UNIVERSITY OF TORONTO

The Surgical Spotlight

ON ALUMNI, FACULTY, RESIDENTS & FRIENDS OF THE DEPARTMENT OF SURGERY

EVENTS AND STORIES FROM WINTER 2010-2011

inside

Robert Campbell

A Lifesaving Implant for Thoracic Insufficiency

Harland-Smith lecturer Robert Campbell, Director of the Center for Thoracic Insufficiency Syndrome, Children's Hospital of Philadelphia, began his talk on surgical anatomy by telling the orthopaedic residents – "forget everything you know about scoliosis". He then discussed the anatomical basis of disease, an innovative device based on a fresh anatomical perspective, and the tribulations of surgical innovation at the patient and the FDA level. He ended by quoting the pioneer surgeon John Cobb who said in 1958: "In the future study of scoliosis, it will be necessary to keep our eye on the patient and not on the curve"

Bob is globally recognized for developing the VEPTR, the vertical expandable prosthetic titanium rib, which is a lifesaving implant for young children with severe deformities of the spine and chest wall. Andrew Howard had the opportunity to discuss surgical innovation with Bob and hear the advice of a master innovator.

Q – Dr. Campbell, where did the idea for this device come from?

A – It starts with a patient. He was six months old and dying on a ventilator in the ICU from thoracic insufficiency. Had been to Austin, to Houston, had a tracheotomy, frequently arrested. Interestingly the standard approach then was something called a Toronto chest wall splint. That didn't work. He needed more chest volume so he could aerate his lungs. We planned an opening wedge thoracotomy but I needed a device to expand the chest wall – to hold it open. I sat down the night before and planned an improvised solution using Steinmann pins bent around the ribs. Physiologically, it worked. Technically, it was very difficult. I knew we needed

continued on page 2

to revise our implant as the baby grew – so the device was invented just for this youngster. I was motivated because I knew I was doing the revision myself. I found out later how many orthopaedic surgeons had turned this patient down!

Q – So you designed a device?

A – There are three crucial points to innovation. The device comes last. The critical first point is to reduce the problem to an anatomic and mechanistic understanding. The second is to come up with a surgical approach to that anatomical problem. It is only at the final stage that we design the device. In this child's case we need a 3 dimensional functional appreciation of the problem. It's not a bent spine that needs straightening. The problem is low chest volume and an absent chest well – which makes the pump mechanism of the diaphragm ineffective. The surgical solution is an expansion thoracoplasty – like an opening wedge between the ribs. And the device has to be a better, safer means of creating and maintaining that volume. So I designed the VEPTR to do that.

Q – How long did it take to design the device?

A – The first VEPTR took me 18 months of concentrated work. Two or three hours a day, plus travel, probably 2000 hours of my time in total. I considered it a Manhattan project – we had this revision surgery coming up. I had the advantage of two years of engineering school – so I had some basics. I could design the joints and do all my own drawings – to the point that they are ready for manufacture. Make sure these are signed, notarized, dated, detailed. These days you can send them to a technician and create computerized models and templates very quickly.

Q – And then you had it manufactured?

A – It's never easy. I remember talking to Zimmer, an orthopaedic giant, early on. When they asked me to estimate the market size, I said 'one kid'. They lost interest pretty quickly. I found a company called Techmedica, whose main business was custom hip and knee implants. When they heard the patient story they agreed to manufacture the device as a one off in return for publicity. I insisted that the publicity had to be tasteful – only at six weeks postop – only with the patient well – so we scheduled the surgery.

Q – Any other hurdles to deal with?

A – Oh yes. Just before surgery – the device was not ready – the fit between expanding components was not precise, and the engineers wanted to add a plastic bushing. I didn't like that idea, because of wear debris. I wanted to convert a rectangular cross section to a t-shape. I cancelled the clinic and flew out to Techmedica to meet three engineers and the CEO in the boardroom. The engineers all told me a t-shaped slide was too complex to machine. By then I knew the company a bit and I asked them to call in Malcolm, a lathe worker, from the shop floor. He came into the boardroom in his bib overalls and I showed him my revised drawings and asked if he could machine it. He said yes, and the CEO backed the lathe worker. They worked four weeks day and night to have it ready – it worked for that patient and has been the basis of the design ever since.

Q – How many patients now?

A – About 500 patients of my own, and growing by 5% to 10% every year. The VEPTR is used all around the world - over 4000 have been implanted.

Q – What about regulatory approval?

A – Before we did the first one, we went to the local institutional review board. They approved a custom device for a lifesaving indication. The case went well, the company's publicist did a good job – 125 newspapers and national TV coverage – this was in 1989 before the internet – I was even reading about it in supermarket tabloids. So the floodgates opened then and patients from everywhere showed up. The second patient was approved by the IRB. The third patient – I was at the review board for this one, the sister, the nun, on our hospital's IRB looked me in the eye and said "Dr. Campbell, the jig is up." She couldn't approve a third similar device as unique, as a one off – and she was right. I called the company and said we need to talk to the FDA. I called the FDA and left a message. I had just lit a fuse.

"Anyone who wants help navigating the FDA for a surgical device, contact me."

Q – What is the FDA story?

A – A nice guy from the FDA called me back in the middle of a busy clinic. Turns out it was Dr. Thomas Callaghan – the chief of medical devices. He was a biologist from Yale and he really liked kids. Pretty soon I was meeting him – holding the Xray up to the light – showing him the VEPTR – he asked "Do these kids die?" and I said yes, so he said "then let's go ahead with that".

Q – And how many years to full approval with that encouraging start?

A – Fourteen years. About 10,000 Bob Campell hours.

Q - Worth it?

A – Absolutely.

Q – Other twists and turns?

A – Of course. Techmedica closed in 1994 and I ended up with 800 pounds of manufacturing dies in my office and 30 kids with devices in. That is where Synthes picked up the product and they continue with it. Synthes helped us with the multicentre premarket trial from the 1990s on. In 2002 the FDA asked for control patients, for the first time. We had to challenge this as unethical – this is a fatal condition for some of these kids. We submitted historical controls gathered through the scoliosis research society. This was rejected by the FDA. The premarket approval application was withdrawn, and the application resubmitted as a humanitarian device exemption. That means establishing proven safety and probable benefit, when treating a potentially fatal condition. That is how VEPTR is approved in the US. In other countries the indications are not so tight.

Q – Where are things today?

A – A very exciting stage. I moved from San Antonio to CHOP (Children's Hospital of Philadelphia) two years ago. Our new centre of excellence at CHOP has 16 physicians including cardiovascular surgeons, geneticists, pulmonologists, general surgeons, otolaryngologists, and more. I am the referee and all ideas are welcome. We are using 3D MRI and other technologies to refine our understanding of thoracic function; and working on new operations and new devices.

Q – Advice?

A – Perseverance. I always had a very powerful guardian angel in the background. I always looked for internal champions – in my university, at the company, at the FDA.

Q – Final Words?

A – I mean this. Anyone who wants help navigating the FDA for a surgical device, contact me. I am ready to help any surgeon with that. I have learned a lot.

Andrew Howard

FIGURE 1

The Vertical Expandable Prosthetic Titanium Rib (VEPTR) device. It can be configured to span from rib to rib (1a), from rib to spine (1b.) or from rib to pelvis (1c.)

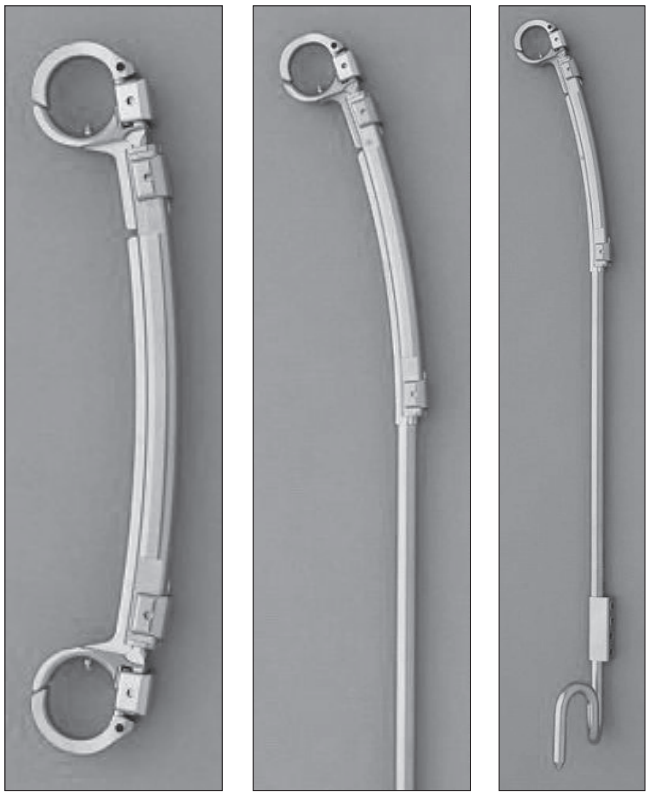

Figure 1a. Figure 1b. Figure 1c.

