

# The Surgical Spotlight

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



SPRING-SUMMER 2008

## Cutting for Cancer

34TH ANNUAL GALLIE DAY 2008



Bryce Taylor (right) presents the *Lister Prize* to Shaf Keshavjee (ThorSurg).

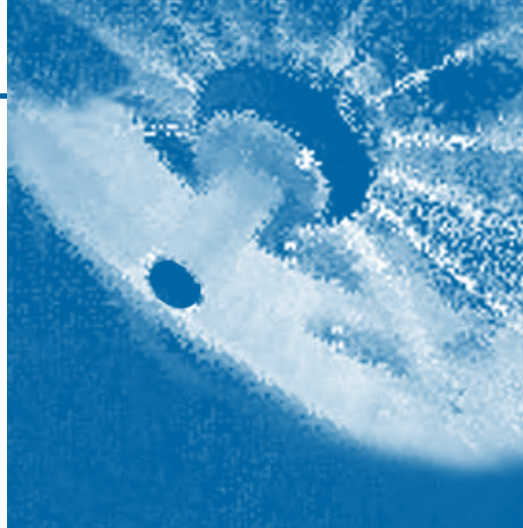


Helen MacRae (right) presents the *Surgical Skills Centre Distinguished Educator Award* to John Murnaghan (OrthSurg).

All of our surgical specialties deal with patients with cancer. Members of our Department of Surgery have an impressive level of research productivity in this area. In the past five years, our faculty had close to 500 peer reviewed articles published on cancer research. This included publications in the highest ranked journals, such as *Nature* and the *New England Journal of Medicine*.

This work has improved the way we diagnose and treat cancer. As such, it is fitting that the theme for this year's Gallie Day was cancer research. The day included a symposium entitled "Cutting for Cancer: A Role for Surgeons in Oncology Research." This symposium posed the questions: (1) do surgeons make contributions to cancer research, and (2) will cancer research make surgical management of cancer unnecessary? Steven Gallinger (General Surgery), Abhijit Guha (Neurosurgery), Robert Nam (Urology), and Jay Wunder (Orthopaedic Surgery) discussed their research work in cancer, clearly demonstrating that surgeons make substantial contributions to cancer research. They gave eloquent talks about new advances in genetic predisposition to gastro-

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Richard Reznick, R.S. McLaughlin  
Professor and Chair



Benjamin Alman, Vice Chair  
Research

intestinal and prostate cancers, mouse models in brain cancer, and developmental signaling pathways in musculoskeletal tumours. Introductory remarks discussed the complexity of biologic systems, and similarities of predicting biologic outcome to predicting the weather. Applying mathematical principles of predicting outcome in complex systems (chaos theory), it is clear that small changes can still lead to oncologic changes in cells, despite the ability to modulate many of the pathways important in initiating or maintaining neoplasia. This suggests that while these research advances will improve cancer outcome, surgeons will still be needed in cancer management, for the foreseeable future.

The exciting advances in cancer research from our department were complimented by the Gordon Murray Lecturer, Randy Rosier, Professor of Orthopaedics and Rehabilitation and Senior Associate Dean for Clinical Research, University of Rochester Medical Center, Rochester, New York, who gave a fascinating lecture entitled: “Bench to Bedside and Back: Translational Journeys in Surgery.” He demonstrated how clinical findings lead to a line of basic science research, which then resulted in the development of new therapeutic approaches. This



Randy Rosier

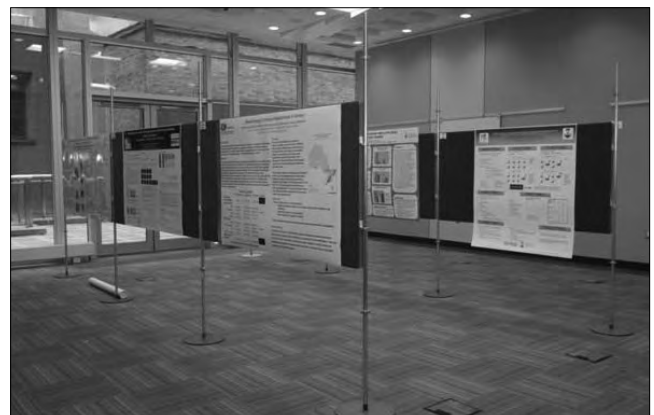
clearly showed the importance of surgeons engaging in fundamental research to drive improved patient care. Randy ended the talk by discussing the ingredients necessary to continue a productive surgeon-research enterprise, some of which he has reviewed in a recent publication (*Clin Orthop Relat Res.* 2006 Aug; 449:159-64).

