. This is an eminently sensible technique based on the same principles that are responsible for the worldwide acceptance of transcutaneous pulse oximetry. The technique carries the promise of being as significant as the establishment of burn centres and early tangential excision of burn wounds. She will present her preliminary results at an upcoming meeting of the American Burn Association. The technology and the equipment that she is helping to develop holds the promise of enabling the analysis of other wound-healing problems, including the tailoring of treatment for chronic wounds such as pressure sores and vascular ulcers. Other applications of spectroscopic analysis include the definition of plaques in vessels, determination of the viability of flaps and intestinal interpositions. It can even detect dental caries at early stages and lab values from a single drop of blood. The current devices are patented and Karen feels that it is better for the clinical investigators to have no financial stake in the research, to assure an unbiased approach and to avoid conflicts of interest.

Karen is enjoying the interface with the engineering, chemistry and other industrial team members. She is the surgery representative to PAIRO, an active outdoor sports fan, an avid cyclist, skier, and skater. Her partner is studying medicine in Ireland. She grew up in St. John's, Newfoundland and completed her undergraduate and medical training there. Her father is an aeronautical engineer who taught her to fix cars and tinker with mechanics. Her mother is a successful business woman and her brother an airline dispatcher for a private company. All of these background assets prepared her to be a very effective collaborator with the Winnipeg technical staff and to speak their common language.

M. M.

Honours/Awards/ Accomplishments

Darius Bagli (UrolSurg) (Co-authors: K. Aitken & G. Block) won 2nd Prize for Basic Science Research at the Annual American Academy of Pediatrics National Conference and Exhibition in New Orleans, Louisiana for project titled: "Bladder Matrix Metalloproteinases (MMPs) Mediate ErkMAP Kinase Activation and bSMC Proliferation".

Tirone David (CardSurg) received University of Toronto 25-Year Service Award in November, 2003.

Robin Humphreys (NeurSurg) was presented with The Bonnie E. Charbonneau Award of Distinction, Spina Bifida and Hydrocephalus Association of Ontario, November 4, 2003.

Joao Pippi Salle (UrolSurg) (Co-authors: L. Chin-Peuckett, J.E. Rennick, R. Ednak, & J.P. Capoliccio) won 1st Prize for Clinical Research at the American Academy of Pediatrics Meeting in New Orleans, Louisiana for their project titled: "Should Warm Infusion Solution Be Used for Urodynamic Studies in Children? A Prospective Randomized Trial".

Glenn Regehr (Assistant Professor) was appointed as the Richard and Elizabeth Currie Chair in Health Professions Education Research for a five-year term, starting November 1, 2003. The Chair's home base is the Wilson Centre for Research in Education.

Ori Rotstein (GenSurg) was elected to the position of Governor of the American College of Surgeons for the Province of Ontario at the Annual Meeting of Fellows, October 23, 2003.

Robert Stewart (UrolSurg) has received the Fitzgerald Academy Undergraduate Teaching Award, 2003.

Charles Tator (NeurSurg) was inducted into the Terry Fox Hall of Fame, November 17, 2003 for his many accomplishments over the years including the establishment of Think First Canada.

Christopher Wallace (NeurSurg) was voted in as a member of the American Academy of Neurological Surgery.

John Wedge (OrthSurg) has received the Whittaker Memorial Cerebral Palsy Award for outstanding achievement in rehabilitation research and development for children with cerebral palsy. The Award was presented at the 2003 Ontario Association of Children's Rehabilitation Services Conference in October, 2003.

Richard Weisel (CardSurg) has been awarded the Earl Bakken Scientific Achievement Award of the Society of Thoracic Surgeons at their annual meeting in San Antonio, Texas, January, 2004.

Ronald Zuker (PlasSurg) received University of Toronto 25-Year Service Award in November, 2003.

Henry Ahn (OrthSurg Resident) is the recipient of the Organon Sanofi-Synthelabo Resident Research Award presented at the 2003 Kennedy Visiting Professor Day.