FIGURE 2

A radiograph showing the device in a patient. It expands the chest wall, and can be extended multiple times as the child grows, with an outpatient surgical procedure. 2a – preoperative. 2b – postoperative. Note the opening wedge thoracotomy creating a much higher thoracic volume on the left, concave, side.

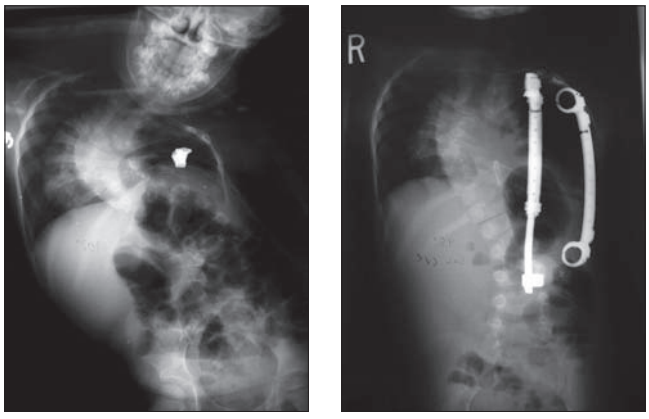

Figure 2a. Figure 2b.

The conundrum of surgical careers, new surgical graduates, senior surgeons, delayed retirement, health care resources, societal expectations, and politics.

David Latter

As my term as Interim Chair nears its conclusion I would like to thank the many trusted surgical colleagues and Banting staff who helped me during this past year. It was a privilege to serve our Department and I hope that my decisions taken as the Interim Chair were sound and fair. I know I speak for the whole Department when I say we look forward to the new leadership and vision as Jim Rutka assumes his position as the R.S. McLaughlin Professor and Chair of our Department.

True to my roots as a surgical educator I would like to take this opportunity to focus on a topic that received national attention recently. The Globe and Mail recently published an article by Lisa Priest titled *Canadian surgeons face flat-lining job market.*[1] This article focused on the plight of a recently graduated orthopedic surgeon, who despite a solid residency and an additional year of clinical fellowship and one year of searching, had still not landed a permanent position. This young surgeon was "getting by" with a series of different positions as locums, covering on calls for established orthopedic surgeons (the newly coined term is the "on-call-ogist"), and surgical assisting. The article went on to lament about how unfair this was to allow a surgeon to train for so many years and not have a position waiting, and how difficult it is for patients, who wait up to four years for their foot and ankle surgery, to hear that there are surgeons available but who can not operate on them. Of course, a simple article like this cannot possibly explain all the issues at play here. A list of some of the issues not mentioned may include:

- In most high performance jobs not all graduates secure choice positions (for example, business school graduates, lawyers, astronauts, pilots, scientists, etc).
- Willingness to relocate elsewhere in Canada, or the US.
- The delivery of surgical care requires more than just a surgeon and a patient.
- Hospital resources are finite and resources are allocated for many different reasons:
  - Surgical services vary according to their area of focus and expertise
  - Hospitals have differing strategic plans and global budgets
  - Volume funded activities enjoy hospital budget neutral or positive status
  - Regional health authorities allocate resources according to their perception of need
  - Conditions with higher threats to life and or limb tend to secure more guaranteed resources
- Provincial Government resources are finite
- Competing health care sector needs:
  - Outpatient services
  - Hospital based services
  - Drug costs
  - Allied health services
  - Generalists vs. specialists
  - Provincial volume funded programs
- Federal Government resources are finite
- The political fallout (federal or provincial) of any political decision regarding health care funding

What I found particularly interesting regarding this Globe and Mail article were the letters to the editors in response published the following day. One questioned the policy that each hospital must balance their budgets (or the CEO may be out of a job), another called for adoption of a UK based National Health Services like model, a third simply said that the solution for this surgeon and his future musculoskeletal patients was to reallocate funds from the provincial cardiac surgery services, and the fourth, from a patient, suggested that specialists should just go out and retrain to be generalists to fill the general practitioner deficit.

Orthopedic surgeons are not alone. For a few years now, there has been difficulty for new cardiac surgeons to secure good positions resulting in a cadre of recent graduates underemployed.[2] A recent article published in the Annals of Thoracic Surgery highlighted the difficulties. They contend that as a result of fewer medical students entering cardiac surgery now there is real concern that 10 years from now there will be a serious deficiency of well trained cardiac surgeons.[3]

I don't have the answers to this situation where new surgical graduates cannot find suitable jobs, but I do think that as a Department there are things we can and should do. First we must provide our expertise to our governmental leaders in health care resource planning. We should work with our provincial and federal agencies and provide our expert knowledge of the practices of our surgical specialties to assist them in their physician manpower needs projections. One such agency is Health Force Ontario, which publishes reports on their models to project future supply and need for physicians in Ontario.[4]

Even if we were able to predict the future manpower needs accurately, we would still not be able to right size the training programs. Our current system allows each university to make its own decisions about how many residents they will accept and train. This results in a supply and demand market place, but with a supply and demand cycle that takes 6-10 years to make the various adjustments. The result is the predicament that orthopedic surgery and cardiac surgery are currently dealing with. Perhaps we should lobby for a national and/or provincial level committee to determine the right number of surgical specialists we should train for the nation.

Since it is apparent that we cannot fix the surgery "manpower market" overnight, our Department must continue to make sure our graduates are truly the most outstanding graduates in their specialties across the country. It is true that "there is always room for the best". It is my belief that our University of Toronto Department of Surgery graduates compete extremely well, and have better job prospects than their competitors from other training programs. To verify whether this is true or not, the Department is undertaking a survey of the last 5 years of our graduates to determine exactly what kind and what quality of positions they have secured. When this information is obtained I will share it with the Department.

I must discuss the subject of resource allocation. There is not a shortage of patients, or of surgeons. From time to time there may be shortages of anaesthetists and OR nursing personnel, but the real shortage is hospital resources (i.e. money). Since OR resources are limited, it is up to hospitals and individual surgical services to determine how to allocate those resources to the surgeons of the service. Depending on a myriad of factors, that include job description (clinician-teacher, investigator, scientist), technical abilities, volume funded programs, seniority, position status, and other factors, OR "time" is allocated. A finite resource allocated to a defined number of surgeons. Bringing on another surgeon to the service equates to less resource being allocated to the pre-existing members of the group. This is sure to discourage recruitment of new surgeons unless there is a model of remuneration that does not rely on fee for service.

What about the new phenomenon where a senior well established surgeon hires a newly graduated surgeon who does not have a permanent job to take on call duties for nighttime and weekends? To keep the resources provided for elective cases during weekday day hours, and leave the far less desirable leftover resources for urgent and emergency care that occurs in the night, weekends, and holidays, is truly taking advantage of one's own position/status to the detriment of the young unestablished, underemployed surgeons. Surgeons-in-chief and hospitals must not allow this inappropriate practice of opting out of on call duties but keeping daytime OR resources.

Finally, I want to say something about the relationship between the start and the end of a surgical career. I support the notion that mandatory retirement is undesirable in Canada (except perhaps in the airline industry, but this too is now being challenged). Nevertheless, we must recognize that every surgeon needs to retire eventually. Some surgeons retire relatively early to take up other careers, while others opt for delayed retirement and keep on practicing. The reasons for retirement vary from loss of technical abilities, failure to keep up with technical skill development, personal health reasons, family reasons, financial reasons, and simply "the right time". Whatever the reason, the decision is almost completely up to the individual, while departments and hospitals only participate if there is an issue of competence.

In reality it is common to see surgeons well past usual retirement age (whatever that may be) opt for delayed retirement who remain competent and have a full allocation of OR/hospital resources. But this happy scenario has a reverse side to it. The fact is that under current market conditions, for every surgeon who keeps his or her OR resources past usual retirement age there is a young surgeon who is being denied their opportunity to start their career. I just don't think we can ignore this simple reality any longer.

There is no easy solution to this unfortunate equation, but we must start talking about it. One suggestion for discussion that I would like to put forward is the concept of matching a new recruit with a trusted respected senior surgeon near the end of his/her career. Not all senior surgeons would qualify for this prestigious mentoring role - it would be reserved only for the really deserving and trusted surgeons. This mentoring relationship might last 5 years during which the senior surgeon gradually ramps down his/her OR resource allocations and the new recruit gradually ramps up his/her OR resources. During this transition period the new recruit will have the time and support to establish his or her academic career, and make the transition from being the resident surgeon-in-training to the staff surgeon fully responsible for the care of the patient. This relationship should be a real mentorship where the senior surgeon advises, assists, and helps the new recruit to become a fully functioning capable surgeon who can operate with skill and judgment, who can teach with effectiveness, and who can attend to his or her other academic interests to contribute to the advancement of medical science. At the end of the defined period, the new recruit is fully independent, and the senior surgeon retires triumphantly, having trained one last surgeon.