There was a change in the format of the talks by trainees, in that both members of the Surgeon Scientist Program and non-residents training with our departmental faculty members gave platform presentations. There were 10 platform presentations and close to 50 poster presentations. Both the Gallie Bateman Awards (for Surgeon Scientist Program participants) and McMurrich Awards (for any trainee working with a member of the faculty of surgery) were judged from both platform presentations and poster presentations. The diversity of the topics and types of trainees highlighted the variety and high quality of the research being conducted in our department. There was a much larger than usual attendance, and for much of the day there was a standing room only crowd.



Gordon Murray

- Chief experimental surgeon in the development of heparin and pioneer of its clinical use
- Developed many new surgical techniques, including vein grafting and the first heart-valve transplant
- Performed the first renal dialysis in North America in 1946, using the artificial kidney machine which he had invented



GALLIE DAY *continued on page 5*

## Curriculum Renewal: A Challenge for Specialty Medicine

### *We're doing well but likely to change*

The University of Toronto is embarking on a process of undergraduate curriculum renewal. By all measures, we are doing well. We had a very successful accreditation in 2004. Our scores on national licensing exams are amongst the best in the country. Our graduates are getting into the best residency programs. Our decanal team is strong and committed. However, like all good organizations dedicated to continuous quality improvement, it is unlikely that the renewal process will culminate in minor tweaking. Rather, it appears that we may be headed for some profound changes. Not all will applaud these changes, which to a large extent will be driven by our internal perceptions of our social responsibility. While this may be a laudable driver of change, it will no doubt provoke and highlight some inevitable tensions that will shape the debate around what our medical school will ultimately focus on and what type of physician "product" we hope to produce.



Richard Reznick

### *Who will make the best doctors?*

It is likely that the first question we will have to tackle is our admission policies. Currently we admit an amazing group of young talented individuals, often from very different and eclectic backgrounds. Many have a wealth of premedical school experiences, and many enter medical school at a relatively advanced age compared to other countries. By definition our system admits almost all of its entrants after a bachelor degree, and an increasing number with graduate degrees. This frames a question for our school that with residency becoming longer and longer and with specialty fellowships becoming the rule rather than the exception, one has to question the relative societal merits of graduating older vs. younger physicians. Another point to consider is the issue of gender. The majority of our class is women and if the trends continue

as they have over the last decade, within a short few years men could represent fewer than 25% of our class. With respect to the issue of gender imbalance, it is laudable that we have redressed the issue of too few women in medicine. However, in the long run there may well be a debate with respect to gender. On one polar extreme will be those of the opinion that gender should play no role in admissions to medical school. That is to say, the best candidates, as measured by the criteria we set, should be admitted. On the other polar extreme will be those who argue that maintaining a reasonable gender balance is important for our school, for the profession and for society.

### *A response to generalism*

To a larger extent the current process is responding to the call for a more generalist approach to medical education. This movement, which had its strongest moments in the 90s, still persists today. Its persistence is fueled by continuing shortage of primary care specialists and the perception that we have over-focused on the tertiary and quaternary care agenda. At U of T this was manifest in a "generalist care curriculum enhancement task force" that authored a report which was highly critical of our own attitudes and approaches to the issues embraced in the generalist agenda. ([www.facmed.utoronto.ca/programs/md/generalist.htm](http://www.facmed.utoronto.ca/programs/md/generalist.htm)) While we all agree that the shortage of family doctors across Canada is of concern, one has to question if this issue should dominate as we contemplate changes for our future. We currently train more family physicians than any other medical school in the country, and yet unlike many other medical schools, one could argue that given our research and specialty infrastructure, we should be narrowing our focus on the complex, with the comfort that other schools across the country have as their principal mission the education of the generalist physicians. We are suffering from some confusion of just what the generalist construct is. It currently means different things to different groups such as the production of primary care physicians, or the need for a more holistic approach to the care of patients, or the concern over attitudes of specialists towards family physicians. While we can easily empathize with many of these concerns, it can be argued that the issue of physician "generalism" may be somewhat of a passing fad as many of the functions of the generalist physician of today may be assumed in the future by other health professionals, arguably at less cost to the health system.