Shane Burch (OrthSurg Resident) is the recipient of the 2003 Canadian Back Institute Award presented at the 2003 Kennedy Visiting Professor Day.

Stephen French (OrthSurg Resident) (**correction: Dr. French is an OrthSurg resident not a CardSurg resident as stated in the Winter Spotlight – we regret the error**) has been awarded one of two 2003 Organon Sanofi-Synthelabo Resident Research Award for best resident presentation at Kennedy Day, November 6, 2003 as selected by Dr. Henry Bohlman for his project titled: "Application of the Neer Classification of Proximal Humerus Fractures: A Comparison of Academic Versus Communit Practitioners".

Cian O'Kelly (NeurSurg Resident) won 2nd prize for the William J. Horsey Award in Clinical Research, November 21, 2003.

Julian Spears (NeurSurg Resident) won 1st prize for the William J. Horsey Award in Clinical Research, November 21, 2003.

Grants & Fellowships

Darius Bagli (UrolSurg) has been awarded a two-year National Institute of Health (NIH) Research Grant for his project: "The Role of Hypoxia in Fibroproliferative Bladder Disease". This two-year award is part of a five-year NIH O'Brien Centre Grant in Urologic Research entitled: "Tissue Renewal in the Urinary Tract" awarded to Children's Hospital in Boston. Dr. Bagli's was the only project on this O'Brien Centre Grant outside the Boston Children's Hospital.

Michael Fehlings (NeurSurg) has received a two-year North American Spine Society (NASS) Grant for his project: "The Role of the p75 Neurotrophin Receptor in the Death of Neurons and Glia After Spinal Cord Injury".

Johnny Lau (OrthSurg) (Co-investigators: T. Daniels & J. Waddell) received a one-year Canadian Orthopaedic Foundation Research Grant for their project: "A Randomized Controlled Trial of 1st MTP Joint Arthrodesis Compared to 1st MTP Joint Hemiarthroplasty in Severe Hallux Rigidus".

Kenneth Pace (UrolSurg) has been awarded a Dean's Fund New Faculty Grant ($10,000) for his project titled: "Impact of Pneumoperitoneum on Renal Physiology in Rat and Porcine Models: The Importance of Renal Response to Hypoxia".

Charles Tator (NeurSurg) has received a Physicians' Services Incorporated Foundation Grant (PSI) for his project titled: "Endogenous and Transplanted Ependymal Region Stem/Progenitor Cells for Regeneration of the Injured Spinal Cord".

Michael Tymianski (NeurSurg) is the recipient of a CIHR Grant for his project titled: "Targeting Postsynaptic Density Proteins in the Treatment of Central Nervous System Injury".

Alexis Armour (PlasSurg Resident, Supervisor: J. Fialkov) has been awarded a Physicians' Services Incorporated Foundation Grant (PSI) for project titled: " Evaluation of Castor Bean Polyurethane as a Bone Substitute in Rabbit Calvarial Defects".

Jay Riva-Cambrin (NeurSurg Resident, Supervisor: J. Drake) received a J & J Medical Products-Surgeon Scientist Program Fellowship for 2003-2004.

Subodh Verma (CardSurg Resident, Supervisor: D. Mickle) is the recipient of a Physicians' Services Incorporated Grant (PSI) for his project: "LOX-1: Linking Inflammation to Atherosclerosis".

Sarah Woodrow (NeurSurg Resident, Supervisors: M. Bernstein & S. Hamstra) is the recipient of the 2004 Royal College of Physicians and Surgeons of Canada's Fellowship for Studies in Medical Education. Project titled: "The Effects of Sleep Deprivation on Resident Surgeon Psychomotor Skills".

Sarah is also the recipient of the John L. Provan Fellowship in Surgical Education from the Department of Surgery.

CORRESPONDENCE

African Update From Alexandra

I went to Africa this past August to choose places to conduct my research on trauma treatment. Zimbabwe, I quickly realized, was not conducive to any research project or health care initiative, considering the political turmoil. The government hospital had run out of all analgesia and IV fluids, condemning the numerous burn admissions to a slow death from renal failure over the following week. This country has so many confounding issues that would interfere with ordinary care of the injured that research is impossible at this time.