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1. The Globe and Mail. Canadian surgeons face flat-lining job market. Friday February 25, 2011, A8-9.
2. MacLean's Magazine. The first signs of a coming health care crisis. August 10, 2010
3. Ouzounian et al. The Cardiac Surgery Workforce: A Survey of Recent Graduates of Canadian Training Programs. *Ann Thorac Surg* 2010;90:460-466
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International Surgery: Challenges and Responses

"Most people on the planet who need surgery can't get it. Changing this surprising situation is a challenge to which universities should rise - to solve the problem or to train people who can solve it. As an academic health science faculty, we cannot provide health care for Canada, much less the world. We don't build healthcare infrastructure, but what we can provide is training." – Andrew Howard

In 1999, John Wedge and Massey Beveridge founded the International Surgery Office within the Department of Surgery, and Andrew Howard joined the enterprise. He now serves as Director of the Program. Andrew has had a long interest in surgical education and surgical care in Africa. He has a mandate to study injury control in African children. In this resource constrained setting, the infrastructure required for care and research is severely limited.

There is a long and distinguished history of Canadian participation in International Surgery, dating back to Norman Bethune, a University of Toronto graduate and hero of International Surgery in Spain and China Canadian Cardiac surgeon Lee Erett won the Norman Bethune award from the Chinese Government for operative teaching and practice in China (see also http://www.surgicalspotlight.ca/Shared/PDF/Spring07.pdf). For many years, our surgeons have been going to where they were needed and treating grateful patients, regardless of their ability to pay. Readers will be familiar with the problems of HIV, tuberculosis and malaria in Africa, but there is a less well-known problem- the severe deficiency of surgical care. 13% of Africans die from trauma and 1 in 13 women die in childbirth.

The service needs overwhelm capacity. There are only 400 surgeons in all of East Africa. Most are very busy. They do private work to support themselves and provide care in the public system, leaving little time and no financial support for teaching. The University of Toronto psychiatry program led by Clare Pain provides a very effective model. They have worked with

Andrew Howard with his wife, Lianne and their two daughters, Emma and Samantha

psychiatrists at the Addis Ababa University in Ethiopia. Ten years ago, there were no residents. They now have a functioning residency and have raised the number of practitioners in the country from 3 to over 3 dozen. Based on this example, Ted Gerstle is developing a similar program in pediatric surgery, and Andrew is trying to do the same in Orthopaedic surgery.

The Office of International Surgery provides electronic access to the University of Toronto library, so surgeons and other healthcare personnel in Africa can share our textbooks, journals and other subscription- based services. The librarians who have made this possible are Sandra Kendall at Mount Sinai Hospital, and Sian Meikle and Warren Holder at the Robarts Library. The Office of International Surgery provides the services to several hundred surgeons in Africa and supports librarians in Africa to facilitate their use.

The College of Surgeons of Eastern, Central and Southern Africa (COSECSA) is a certifying body that has developed surgical training programs (see also http://www.cosecsa.org/). The College approves training by skilled surgeons at busy community hospitals as well as university sites. There is an online course with a tutorial to help candidates pass the College exams (see http://www.ptolemy.ca/members/). The entries are developed by African surgeons in combination with a Canadian author to provide an international perspective. Some of the work on this project has been published in the Canadian Journal of Surgery. The training process is somewhat like the British system. There is an early exam, analogous to the British Fellowship exam or our Principles of Surgery Exam, followed by specialty-specific training in various disciplines such as paediatric surgery, urology etc. Canadian surgeons provide examiners, but also develop curricula and travel to Africa as teachers. When I interviewed Andrew, he had just returned from giving exams in Uganda for COSECSA.

Andrew was born in Edinburgh, grew up in High Prairie Alberta, completed his undergraduate medical training and surgical residency at Queens, followed by a fellowship in Orthopaedic Surgery at the Hospital for Sick Children. His wife Lianne and two daughters Emma and Samantha accompany him on his paddling and skiing forays into the Canadian wilderness, and they are looking forward to travelling to Africa together one day.

The Office of International Surgery has brought surgeons to Toronto to study. For example Milliard Derbew spent a sabbatical year at the Wilson Centre, studying Surgical Education (see also the Surgical Spotlight, Spring 2006, page 9, or go to http://www.surgicalspotlight.ca/Shared/PDF/spring06.pdf). He subsequently became Dean of Medicine at Addis Ababa University. There is a striking need for paediatric orthopaedic surgeons in Africa, given that almost half of the population is less than 15 years old. Andrew's hope is to develop a Canadian Community of Interest in Surgery in Africa. "We are at a very early stage, but the Surgeon Scientist and Surgical Education Program grew from a small group of interested surgeons to major themes in our department."

UNIQUE APPROACHES TO THE CHALLENGE

Alexandra Mihailovic is a Critical Care fellow who completed our general surgery residency with a focus on trauma. Her critical care program includes 13 months of core training in various disciplines, including transplantation, medicine, surgery, and seven months of trauma training in Cape Town.

The experience in Cape Town is enlightening and intense - four to five thoracotomies or laparotomies per day, largely for gang - related injuries in the townships - "When a patient has been shot and there are 4 bullets on the chest X-ray, it's impossible to tell which are today's bullets. It's difficult to record outcomes in this population as most of the patients will never return for follow up once they've left hospital. The sanctity of life is less cherished. When a 22- year old dies in the operating room, the staff comforts the surgeon saying: 'He probably killed five people today before he was shot'. Some

Alex Mihailovic

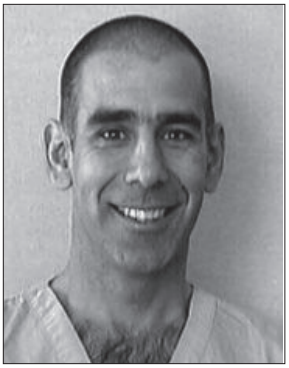
staff are resentful of putting multiple units of 'our blood into this killer'."

Alex worked with Neil Lazar in the medical ICU at UHN. She became very interested in ethics and social determinants of illness. "In Africa, there is little investment in prevention of trauma and therefore no reduction in the cost of patching up the surviving victims." Alex is a PhD candidate, studying the epidemiology of trauma in Uganda. Andrew Howard is on her committee. She also spent two months in Haiti, as the only surgeon at the time she was there, treating victims of the earthquake and the results of displacement post earthquake with the Canadian and German Red Cross.

One of the striking problems in Haiti was the intervention by doctors from NGOs, who performed elective operations in addition to emergency care. This was encouraged by many NGOs, because they provide the opportunity for publicity photos. However, diverting patients to a free elective surgical service deprives the local surgeons of the fees they need to buy food and maintain their lives in Haiti. "There is a danger that NGOs might eventually force the local doctors to move to Miami or elsewhere in order to make a living. I felt more like a culprit in this situation, as the local doctors said: 'I can't feed my children if you visiting surgeons do the hernias, gall bladders and cesarean sections'."

Alex found a middle ground, debriding ulcers, rotating flaps, treating burns, operating only on inpatients and emergency cases to keep her out of the elective schedule. The ethical quandary after surgery is – "where do these burned patients and paraplegic patients go? People in wheelchairs can't travel where there are no roads and often there are no rehabilitation or prosthetic services available to help them gain independence again….so after all that work to get them surgically healed you then are left with a patient you can't discharge into the streets."

HSC surgeon Georges Azzie focuses his practice of international surgery in a setting where he was initially employed by local authorities (Botswana) and where he knows and understands the environment.



Georges Azzie

Programs he has helped foster are based on local needs assessments. Georges helped develop a multi-facetted program to develop laparoscopic skills among surgeons. This included (but was not limited to) yearly workshops, a telesimulation program done in conjunction with Allan Okrainec (see also http://www.surgicalspotlight.ca/Article.aspx?ver=Winter_2009&f=AfricaSurgerySkype) and ongoing support at multiple levels. [There is an interesting response to this important contribution to international surgical education: Some program directors from higher income countries object to teaching minimal access techniques to local surgeons. They send their residents to Africa to perform open operations as surgical tourists. "Where else can they get this experience?" – Ed]

Georges' experience leads him to minimize the destructive side – effects of "surgical tourism" in low and middle income environments. He is "the first to admit that he has more questions than answers with regard to addressing the global burden of surgical disease and to mentoring those with similar career interests."

The 11th meeting of the Bethune International Surgery Round Table will be held in Montreal, June 3rd, 4th and 5th 2011 (http://www.cnis.ca/what-we-do/public-engagement-in-canada/bethune-round-table/). Eight of the previous meetings have been held in Toronto. The round table draws surgeons from Canada, South America, South East Asia and elsewhere to teach and learn about international surgery.

M.M with notes from Andrew Howard, Alexandra Mihailovic and George Azzie

Surgeon -in -Chief Shaf Keshavjee:

PLANNING FOR THE RESEARCH HOSPITAL OF THE FUTURE

Shaf Keshavjee

Shaf Keshavjee describes his position as Surgeon – in - Chief at the University Health Network as one of "broadened responsibility in an institution with remarkable talent and vision". His goal is to "take surgical services up to the next level, as an integral part of the research hospital of the future, providing world class care in the Canadian setting."

The SIC has a broad portfolio including Anaesthesia, Critical Care, Ophthalmology, Gynecology, Otolaryngology and all of the surgical specialties. He will support the leadership in these areas, but "you have to be in the trenches of the operating room, the clinic and the laboratory to understand and anticipate the challenges." The leadership team includes Stephanie Brister as Operating Room Medical Director at Toronto General Hospital, Rod Davey as Medical Director of Operating Room at the Toronto Western Hospital and Dave McCready at Princess Margaret. Scott McIntaggart and Judy Costello are part of his outstanding senior administrative leadership staff, supported by Lisa Spatafora, Laura Bortolamiol and Annette Remmes.