### *Will there be a Department of Surgery in fifty years?*

Perhaps even more contentious will be the allocation of curricular weeks by department. Indeed, holding on to one's aliquot, particularly of clerkship time, promotes almost religious zeal amongst departmental leaders. As surgeons, we feel strongly that we are in a unique position to teach about surgery. Further, we believe strongly that we can teach general skills about looking after sick patients that will be of great value to our undergraduate studentship. The last wave of curricular change resulted in an element of specialist disenfranchisement when systems based teaching, for which specialists felt a fair degree of ownership, was replaced by more PBL teaching and more generic courses that are taught by a wide spectrum of physicians and non-physicians. Specialists are therefore, to some degree, poised to react to any suggestions that there be further erosion of curricular time to their specialty.

But perhaps we have this all wrong! Perhaps we need to be thinking more futuristically and speculating what medical care will be like in 30, 40 and 50 years from now. Will we still be doing surgery as we know it? Or will surgery be some sort of amalgam of traditional surgery, interventional radiology, image guided therapy and the procedural aspect of medical sub-specialties? In this light should time be given longitudinally across specialties in a more generic sense? There may well be some merit to this concept. However, currently our affiliations, budget, reward systems and allegiances align strongly on with our departmental structures, and trying to break down these structures may yield more negatives than positives.

Finally, with respect to surgery, I would strongly suggest that our department and its faculty want to be highly invested in the undergraduate curriculum. Early exposure to junior medical students is critical if we are to continue to attract the best and the brightest to surgery. If we don't interact with them, serving as their advisors, teachers and role models, we will see a diminution in the popularity of surgery as a specialty. Just as important we have a lot to teach our future colleagues. We have an array of skills that are critical to impart to our students. We know more about trauma, critical illness, cancer, cardiovascular physiology, wound healing, and nutrition than most. There is a closeness to our relationships with patients that is unrivaled in most other domains of medicine. Last, but certainly not least, a surgeon's job is the most exciting and gratifying of any of the medical professions. We need to pass on this excitement to our students.

### *The ultimate great debate*

Finally, the debate which will be framed to a large extent around the issue of social responsibility will pit the "soft stuff" against the "hard core". To be sure, as physicians we have to be mindful of the many social issues which dominate our society. We have to be mindful of just how privileged we are to be living and working where we do. When compared to billions around the world, our riches are extraordinary. We must understand that the afflictions of hunger, poverty, torture, war, and abuse are overwhelming and deserve our attention. The question will be, as we fashion a new curriculum, whether these issues should gain further expression in our curriculum, and if so, at the expense of what. For instance, should these issues divert curricular time away from the field of transplantation, because in comparison to the number of individuals who will have transplants, the numbers affected by the above-mentioned afflictions are staggeringly imbalanced. Yet, the University of Toronto has special expertise in transplantation and can deliver an outstanding education in this area. Similarly, should we devote a large element of curricular time to having our students in the community and in our patients' homes? If so, should this be at the expense of a rotation in the ICU, the ER or a tertiary care facility in-patient ward? Obviously the two extremes need not be mutually exclusive, but there are going to have to be trade-offs. Ultimately we cannot be all things to all students. And to a large extent, our future curriculum should be dictated by our vision and mission. The University of Toronto has an embarrassment of riches, talent beyond belief, an extraordinary research infrastructure and some of the best professors in the world. It would be my opinion that we should aspire to graduating all of our medical students with special expertise. That may be graduating with an MD/PhD and heading for a career in research. It may be aiming for a career as a leader in family medicine. It may be aspiring to be a clinician-educator who will help define the educational processes of the future. It may be dedicated to pursuing a career in public health policy. It could be developing a thirst for a surgical career working primarily in countries less fortunate than Canada. It is my view that above all our goal should be for all of our graduates to have the skills, the potential and the desire to do something special, something unique. We owe this to our heritage. We owe this to our magnificent faculty. And, above all, we owe this to the extraordinary students we accept each year into our first year medical class.