In Mozambique, I attended the East African Surgeons meeting in Songo in the province of Tete. It was very interesting to see the research projects presented by the local residents and to learn about the "surgical technician" program, which began during a seventeen year civil war. It's a four year training program without a residency. Compared to our system where students finishing medical school know everything but can't do anything, upon finishing their program these technicians don't know much about medicine but they can do everything. They act as technical experts, trained to do the most common operations in the periphery (fracture treatment, gall bladders, C-sections, appendicitis, hernia repairs, etc.) A family physician works in the peripheral hospital, makes the diagnosis and pre-ops the patients. Then a technician is called to do the actual surgery and the GP continues with the patient care post operatively. Local studies comparing complication rates, etc. reveal that these technicians are providing a very good standard of local surgical care. The program has addressed the issue of surgical care in the periphery, which is often a many day transport to an urban hospital. Because their training is not accredited outside of Mozambique, these technicians tend to stay in the country, unlike many of the trained physicians in Africa who leave to work in first world settings.

In Blantyre, Malawi I stayed with British orthopaedic surgeon Chris Lavy in the Beit-CURE International Children's Hospital, which focuses on injury reconstruction. The neighboring Queen Elizabeth hospital is a very well run facility, which serves an enormous area. The number of pediatric injuries here made it a very suitable place for the initial part of my research

In Tanzania, I consulted Dr. Lawrence Museru, the Head of Orthopedics at the MOI Institute in Dar es Salaam. He has an interest in determinants of injury and care in Tanzania and has done work in this field already.

I visited Kenya for a short time to consult with various surgeons working in trauma and rural injury. Although Kenya itself is not conducive to research in this field at this time these surgeons were incredibly helpful, lending insight to the major barriers to research and to implementing change in an African setting. They described their own experiences seeking recognition for major health care issues from higher government bodies, and their frustration with apathy at the top. They advised me to consider what the government is actually willing to recognize and act on when I design my research study. There is a striking difference between presenting results here and in a developing country setting.

Finally I visited Uganda and Ethiopia. Uganda is home to the Injury Control Center, a fantastic facility started by Dr. Olive Kobisingwe, which addresses injury epidemiology and education. The Mulago Hospital in which it is based is the location most conducive to medical research; I have decided to collect 80% of my data there.

Here at home I have switched into the PhD program through the Department of Health Policy

and Evaluation, supervised by health economist Dr. Peter Coyte. I am still fine-tuning my thesis. Beginning next May, I'll spend a year in Africa collecting primary data on the determinants of delayed presentation of injury in children between the ages of 3 and 12. This will be conducted in 2, maybe 3 countries to get a sense of the generalizability of the final data and the areas of potential intervention. The second part of my study will be a cost-effective analysis comparing children who presented with either burn or orthopedic injury within 48 hours of the event to those who presented after a delay. My goal is to show the enormous cost of catching and treating these injuries late after infection or deformity has forced them to present, compared to early treatment of the acute injury. Hopefully this will validate spending money to expand surgical services and access to surgical care in the third world.

A final component of my study will be a comparison with delayed care for injuries in rural Canada, and an examination of medical care-seeking behaviours in these communities. Access is often available but not sought. Comparison of the two areas may reveal similarities and clarify potential methods of intervention.

I anticipate three long hard years of learning in close contact with both the Coalition for Global Health Research at McMaster, as well as the Health Policy and Place Research initiative at U of T.

Alexandra Mihailovic

Letters to the editor are welcome to keep the community informed of opinions, events and the activities of our surgeons, friends and alumni.

The deadline for the Summer 2004 Surgery Newsletter is May 1, 2004. All members of the Department are invited to submit news items, articles, pictures, ideas or announcements. You may reach us at

voice mail: **416-978-8177**, *fax:* **416-978-3928 or**
e-mail: **jean.defazio@utoronto.ca**

Please provide your name and telephone number so that we may contact you if we have any questions.

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