Bryce Taylor will lead the Patient Safety and Checklist Project as he has done so well in recent years. He will also head the International Patient Program.

A good example of a SIC problem occurred in the week just before our interview. Twenty-eight transplants resulted in multiple cancellations of elective cases that week. Rather than leave these on the board, hoping for a slot, Shaf - with the help of Stephanie Brister, the nursing staff and Andrew Pierre as surgeon of the month opened the operating rooms needed to get them done. "We will improve the life of the academic surgeon. You cannot just cancel cases and then assign operating days on short notice that interrupt their future schedule. We've revamped the operating schedule to run like a business, optimizing utilization, OR day length and staffing of the operating rooms to increase throughput."

An example of "the research hospital of the future" is the Organ Repair Laboratory being built in the operating room at Toronto General. This room will enable leading edge stem cell work and organ repair and regeneration within the surgical unit. "Terry Yau can process a patient's bone marrow stem cells and inject them into the heart, following the research work that he and Richard Wiesel have developed. Markus Selzner can resuscitate livers, and the lung transplant team can resuscitate lungs, not by trolleying them to a laboratory, but working optimally and immediately within the surgical operating room suite." Readers who have worked with grant funds will recognize how drawn out the process of building a novel laboratory like this could be. Shaf's approach was "You start the conversion, I'll find the money".

His strategic planning for Critical Care includes a conversion from scrambling to find a few beds on a daily basis as the main occupation of the Critical Care team to rightsizing the Intensive Care Unit to be able to accommodate the complex patients dealt with daily at UHN. Shaf will participate in the strategic planning of Critical Care until this goal is accomplished. Another high priority is bringing the informatics systems of research and clinical care together.

On the weekend that I interviewed Shaf by telephone, he was just in from skating with his daughter Sara. Shaf tries to get home on Friday night in time to blow the snow off the rink they built in their backyard and then flood it for early Saturday skating. His wife Donna McRitchie continues her busy life as General Surgeon, Vice President for Medical Affairs and Head of Critical Care at North York General Hospital.

M.M

Annette Remmes

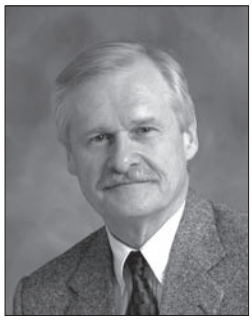
Annette Remmes continues in the office of the Surgeon-in-Chief at the University Health Network where she has worked for the past 11 years with Bryce Taylor. She is the Business Management Administrator for the Department of Surgery at UHN, taking on additional responsibilities and bringing the benefit of her extensive knowledge and experience within Surgical Services. She is currently reviewing and assisting in the implementation of a new credentialing policy for observers in clinical areas, with primary focus on the operating rooms across the three sites. She continues to help in searches for new faculty members and in the credentialing of surgeons. "The search and recruiting process is continuously improving toward greater fairness and wider scope."

This September will mark 25 years at the University Health Network for Annette. She enjoys the position: "the people are the best part of the job, they are like family." She works actively with Lisa Spatafora, formerly the divisional secretary of the Thoracic Surgery Division and currently Shaf Keshavjee's executive assistant. Laura Bortolamiol manages Shaf's clinical practice as she has done for the past 17 years. Annette likes to solve new problems, which she does with grace and facility. "Problems are only as big as I make them". She has learned from experience, reading, and passionate engagement with her job. She is grateful to Bryce Taylor for giving her many opportunities to grow in this position. Annette is currently reading "The EQ Edge" by Steven Stein and Howard Book, "an excellent book on developments that have taken place in emotional intelligence research over the past five years." Steven Stein, PhD, is a clinical psychologist and former assistant professor in the Department of Psychiatry at the University of Toronto.

Annette kayaks and works actively on her farm in the Bancroft area. She is a former team member of the fUHNatics Dragon Boat and is active in Yoga. The continuity that she has provided has been invaluable to Shaf in his transition into the position of Surgeon-in- Chief.

Excerpts from Bryce Taylor's "Effective Medical Leadership"

THE CHARACTER OF A LEADER



Bryce Taylor

This is the second in a series of excerpts from Bryce Taylor's outstanding book "Effective Medical Leadership", reprinted with the gracious permission of the University of Toronto Press. Ed.

Over the past twenty-five years I have admittedly developed ways of being, of doing things, and of working with the people in my environment. Every person alive has various effects on different people; there are character traits that may be attractive to some and at the same time repulsive to others. You won't please everyone all the time, and your actions will certainly not be welcomed either universally or continually. Nevertheless, I have developed some habits and biases that I personally feel have made the journey a little smoother and more effective, for me anyway.

The Way You Are

Be Positive

You will face many challenges, and some days you will appear to be flitting from one crisis to another. This is the ultimate challenge of a medical leader – to keep your eye on the ball while the fans in the stands are hurling a variety of objects onto the field, trying to disrupt the game. My old anaesthetic colleague David Bevan labelled these people bomb-throwers, referring to individuals who from the back seat of a lecture hall will often hurl insults or controversy, from a distance, always ready to make a quick exit. As a medical leader you must remain optimistic and forward thinking despite interruptions; after all, your responsibility is to move towards the vision. While you are being optimistic, however, you must be frank and forthcoming; your colleagues have a right to know the truth about the challenges that face you, them, and the organization.

There's also something to remember about the perceived negativism of some colleagues. Excellence has a price, and to achieve excellence we must always look for areas of improvement; as we strive to improve, we may sound as though we're discontented. We will always be unsatisfied with our current lot because that's how we progress, but we remember that the discontent, if managed appropriately, can be a positive catalyst for change. A good medical leader will appreciate those reminders of potential improvement and should let the disgruntled know that their continued input is valued.

Be Consistent, Truthful, Honest

I hesitate to document such obvious characteristics as consistency, truthfulness, and honesty, which are really attributes that every person on the planet should profess and strive for. The reason for articulating them here is that without them you will fail miserably as a medical leader. I have seen superbly talented doctors who continue to succeed and be recognized nationally and internationally for their outstanding contributions, but who lack total honesty and truthfulness and who certainly have not been consistent in their behaviour. On the international stage where individuals are seen intermittently, their prominence may not be affected by their inconsistent behaviour back home. But the medical leader who is on the job 24/7 and is not true to these character traits will not last a month in maintaining respect.

When respect is lost, effectiveness is lost.

Be Appreciative

As a medical leader you will have a lot to be thankful for, and you should show that thanks every time you get a chance. At meetings, verbal acknowledgments of the contributors, including the organizers, are much appreciated and may even be a factor in a person's willingness to put in the same time and effort the next year. Frequent email recognition is the easiest way to thank someone and should be encouraged to a degree. Remember, however, that a repetitive method that is copied to many begins to sound vacuous and meaningless, so you should try to think of more novel ways to thank your colleagues. A small token such as a book, a tie, a scarf, or a bottle of wine, depending on the recipient's habits, may be just the right way to say, 'A job well done,' or 'Much appreciated.' I personally favour the handwritten note. If I receive a note that has taken time, thought, and effort, I am inclined to save it, simply because I value it so much. To me, this gesture ranks up there with the handwritten messages that acknowledge wedding gifts, in that they are the most personal expressions of feelings and appreciation. Unlike the wedding example, however, a handwritten note from a medical leader is entirely unexpected and, therefore, all the more poignant.

Be Human, and Admit It

In the course of my life, I have often had to eat my words, and I must confess that I have always found it a wholesome diet. – Winston Churchill

You will gain tremendous trust if you repeatedly confirm the fact that you are human. Look for the counsel of others, from the first meeting with each of your colleagues to every meeting with the CEO. If you have done something egregious, or made a bad decision that could have been avoided, say you're sorry.

A well-known study in Detroit[89] looking at the propensity of patients and families to enter into lawsuits found that a policy of saying 'I'm sorry' for an unfavourable clinical outcome resulted in a significant decline in the number of lawsuits brought against that organization. Just as patients forgive and accept apologies, so too do colleagues. The recent changes in law have stipulated that saying you're sorry does not constitute an admission of guilt or culpability.

Know Your Facts

As a medical leader you are being watched and listened to constantly, occasionally with admiration, sometimes with resentment, often with the most critical eye. Despite the fact that you shouldn't be afraid to show your ignorance, there are some facts that you should have at your fingertips and on the tip of your tongue. The following should be your mantras:

- The mission
- The vision
- The values of your organization, and of your department or division if they differ slightly from the larger expressions

If your hospital places a value on patient-centred care (which one doesn't?), you should be able to regurgitate every dimension of that care. The coloured emergency

codes in your hospital should be obvious to every living being who works there, but you have to know them instantly if asked. The responses to fire, such as the acronym REACT (Remove occupants, Enclose area, Activate alarm, Call emergency number, and Try to fight fire) for the evacuation routes, and the building- related issues all must be second nature to you. You must know the geography of your institution and be able to direct patients wherever they want to go. You should tour the hospital intermittently to familiarize yourself with areas that you seldom visit; this is in some ways your home, and your interest in knowing a lot about it is a reflection of the pride and responsibility you have for it. You should know apparently insignificant details like the cost of parking, and the members of the food court and their contributions to your organization – they all count.