*Richard Reznick*

*R.S. McLaughlin Professor and Chair*

## THE GALLIE BATEMAN AWARDS

**Oral Research Presentations** for best work by a trainee in the Surgeon Scientist Program went to:

### 1st Prize

**Betty Kim** (NeurSurg Resident, (Supervisors: Warren C.W. Chan and James T. Rutka)

“Nanoparticle-mediated cellular response is size-dependent”



Benjamin Alman presents first prize to **Betty Kim**

### 2nd Prize – three way tie

**Kristen Davidge** (PlasSurg Resident, Supervisor: Aileen Davis)

“Patient expectations for surgical outcome in extremity soft tissue sarcoma”

**William S. Johnson** (GenSurg Resident, Supervisor: Thomas F. Lindsay)

“Complement mediated organ dysfunction after ruptured abdominal aortic aneurysm: Mechanistic evidence from mice and humans”

**Isaac Moss** (OrthSurg Resident, Supervisors: Kimberly Woodhouse, Cari Whyne, and Albert Yee)

“Biomechanical and biochemical evaluation of a novel hyaluronan/elastin-like polypeptide composite scaffold for nucleus pulposus tissue engineering”

## POSTER AWARDS

**The McMurrich Award** given for the best fundamental science work by any level trainee working with a member of our department.

### 1st Prize – Tie for first place.

**Marcelo Cypel** (Supervisors: Shaf Keshavjee, Mingyao Liu, and Thomas K. Waddell) “Ex vivo repair of human donor lungs for transplantation” and **Paul Northcott** (Supervisors: James T. Rutka and Michael D. Taylor).

“Multiple recurrent genetic events converge on control of histone lysine methylation in medulloblastoma”



Benjamin Alman (right) presents first prize to **Marcelo Cypel** (left) and **Paul Northcott** (centre)

### 2nd Prize – Tie for second place.

**Kathryn Ottolino-Perry** (Supervisor: J. Andrea McCart) “Spheroids: Characterization of oncolytic vaccinia virus infection and anti-tumour effects in 3-dimensional in vitro tumour models”

**Amparo Wolf** (Supervisor: Abhijit Guha)

“The glycolytic switch suppresses mitochondrial regulation of apoptosis and oxidative phosphorylation in glioblastoma multiforme”

### 3rd Prize – Five way tie for third place.

**Yosz Z. Haffani** (Supervisor: Carol J. Swallow)

“PLK4 regulates the localization of ECT2 and the activation of RHOA at the spindle midbody to promote cytokinesis”

**Carla Rosario** (Supervisor: Carol J. Swallow);  
“PLK4 haploinsufficiency mediates chromosomal instability and umorigenicity”

**Elissa Tepperman** (Supervisor: Vivek Rao)  
“The effect of calcineurin inhibition on vasomotor function and visfatin expression”

**Amy P. Wong** (Supervisor: Thomas K. Waddell)  
“Identification of a novel epithelial-like bone marrow stem cell that can repopulate the airway epithelium”

**Colleen Wu** (Supervisor: Benjamin A. Alman).  
“Mesenchymal progenitor cells are involved in the formation of aggressive fibromatosis”

**The Wyeth Award** for best clinical epidemiology or education based research poster was awarded to:

#### Ist Prize – Tied

**Karen Cross** (PlasSurg Resident, Supervisor: Joel S. Fish) “Redefining the gold standard and establishing a grading system for tissue injury” and **Deepa Kattail** (Supervisor: Michael G. Fehlings) “The influence of age and comorbidity in the clinical outcomes in patients with acute spine trauma: Experience of a single acute care unit in Ontario”



Benjamin Alman (centre) and Sonja Finocchiaro (right), Wyeth Award Representative, presents the Wyeth Award to **Karen Cross** (left) and **Deepa Kattail** (not pictured)

## FACULTY AWARDS

**Shaf Keshavjee** is the winner of this year's Lister Prize. See photo on page 1. The Lister Prize in surgery is awarded to an investigator who has shown outstanding and continuing productivity of international stature as evidenced by research publications, grants held, students' trained and other evidence of the work produced.

**John Murnaghan** is the winner of this year's Surgical Skills Centre Distinguished Educator Award. See photo on page 1. The University of Toronto Surgical Skills Centre Distinguished Educator Award for Outstanding Contributions demonstrates the Centre's commitment to surgical skills education. This award recognizes those individuals who have made exemplary, innovative contributions to teaching and learning in the Surgical Skills Centre over the past year.



Bernard Langer (right) presents the Bernard Langer Surgeon Scientist Award to **Michael Taylor** (NeurSurg).

This award is presented to an outstanding graduate of the Surgeon Scientist Program who shows the greatest promise for a career in academic medicine.



Robin Richards (right) presents the George Armstrong-Peters Prize to **Cindi Morshead** (Anatomy).

First awarded in 1912, the Armstrong-Peters Prize honours younger surgeons who have sustained continued productivity in basic science research.



Charles Tator (right) presents the Charles Tator Surgeon-Scientist Mentoring Award to **Joel Fish** (PlasSurg).

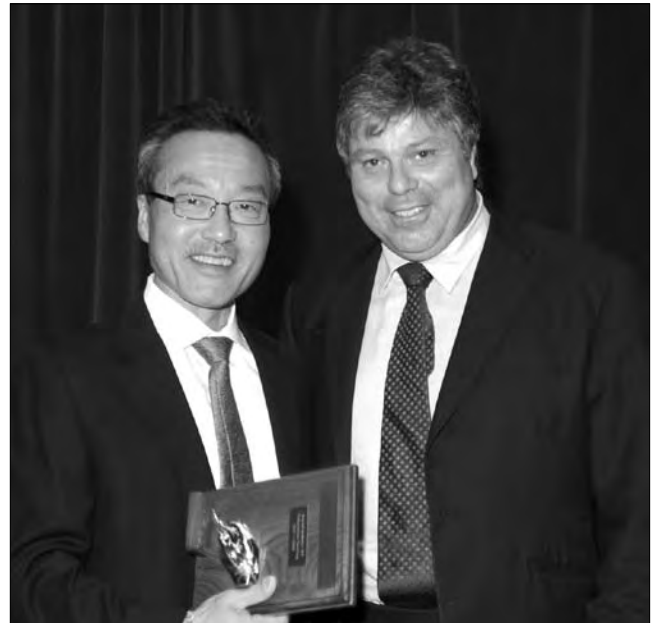
*The Charles Tator Surgeon-Scientist Mentoring Award is intended to honour individuals supervising participants in the SSP who emulate Professor Tator's qualities, namely excellence in research, commitment to SSP mentoring and dedication to promotion of Surgeon-Scientists. The intent of the award is to provide recognition for teaching contributions made by supervisors to SSP trainees.*



James Rutka (NeurSurg) (right) presents the Donald R. Wilson Award to **Melfort Boulton** (NeurSurg Resident).

*The Donald R. Wilson Award recognizes significant contributions by a resident surgeon for continued instruction of peers and medical students.*

Honouring the outstanding past teachings of Professor Bruce Tovee we are pleased to announce the following award winners:



Ron Levine (right) presents the E. Bruce Tovee Teaching Award for Outstanding Teaching in Postgraduate Education to **Ron Kodama** (UrolSurg).



David Backstein (right) presents the E. Bruce Tovee Teaching Award for Outstanding Teaching in Undergraduate Education to **Peter Ferguson** (OrthSurg).

## DEDICATION TO EDUCATION

*Richard Reznick presented the following faculty members with a Department of Surgery, University of Toronto, engraved wooden captain's chair, a token gift for their dedication to education.*



Richard Reznick and **Richard Weisel** (left)

Richard Weisel has successfully completed his term as University Division Chair, Cardiac Surgery (1998-2008).



Richard Reznick and **John Bohnen** (right)

John Bohnen resigned his post as Director, Postgraduate Education (1999 – 2007) and Vice Chair, Education (2004 – 2008) to accept the role of Vice Dean, Clinical, Faculty of Medicine. We congratulate John on his new position and look forward to a continued working relationship with him in his new role.

Thanks to all the judges for the poster competition as well as the oral presentations.



**Andrea McCart**



**David Urbach**



**Sylvia Perry**



**Val Cabral**

Thanks again this year to Andrea McCart, David Urbach, Sylvia Perry and Val Cabral for their dedicated organization of the day.