SITUATION 10.1

NEW CEO: Be Fair, But Not Too Fair

In 1998, near the end of Doctor D's tenure as president and CEO of UHN, there were concerns about the ability of the Neuroscience Program to adequately and safely care for its growing referral base of complex neurological patients who required intensive care. Doctor Q, the head of neurology, and I, in my then role of acting director of surgical services, analysed the patient flow, the needs of the program, and the overall expenditures in Neurosciences, which was one of our so-called priority programs of the organization at that time (along with Transplantation, Oncology, and Cardiac Sciences).

We discovered not only that there was a definite need for more level-two ICU beds, nurse practitioners, and clinical associates, but also that the Neuroscience Program received a significantly lower level of funding than all the other programs.

Doctor Q and I went to Doctor D with a carefully laid-out plan describing all the needs and long-term implications, along with the financial comparators of the other programs. We were delighted when he signed off on the spot, realizing that he had probably disadvantaged, unwittingly, the Neuroscience Program in comparison with other programs. Doctor D had been an internationally prominent academic neurosurgeon and chair of the university's division of neurosurgery for ten years prior to coming to UHN.

Be Impartial, But Not Too Impartial

You start as the leader of a specific group of clinicians, and you are an inveterate supporter of and an advocate for that group's welfare. As you take on more senior responsibilities, you're faced with the problem of favouring your home team, be it endocrinology, general surgery, orthopaedics, or hematology.

Occasionally, as a medical leader you will advantage yourself, and that is clearly unacceptable, as demonstrated in the story of the division head who assigned himself more operating time than anyone else. More often than not, however, medical leaders are so worried about the optics of what they do that they place at a disadvantage the interest areas that they're concerned about favouring.

WHAT YOU DO

Don't Be Afraid to Show Your Ignorance

Ask questions incessantly. Everyone in the organization knows more than you do about some subject. You didn't get to the leadership position by knowing everything. It goes without saying that in areas for which you have direct responsibility you must study, read, meet, call, and go to any lengths to gather and store information, becoming an expert in the areas you need to be an expert. In addition, there will be numerous opportunities for you to demonstrate your thirst for knowledge and your desire to learn something from a colleague, and as a result to enrich your relationships with others in the hospital organization. Nothing is more appreciated than a medical leader saying to someone, 'Thanks for telling me that. That's very useful information.' Don't be afraid to take someone else's idea and run with it. It may even be a vision that results in substantive change.

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[89] Robbennolt, J.K. Apologies and Legal Settlement: An Empirical Examination. *Mich Law Rev* 102 (2004): 460-516

Dean Whiteside's second term begins: Significant Accomplishments and New Appointments

Dean Catharine Whiteside

Cathy Whiteside has been appointed to a second term as Dean of the Faculty of Medicine after a highly successful first term, whose main accomplishments were building an outstanding team of academic leaders and administrative personnel. Alison Buchan, our new Vice-Dean for Research and International Relations came to us from the University of British Columbia. Sarita Verma became Deputy Dean, a new position in strategic planning and integration across various communities. Sarita also serves as Associate Vice-Provost for Health Professions Education. Cathy has built strong relationships with the university's hospitals and is now stepping toward the next level- integrating their research institutes in order to ask leading edge questions in health services that neither they nor the university alone can address.

"In the 1990s bioinformatics, proteomics and genomics were the moving edge of health research. Now we are moving into a world class position in stem cell biology - globally competitive with any place in the world. We have been able to attract top bioinformatics experts like Fritz Roth and proteomics and neuroscience scholars like Oliver Ernst. Recruiting has been facilitated by the integration that characterizes the University of Toronto community. This has served as a powerful attractant to recruit top faculty. Ned Shorter's forthcoming history of the Faculty of Medicine will emphasize this integration as a unique aspect of our culture."

The next 6 months of Cathy's strategic plan will be devoted to the evaluation of academic performance, using qualitative and quantitative evidence to benchmark and demonstrate the return on investment our faculty makes to Canadian health and to the economy. The TAHSN (Toronto Academic Health Science Network) CEOs are enthused about this project. Part of the information technology work in this area has been the "Web CV" project, entering all faculty CVs into a common IT base.

"The appointment to the University Chair of Surgery of Jim Rutka, one of the most important leaders in the world in his specialty, will bring Jim's expertise in research, clinical care and education to a broader focus on the Surgery Department. He has headed arguably the best neurosurgery division in the world and the Surgery Department can become the world leader in the future of surgery. There are evolving themes in surgery that cross disciplines, such as robotics, imaging and regenerative medicine. Ben Alman's Musculoskeletal (MSK) Institute is an example of a truly interdisciplinary unit, emphasizing rehabilitation, molecular biology, kinesiology, joint physiology and function.

In the future, Jim Rutka will have the opportunity to integrate surgical services across many sites. This has been done by necessity in the Vascular Surgery division. Future integration will be strategic and will likely include major sites throughout the region."

M.M.

James Rutka Appointed Chair of the Department of Surgery

James Rutka

I am delighted to announce that the Academic Board has approved the appointment of Professor James Rutka as Chair of the Department of Surgery, for a five year term commencing April 1, 2011.

Professor Rutka, a neurosurgeon at the Hospital for Sick Children, is highly regarded

by his colleagues locally, nationally and internationally. He has been a member of the Department of Surgery since 1990 and has just completed an 11-year term as Chair of the Division of Neurosurgery. He is co-founder and co-director of the Arthur and Sonia Labatt Brain Tumour Research Centre at SickKids and he currently serves as the President-Elect of the American Academy of Neurological Surgery, and the President of the American Association of Neurological Surgeons (AANS). Professor Rutka has won numerous awards and honours including: the Medical Research Council of Canada Career Scientist Award (1999); the Grass Award from the Society of Neurological Surgeons (2004); the George Armstrong-Peters Prize (1994), the Lister Award (2001), the Charles H. Tator Surgeon-Scientist Mentoring Award (2006) in the Department of Surgery, University of Toronto; and the Honored Guest Award from the Congress of Neurological Surgeons (2009).

Professor Rutka's primary research and clinical interests relate to the treatment of paediatric brain tumors, as well as the surgical treatment of epilepsy in children. A prolific author, Professor Rutka has published more than 300 peer-reviewed publications, and over 50 book chapters. He has presented at more than 300 meetings and conferences worldwide, and has given several prestigious named lectures including the Charles Elsberg and Wilder Penfield Lectures in 2010. Dr Rutka has served as a member of the editorial board for several neurosurgical journals and has been a member of numerous hospital and university boards and committees.

May I extend sincere thanks to Professor David Latter for serving as Interim Chair of Surgery since July 1, 2010. I am most grateful for his leadership of the Department during this period.

Please join me in warmly congratulating James Rutka on his new role in the Faculty of Medicine, University of Toronto.

Catharine Whiteside,Dean, Faculty of Medicine
Vice Provost, Relations with Health Care Institutions

In the next issue of the Spotlight, we will feature an interview with our new chair to learn his early impressions and plans for the Department. Ed.

NSQIP: Using Caterpillar Graphs to Reduce Morbidity

Clifford Ko

Clifford Ko, director of the National Surgical Quality Improvement Program (NSQIP) of the American College of Surgeons presented a highly informative discussion of "surgical quality from bench to bedside". Citing the American College of Surgeons mission statement "to improve the care of surgical patients in an optimal and ethical environment", he addressed the basic question: How do we know that we are doing it right?

Many Canadian surgeons do not realize that the American College of Surgeons is a North American organization that clearly identifies itself as "founded by the surgeons of the United States and Canada". The College has had many Canadian presidents including William Gallie.

NSQIP started at the Veterans' Administration Hospitals in the United States in response to an inquiry from the US Congress into what seemed to be an unacceptably high mortality in V.A. Hospital surgery. This initial study was carried out in over 200 V.A. Hospitals. The often quoted explanation "Our patients are sicker", based on presumed tobacco, alcohol and age factors was examined using risk - adjusted data. The Hawthorne effect was immediate - observed behavior is improved behavior. The NSQIP program reduced the mortality by 27%, the morbidity by 45%, the length of stay from 9 to 4 days, and increased patient satisfaction. In 2004, the American College of surgeons initiated its NSQIP program. Its critical features are risk adjusted outcomes; clinical chart - based data (rather than administrative data), trained abstractors who are certified and examined yearly; audited data, multi-specialty expertise; and closing the loop with improvement tools.

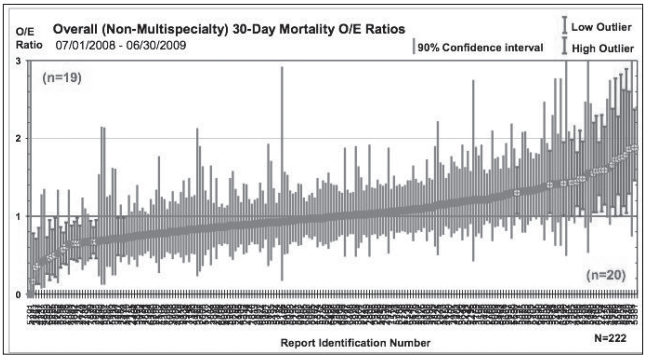
The program records 135 data points per case and

reports the observed-to-expected (O/E) ratios of all events--such as mortality and a range of complications--on caterpillar graphs. Individual hospitals are notified of their standing within the group, but the identity of all the other hospitals is withheld.