*Benjamin Alman  
Vice Chair Research*



## more on Gallie Day ...

Entertainment by: **OPERIS**



Ben Crunchily (pianist), Romulo Delgado (tenor), Sinead Surge (soprano) and Darrel Hicks (tenor) (left to right)



Carla Rosario, Elissa Tepperman, Amy Wong, Colleen Wu and Ben Alman (left to right)



Ben Alman and Randy Rosier (right)



Karen Cross (PlasSurg Resident), Ben Alman and Ivan Diamond (GenSurg Resident) (left to right)



Ben Alman, Kristen Davidge (PlasSurg Resident) and William Johnson (GenSurg Resident) (left to right)



Ben Alman and Amparo Wolf

# Improving Patient Safety: Lessons from the Airline Industry

The important 2000 study of the Institute of Medicine in the United States “To Err is Human” estimates that there are 50 to 99 thousand deaths per year related to medical error in the US. At a recent UHN Surgical Services Rounds Captain Mark Auerman, an Air Canada pilot specializing in competence assessment and training, opened the discussion of patient safety with a slide illustrating a dramatic reduction of the incidence of aircraft accidents. Over the past thirty years it has fallen from over forty to fewer than two per thousand departures. He analyzed the “runway excursion” of an Air France plane last year in Toronto which almost resulted in a highway incursion. The cause was pilot error. Errors in the airline industry are primarily caused by problems within the crew (66%). Only 13% are from problems with the airplane. Mark, a nineteen-year veteran pilot, startled everyone by stating “I’ve never had a perfect flight”. This reflects the contrast between the culture of his industry, which plans on coping with imperfection, and the misleading culture of perfectionism in surgery.



Mark Auerman

perfectionism in surgery.

Competence of airline pilots is regulated. They are required to undergo a medical examination every six months after the age of forty. They retire at age sixty-five -- age sixty at Air Canada. They undergo six training/evaluation sessions per year, including four days of simulator training and regular line operational safety checks in the air, conducted by a pilot/evaluator “in the jumpseat”. They spend a classroom day with the full crew as part of the program of training in crew resource management. The pilot’s role is similar to that of the anaesthetist -- extremely busy at the beginning and the end of the case. Though technology allows pilots to “fly by the button” there has been recent emphasis on

manual flying, to be sure they can manage unexpected and unprogrammable emergencies.

Challenging personalities are managed by one-on-one training. Oversight includes air safety reports, flight data analyses and the advanced qualification program. The flight data analyses use de-identified data. The flight data recorder is retrieved if variants are found, like “tail strikes” on take-off or landing. The problems of individual pilots are discovered in the simulators. The union is the gatekeeper overseeing safety, a wise tradition that dates back to the guilds. Those who are not able to meet the standard are taken off revenue flying. The training intervals are based on data and experience, as some pilots take off several times per day, and others may take off once and fly for nineteen hours. The mantra of the training program is “we fly the way we train and train the way we fly.”

Line operational safety audits look at “threats” as well as errors. The safety barriers in James Reason’s Swiss cheese diagram are: 1. Policies and procedures, for example, “disarm the doors and cross check” (to be sure ground personnel are not injured by emergency slides inflated like airbags when they open the doors); 2. Checklists; 3. Automation, though equipment can vary; 4. Crew resource management skill; and 5. Aircraft handling skill. The threats to the safety of the plane come from weather, fatigue, malfunction, illness and complacency. When accidents occur despite all of these safety barriers, the euphemism describing them is “undesirable aircraft state”, analogous to our “adverse event” terminology.

## CULTURAL CHANGE

Air safety reports are kept confidential and no disciplinary action is taken on the basis of these reports. The integrated safety management system includes self-reporting, timely feedback to the initiators of the report, audit, and quality assurance. Important elements of the cultural change in air safety include emphasis on these values: 1. We must recognize we make mistakes and devise ways to recognize, manage and prevent them; 2. Training must be skill-based; 3. Crew performance, not just individual performance must be strengthened; 4. Fatigue is managed by a 13-hour “duty gate”. This is important because pilots are paid more when they are in the air, analogous to fee for service payment for performing surgery.