The analysis is refined so that hospitals are ranked on the basis of the complexity of the procedures that they perform. For example, hospitals that perform esophagectomies and complex vascular procedures are not compared directly with hospitals performing only hernia repairs, appendectomies and cholecystectomies. In general, clinical data are far more sensitive than administrative data. Administrative data missed 90% of complications because the charts were not examined. 45% of complications occur after discharge, so in - hospital complication rates are deceptive. Dr. Ko gave the example of colon resections where the average length of stay is 6 days and the average time of presentation of deep surgical site infections is at 9 days. The caterpillar graph has proved to be very motivating, as surgeons and hospitals strive to improve their O/E ratio. The NSQIP program also provides a dashboard of complications, and run charts that help identify changes in incidence of complications overtime. The NSQIP feedback loop provides guidance on the best practices for quality improvement, for example 1. the requirement that antibiotics be given within one hour of the incision, are stopped 24 hours later, and are not appropriate for the irrigation solutions; 2. maintaining a normal body temperature during surgery and the postoperative period; 3. use of clippers rather than razors for shaving the surgical site etc. The cost of a complication on average is $10,000 in hospital fees. 250 complications per year cost a hospital $2.5 million.

In the bench analysis of the NISQUIP data, the group found that measuring 5 variables is as helpful and far more economical than measuring 20 or 30 or 50. In addition, some complications can be grouped into clusters. For example, cardiac, neurologic, and other complications.

UHN is starting a NSQIP program in General Surgery under Tim Jackson. Michael Fehlings asked about the business plan for NSQIP. It clearly costs money, but saves money as well. In general, the answer is that accounting is not standardized enough to show where the savings have been realized. The public is able



Caterpillar

to find individual hospitals on the caterpillar graph, only 500 of the 5000 hospitals in the United States are in the NSQIP program. There are available NSQIP targets for nine subspecialties.

David Urbach with notes from Clifford Ko

Women in Surgery: Achieving Life Balance for Both Genders

The Women in Surgery group sponsored by the Department of Surgery is a collaboration between the Department and the undergraduate medical students. Formed in 2006, its original purpose was to support, mentor and encourage women interested in pursuing surgery as a career. Over the last several years the group recognized that while there are issues unique to women in the surgical culture, there are also many that are important to both men and women.

The group has evolved and expanded its mandate to encourage, support and mentor current and future surgical trainees of both genders at all levels. The group meets approximately 3 times a year and presents topics decided by a committee of undergraduate medical students with faculty support. The first event of this academic year was held in November at the Faculty Club. A panel focused on the myths and realities of the surgical culture. A diverse group of our faculty talked about their decision to become surgeons, and the demands and challenges of their professional and personal lives. Surgeons at various stages of their careers enabled students to see the changes

Undergraduate medical students: Jessica Shih; Katie Phillips and Andrew Warkentin with Dr. Marla Shapiro, second from right (missing undergraduate committee members: Dupe Oyewumi and Caroline Scott)

that the specialty has undergone over time and where it may be moving in the future. The open and interactive discussion gave our undergraduates the opportunity to address their own concerns and myths about surgery.

In early February we had the pleasure of hearing Dr. Marla Shapiro talk to the group about achieving balance in a surgical career. Her poignant and very moving personal story around finding balance in her own life after breast cancer struck a chord with our audience and certainly gave everyone pause for thought about finding balance early and consistently. Once more we had several of our faculty discuss their own strategies for achieving a healthy life balance.

Our final event of the academic year planned for May will focus on transitions and negotiating change in a career path. I would encourage our undergraduate medical students, residents, fellows and faculty to join us for an evening of discussion and fellowship. The strength of our faculty lies in the relationships we have with each other and our trainees, present and future. Women in Surgery allows us to expand and strengthen these relationships, building our faculty at the grassroots level. Please join us.

Melinda Musgrave

Let there be Light: Using Photons in Surgery

Albert Yee

University Rounds was an en-'lightening' experience on Friday January 7, 2011 at the McLaughlin Auditorium of Sunnybrook Health Sciences Centre. Ben Alman organized an excellent research session on lasers in surgery. The audience was privileged to be hear an exciting talk by Dr. R. Dwayne Miller, Director of the Max Planck Group for Atomically Resolved Dynamics, Department of Physics, University of Hamburg, Centre for Free Electron Laser Science, DESY, and Professor of Chemistry and Physics, University Professor, University of Toronto. Publishing regularly in high impact journals such as Nature and Science, it took him only a few seconds to fully engage the audience in the future of laser technology. An overview of the challenges with existing laser devices for use in surgical applications was provided as well as innovative new designs pioneered in Dr. Miller's laboratory, devices that are poised to transform surgical practice. Extending beyond current laser capabilities will be significant advances in cutting tissues. Technical capabilities for biofeedback mechanisms that auto-regulate a laser's dissection of targeted tissue whilst at the same time preserving critical adjacent neurovascular tissues are imminent. The ability of the laser to ablate tissue cell by cell and characterize its changing composition represents an enormous opportunity to better define tissue margins during surgical procedures.

The next generation of surgical lasers promises to dissect tissues and facilitate better healing of surgical wounds than the revered surgical scalpel. Preclinical research conducted by Dr. Miller in collaboration with the Alman laboratory demonstrated the enhanced

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Giving Life from Death Row and Other Issues in Surgical Ethics

Martin McKneally

"Eight years ago I was sentenced to death for murder. There is no way to atone for my crimes, but I believe that a profound benefit to society can come from my circumstances. I have asked to end my remaining appeals and then donate my organs after my execution to those who need them. There is no law barring inmates condemned to death in the United States from donating their organs, but I haven't found any prisons that allow it." (Christian Longo, Op-Ed., The New York Times, March 6, 2011).

Prisoner Longo raises one of the many interesting and challenging issues in surgical ethics. Linda Wright, Mark Bernstein and I brought a small sample of other surgical ethics issues to Surgical Grand Rounds at UHN in February. We discussed deception, anonymous altruistic organ donation, and surgical ethics education.

Several of our surgeons will soon begin a multi-institutional research project to evaluate the covenant forged between surgeons and their patients when high risk operations are performed. Their mutual commitment is a variant of informed consent unique to the specialty and undescribed in textbooks of ethics or law. Surgeons commit to the postoperative care of these patients at a level of intensity and duration that is startling to some outside the specialty, and conflicts arise in Intensive Care Units around this issue.

The ethical issues related to deep brain stimulation to alter the mind in psychiatric patients are being explored by Nir Lipsman and Andres Lozano. Jane MacIver, Vivek Rao and Heather Ross are studying ethical issues facing patients with terminal congestive heart failure, as they make choices about artificial support and listing for heart transplant. In this issue of the Spotlight, Alex Mihailovic describes the complex international surgical quandaries related to training programs that send their residents to developing countries in order to acquire skills in open surgery.

These are only a few of the challenges in surgical ethics, a field as old as surgery, but only recently developing a formal program of study. Karen Devon, recent valedictorian of our General Surgery program, will study surgical ethics next year at the University of Chicago before returning to the University of Toronto. Orthopaedic resident Mark Camp and Otolaryngology resident Jennifer Guillemaud are currently completing Masters Degrees in Ethics here.

Surgeons from Canada, the United States, Nigeria, India, Pakistan and Kenya have studied at The Joint Centre for Bioethics to strengthen their skills in surgical ethics. Encouraged by these developments, my hope is that one day the University of Toronto Surgery program will be identified with expert training in surgical ethics. When surgeons think of Stanford, they think of heart transplantation. When they think of Toronto, they think of lung transplantation among other strengths. Some day our brand will include an identification with surgical ethics if all goes as we hope. We have received encouragement from Dean Cathy Whiteside to develop a program to complement the Surgeon Scientist Program, enabling surgeons to study surgical ethics formally. Meanwhile, all of our surgical residency programs have ethics coordinators with varying levels of training through the Teaching the Teachers Program, the Executive MHSc program and their own formal and informal self education. Mark Bernstein's impact on the neurosurgery division is an outstanding example of the effect of formal ethics training.

A recent survey of surgical residents and ethics coordinators to be published in a forthcoming issue of the American Journal of Surgery describes the views of residents and coordinators. The responses to this qualitative inquiry were encouraging. Graduating chief residents from 22 programs, including but not limited to surgery, told the researcher that "my ethics training was as important as my formal medical training." Senior surgical residents had a much more positive view of ethics training than junior residents whose experience with ethical issues is limited. There is a tendency for senior residents and staff to conduct conversations about complex ethical issues (like intraoperative or impending death) with families and patients while junior residents

are dispatched to set up the next operative case or manage problems on the floor. Including junior residents in these conversations more frequently will provide powerful lessons from their role models.

When I described our program at a recent Surgical Grand Rounds in the United States, the surgeons in attendance expressed enthusiasm and admiration for ethics education in its present form in Toronto. There is much to accomplish to strengthen this program. I encourage trainees and faculty to become engaged in the next iteration of surgical ethics in the Department of Surgery. For more information, contact martin.mckneally@utoronto.ca. Our surgical chairs have been very supportive of this program and look forward to its flourishing.

M.M.

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wound healing capabilities of emerging laser devices. The translation of research discovery to broad adoption into clinical practice is an interesting discussion and time will answer the question of whether surgeons will ultimately prefer a 'light-saber' over the time honored and tested traditional surgical 'pocket-knife'. Perhaps by then, in order to match the sensitivity of the laser, robotics will have replaced or enhanced the skills of the conventional surgeon. To us, what emerged most strikingly from Dr. Miller's talk were the challenges to develop support for such a laser cutting-edge strategy in Canada. We have witnessed the research 'brain-drain' related to high cost technology research. Reversal strategies such as the CIHR research chairs raise hope that the next phases of this work might be directed from Canada in addition to international venues.

Albert Yee and Cari Whyne provided a different approach: the use of lasers for ablating tissues. They provided an overview of the Photodynamic Therapy (PDT) and Spine Program highlighting a multi-disciplinary translational research approach for treatment of vertebral metastases. This program, consisting of researchers from University of Toronto (Wilson Laboratory, Princess Margaret Hospital / University Health Network, Sunnybrook Holland Musculoskeletal Program and the Orthopaedic Biomechanics Laboratory, the UT Spine Program, and the Spine Program at the University of California, San Francisco), has focused research efforts on further developing minimally invasive spinal surgical strategies using PDT. The therapy comprises photo-activation of a drug within tissues, shows promise in sparing neural tissue in areas of the spine in which bony structures normally protect neural elements. Supported by funding from the Canadian Institute of Health Research, Ontario Institute for Cancer Research, the former Canadian Breast Cancer Research Alliance, and Canadian Breast Cancer Foundation, Drs. Yee and Whyne provided an overview of the research including development of a pre-clinical model and of destruction of cancer in the bony spine and the effect of PDT on bone structure. This new adjunct to the treatment of vertebral metastasis must also consider potential interactions between PDT and standard therapies such as systemic bisphosphonates and radiation therapy. The PDT approach at using direct laser light into a targeted vertebra uses techniques adapted from vertebral osteoplasty.

Cari Whyne

Cari Whyne provided an overview of the positive effects of PDT that were observed in bony remodeling as well as the effect of PDT in healthy and metastatically involved bone pre-treated with bisphosphonates. Work conducted to date has translated towards a Phase I clinical trial on PDT safety that is commencing at the University of Toronto, supported by funding from the Canadian Breast Cancer Foundation.

Overall, the year's first University Wide Rounds sparked much discussion and enthusiasm surrounding new technology in surgery. Discussion continued well after the rounds with new ideas and applications for Dr. Miller's groundbreaking laser technology and photodynamic therapy, foreshadowing a bright future.

Albert Yee and Cari Whyne

RESIDENTS' CORNER: Neuroethics and the Haunted History of Psychosurgery

Nir Lipsman

Nir Lipsman spent a summer working with Andres Lozano in 2005, the year that the first paper on Deep Brain Stimulation (DBS) for depression was published. He has been collaborating with Andres, neurologists, and psychiatrists ever since, focusing on the mind - body relationship and applying novel neurosurgical tools to psychiatric populations. Nir completed undergraduate training in Psychology at the University of Toronto and medical school at Queen's University in Kingston. He is currently a 4th year neurosurgery resident, in his first year of a neuroscience PhD in the Clinician Investigator Program.

His thesis will be focused on using deep brain stimulation, and single neuron recordings to probe emotional reward and decision making circuitry. Courses for his PhD program include the schizophrenia seminar, genetics, epidemiology, neuroanatomy and research ethics.

Surgeon - ethicist Mark Bernstein sparked Nir's interest in neuroethics, a subset of biomedical ethics that looks at ethical challenges in the neurosciences. Typical neuroethics topics include consent and patient selection for deep brain stimulation, balancing the risks and gains of stimulation and clinical trials of DBS. Neuroscience merges with philosophy when research examines the impact of deep brain stimulation on concepts of free will, choice and a wide range of psychological effects. This rapidly expanding field is generating knowledge, has developed journals (*Neuroethics, American Journal of Bioethics: Neuroscience*) and has developed a society (*Neuroethics Society*: www.neuroethicssociety.org)

Nir described '*the haunted history of psychosurgery*' and the renaissance of interest in the field over the past several years. In the 1950s and 60s, over 40.000 lobotomies were performed, leaving psychosurgery with a bad reputation. Currently, however, we are well past the lobotomy era with safe and effective procedures under investigation to treat the many patients with resistant mental illness. Up to 30% of psychiatric patients get no benefit from current treatment. Another neurosurgical operation, temporal lobectomy, works for many patients with epilepsy, but few are offered this treatment because of fear and lack of knowledge.Will deep brain stimulation for depression go the same way as temporal lobectomy? Nir hopes to prevent this misinterpretation and misuse of a valuable intervention through scholarly examination, research and practice.

One day Nir was in the operating room with a patient who was receiving deep brain stimulation for depression following failure of electro-convulsive therapy. The patient, who had been bed- bound for years, said that all the colours got brighter when the stimulator was on. She described it as "a lightening". The stimulator was nowhere near the optic nerves or the optic areas of the brain. The lightening or brightening was "like a change of glasses" and has been experienced by patients in other centres. Afterward, the patient said: "I'd like to go clean my house". She and others have also developed this "clean my garage… take care of myself or my home" - grooming behaviour. This opens up a new avenue of research on motivation and reward through DBS.

As Andres Lozano pioneers this field, there is a danger that others might want to move too fast, as Christian Bernard did - taking his specialty into cardiac transplantation prematurely. "The appropriate approach should be the development of registries instead of single case reports and single surgeon adventures. Currently psychosurgery is more focused, minimally invasive, hypothesis driven and generally reversible. It is based on genetics, imaging, and performance in the scientific setting. Public education is an important task given the haunted history of the specialty."

Nir was born in Israel; moved to Toronto at age 6. He is married to Sarit Marko, a professional artist.

M.M.

NEW STAFF

Darina Landa

I am very pleased to announce that **Darina Landa** has joined the Faculty of Medicine Office of Advancement as a Senior Development Officer and will be focusing on fundraising priorities for the Department of Surgery. Darina brings a wide range of skills to her new position, with experience in major gifts, volunteer management, and corporate partnerships. Darina comes to us from the Multiple Sclerosis Society of Canada, where was the Senior Coordinator of New Business Development – responsible to corporate partnerships with an annual budget of over $1.4 million. She also worked on a highly successful events portfolio which includes the management of high level volunteer committees.

Darina holds a Bachelor of Arts with Honours from the University of Toronto and fluently speaks English, French and Russian. She is committed to advancing health care and education and looks forward to working closely with her Advancement colleagues as well as the incoming Department of Surgery Chair, Dr. James Rutka, and departmental faculty members.

Please join me in welcoming Darina!

David Latter
Interim Chair, Surgery

Laura Snell

The Division of Plastic and Reconstructive Surgery at Sunnybrook Health Sciences Centre would like to announce the opening of **Laura Snell's** practice in Oncologic Reconstruction and her recruitment as Surgeon-Investigator at SHSC. Laura is a graduate of the University of Toronto Plastic and Reconstructive Surgery training program. She has spent the past two years at Memorial Sloan-Kettering Cancer Center as a fellow. She gained tremendous experience in breast reconstruction as well as that of the head and neck, trunk and extremity. At the same time, she also obtained her Master's degree in Clinical Research Methods from Columbia University.

We would like to extend a warm welcome to Laura.

Paul Binhammer

ANNOUNCEMENTS

Maurice Blitz with his wife Sandra and his two children, David and Michael

Maurice Blitz has joined the Department of Surgery as attending thoracic surgeon at St. Joseph's Hospital in Toronto. He brings special expertise in minimal access surgery of the lung and esophagus, acquired during his training in Calgary and Seattle. Maurice attended university and medical school in Vancouver, then completed surgical residency and a MSc. in epidemiology in Edmonton.

He succeeds Yaron Shargall as the Department's Associate Director of Undergraduate Education for Integrated Education.

He brings his wife Sandra, a medical statistician and sons, David, 4 and Michael, 2. They are enjoying exploring Toronto as a family.

M.M

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INVITED FACULTY

Keith Heller, New York University, New York, USA
Bryan McIver, Mayo Clinic, Rochester, USA
Janice Pasieka, University of Calgary, Calgary, Canada
Jatin Shah, Memorial Sloan Kettering Cancer Center, New York, USA
Michael Tuttle, Memorial Sloan Kettering Cancer Center, New York, USA
Ralph Tufano, Johns Hopkins University, Baltimore, USA

ACCOMMODATION

Metropolitan Hotel Toronto
Delta Chelsea

For further information please go to the website: https://event-wizard.com/thyroid/0/welcome/ or contact: 416.586.4800 x3236, or email cprato@mtsinai.on.ca

Jeremy L. Freeman, MD, FRCSC, FACS
Professor of Otolaryngology-Head and Neck Surgery
Professor of Surgery, University of Toronto
Temmy Latner/Dynacare Chair in Head and Neck Oncology
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AWARDS/HONOURS & ACHIEVEMENTS

Bharat Sharma (GenSurg) received a CIHR Master's Award for the study titled: *'Situational Awareness' in Surgery: Evaluation and Training using lessons learnt from the Aviation Industry ($17,500 - Supervisor Teodor Grantcharov)*

Jeremy Freeman (H&NSurg) was one of the recipients of the Colin R. Woolf Award for Long-Term Contributions to Continuing Education

Michael Taylor (NeurSurg) ranked #2 on the *Toronto Star*'s list of the biggest scientific discoveries of 2010.

Betty Kim (NeurSurg) has been selected as this year's Royal College Fellowship Winner.

Mike Ellis (NeurSurg) received an Award for having the top resident vascular/functional poster at the American Association of Neurological Surgeons Annual Meeting. Cleveland, Ohio, November 30-December 3, 2010.

Mike also received a Travelling Fellowship to study at the Children's Hospital Boston, January-February 2011

Ab Guha (NeurSurg) received a 2 year grant from B.R.A.I.N Child for his work on Receptor Tyrosine Kinase Expression, Activations and Inhibition in High Grade Pediatric Gliomas.

Ab also received a 5-year CIHRGrant for his work *"Oncogene-containing microvesicles as mediators and messengers of tumour progression".*

Jeff Wilson (NeurSurg) received a Cervical Spine Research Society Resident/Fellow grant for his project entitled "Determinants of outcomes from traumatic spinal cord injury: Development of a novel classification system to facilitate clinical trials and improved therapeutic strategies".

Michael Fehlings (NeurSurg) was awarded a Seed/ Starter Research and Education Grant for his project entitled *"Investigation of the neuroprotective effects of thioredoxin for the treatment of spinal cord injury"* from the Cervical Spine Research Society.

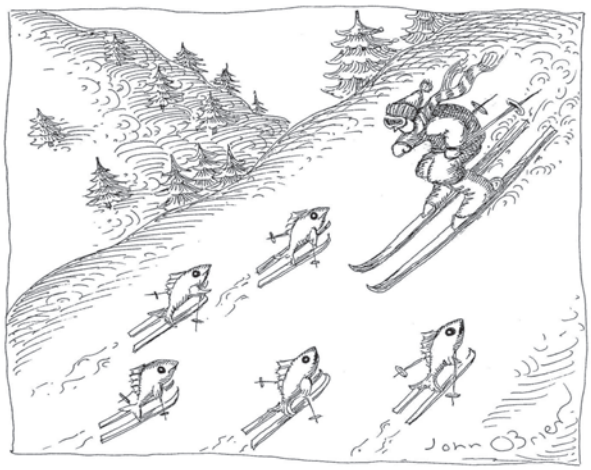
Michael Fehlings (NeurSurg) received the 3rd Place Clinical Science Award from the Cervical Spine Research Society for his paper entitled, *"Anterior vs. posterior surgical approaches to treat cervical spondylotic myelopathy: Outcomes of the prospective multicenter AOSpine North America CSM study in 280 patients".*

Michael was also awarded a Hansjörg Wyss Foundation Award for his project *"Intervertebral disc-derived multipotent stem cell rescue of the injured spinal cord".*

Loch Macdonald (NeurSurg) has been elected to the Editorial Board of the Journal of Cerebral Blood Flow and Metabolism

Andres Lozano's (NeurSurg) Stereotactic and Functional Neurosurgery Program at Toronto Western Hospital has been awarded a 1-year Fellowship Grant by Neurosurgery Research and Education Foundation (NREF). The grant is made possible with funding from Codman & Shurtleff

Michael Ellis and **Peter Dirks** (NeurSurg) were awarded a grant from the Ontario Ministry of Health/Ontario Stroke System to support a pilot study of a prospective pediatric cerebrovascular disease database at the Hospital for Sick Children, Toronto



Albert Yee (OrthoSurg) was one of two recipients of the 2011 Awards for Excellence in Postgraduate Medical Education in the category of Development and Innovation.

Ryan Neinstein (PlasSurg) was awarded Best Paper at the 2011 American Society of Reconstructive Microsurgery for his study: *"The Role of Peri-operative Fluid Infusion Rate on Postoperative Complications Following Microsurgical Breast Reconstruction"* (Co-supervised by Toni Zhong and Stefan Hofer).

Taiba Al-Rasheed (PlasSurg) was awarded funding to attend the Operation Rainbow mission to India from March 2 -12, 2011 by theThe Educational

Karen Cross (PlasSurg) was awarded a Mentor Canada, Johnson and Johnson Medical Companies Prize for Best Clinical Paper titled: *"Multiphoton Imaging of Acute Thermally Injured Tissue: A Preliminary Assessment of an Emerging Technology"*(Supervisor: Joel Fish).

Kunaal Jindal (PlasSurg) received a Mentor Canada, Johnson and Johnson Medical Companies Prize for Best Clinical Paper titled: *"Results of Primary Orbital Fracture Repair: An Analysis of Morphological Outcomes",* (Supervisor: Oleh Antonyshyn)

Siba Haykal (PlasSurg) received the Best Basic Science Award for the *"Evaluating the Extracellular Matrix Components Following Decellularization of Tracheal Allografts Used for Airway Transplantation"* (Supervisors: Stefan Hofer and Thomas Waddell)

Siba also received the Training Program in Regenerative Medicine Scholarship (supervisor – Thomas Waddell) and a PSI Resident Research Grant (supervisor – Thomas Waddell)

Kristen Davidge (PlasSurg) received the Best Clinical Paper Award for the article *"Qualitative Assessment of Patient Experiences Following Sacrectomy and Reconstruction"* (Supervisors: Joan Lipa and Frances Wright)

Marcelo Cypel (ThorSurg) received the Michael E. DeBakey Research Scholarship from the American Association of Thoracic Surgery, 2010

Marcelo Cypel and **Thomas Waddell** (ThorSurg) were awarded the Princess Margaret Hospital Foundation's Invest in Research Award, 2010

Thomas Waddell and **Shaf Keshavjee** (ThorSurg) received the McEwen Centre Acceleration Award: Towards Human Tracheal Decellularized Allografts, 2010 – 2012

Tom also received - the La Roche Organ Transplant Research Fund: Lung Progenitor Cell Profiling in the Development of Bronchiolitis Obliterans Syndrome; - a Physician's Services Incorporated Foundation grant: Determining the Immunogenicity of Decellularized Tracheal Allografts and a Canadian Institutes of Health Research grant to study Mitigation of Radiation-Induced Lung Damage with Richard Hill Andrew Hope.

Thomas Waddell and **Alison McGuigan (ThorSurg)** were awarded the NSERC-CIHR Collaborative Health Research Program: Engineering Improved Tracheal Replacement Tissues.

Takahiro Nakajima (ThorSurg) received the Young Investigator Award of the American College of Chest Physicians (supervisor – Kazuhiro Yasufuku)

Kazuhiro Yasufuku (ThorSurg) received the CIHR: Emerging Team Grant to study Nanotechnology-Enabled Image-Guided Interventions in Vascular and Lung Diseases (2010 – 2014)

Shaf Keshavjee and **Mingyao Liu** (ThorSurg) received a Ministry of Research and Innovation GL2 – 01-019 Grant: Molecular and Genomic Diagnostics to Improve Outcomes in Lung Transplantation.

Robert Zeldin and **Carmine Simone** (ThorSurg) and the Thoracic Team from TEGH have won another Quality Award from Cancer Care Ontario for their work partnering with Royal Victoria Hospital (RVH) in Barrie and setting up a successful Diagnostic Assessment Unit modelled on their previous award winning "Time to Treat" Rapid Access Lung Cancer Program.

Michael Ko (ThorSurg) received the President's Award for the Best Scientific Abstract submitted by a resident or young investigator to the Society of Thoracic Surgeons 47th Annual Meeting in San Diego.

Michael also received the Pearson Day Award and the Pearson Teaching Award, 2010

Barry Rubin (UrolSurg) was awarded the 2010 Lister Prize in Surgery for sustained excellence in surgical research over the course of a career, for his research into the mechanisms that regulate recovery of heart function after a heart attack.

Joao L. Pippi Salle (Pediatric UrolSurg) was honored on Dec. 3, 2010 with the Herbie Doctor of the Year Award for 2010 recognizing all of his contributions to underprivileged children needing care at SickKids from all over the world.

Joao L. Pippi Sale

Thomas Lindsay (VascSurg) is the recipient of this year's Ross Fleming Surgical Educator Award. This award is presented by the Surgeon-in-Chief at UHN for Excellence in Surgical Education

The Deadline for the next Surgery Newsletter is May 27, 2011. All members of the Department are invited to submit items, articles, pictures, ideas or announcements. You may reach us by:

voice mail: **416-978-8909**
e-mail: **alina.gaspar@utoronto.ca**.

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

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