Air Canada spends roughly half of its budget on people and half on fuel and equipment. Pilots grade each other using videos. Aging pilots have “naturalistic decision-making” which is somewhat like surgical intuition. Their decisions are quicker and more often right.

*M.M.*

## Catheter Based Endovascular Interventions

At seven am on January 1st, a 17-year-old student riding a snowmobile was hit broadside by a speeding minivan at a rural intersection north of Toronto. He suffered open fractures, lacerations of the liver and spleen, and a minor head injury. His chest X-ray and angiogram revealed a transected thoracic aorta just below the sub-clavian artery. He was transferred for definitive treatment to St. Michael’s Hospital. Mark Peterson answered the call to assess this critically ill young patient.

Evidence has been accumulating recently that catheter based endovascular interventions may reduce complications and offer advantages over open techniques (1) for traumatic rupture of the aorta. This seemed an ideal case for a stent graft. Though large size grafts used in older adult patients (eg. 26–40 millimetres in diameter by 200 millimetres in length) were available, a smaller graft was required to fit the slender aorta of this young patient. The Cook representative in Montreal answered his cell phone on the holiday, then promptly found and delivered a 22 X 115 millimetre graft. The patient was treated with beta blockers for blood pressure control and sedation until the graft could be placed, securing good apposition and a good result. Mark’s senior colleague Al Lossing, who has been doing endovascular procedures with radiologist Andrew Common for the past ten years, had performed



Mark Peterson

a similar intervention in a traumatic rupture of the aorta in December.

Some trauma centres in the US have angio suites with full fluoroscopy and operating room capability, a goal for St. Michael’s within the next year. There is a problem with reconciling the costs with current health care accounting practices. While these devices and their ancillary costs actually save the healthcare system money by sparing the patient a thoracotomy and cardiopulmonary bypass, the patient treated with a percutaneous stent uses a 12 thousand dollar device and 1.7 thousand dollars of ancillary tools, but may be ready to go home in a few days without requiring intensive care or prolonged hospitalization. (In trauma cases the need for intensive care is related to the other associated injuries.)

The new technology is being adopted slowly because of the high initial cost of the devices. An innovation fund to finance these less predictable, but expensive off-budget devices will eventually allow us to work out a way to incorporate them into the standard annual budget.

Mark is married to Mala, a nephrologist. They have three children, Sachin, 3, Devin, 2 and newborn Uma. Mark is an active runner, squash and tennis player who grew up in Winnipeg. His mother is from Florence, Italy, his father, a family doctor in Winnipeg, served as the team physician to the Winnipeg Blue Bombers. Mark completed medical school in Manitoba and came to Toronto for cardiac residency and a PhD in immunology with Tom Waddell. He feels that the six-year cardiac program was appropriate to the depth and breadth of knowledge required for the practice of cardiac surgery. Mark studied with Ted Dietrich at the Arizona Heart Institute supported by his clinical practice group and a grant from Terrence Donnelly. The Institute has four operating rooms and performs 5000 percutaneous procedures per year. They have done more than 500 thoracic aortic stents. Mark was inspired by a talk given at St. Mike’s by Ted Dietrich, a surgical maverick, who established the Arizona Heart Institute 37 years ago following his training with Michael DeBakey and Denton Cooley. Mark works with vascular radiologist Vikram Prabudesai. He is convinced that the specialty of cardiac surgery has to evolve to “do more than hearts.” While it may seem natural for him to be working with a cardiologist, a fusion model has not yet been worked out with that specialty. While at the Arizona Heart Institute,

Mark performed abdominal, renal and peripheral stenting as a full-service endovascular practitioner. In many ways thoracic stents are the easiest to insert, based on the large size of the thoracic aorta. Eventually cardiac valve surgery and particularly aortic stenosis will be regularly approached using catheter techniques. At St. Michael's funds have been allocated for 120 stents per year. This would last less than one month at the Arizona Heart Institute. If the budget for health care were calculated on the basis of value rather than cost, and the time axis for estimating the value of treatments extended until health is restored, the case for innovations like endovascular stents and their use in high volume centers would be transparently clear.

*M.M.*

1) Svensson LG, et al. Expert Consensus Document on the Treatment of Descending Thoracic Aortic Disease Using Endovascular Stent-Grafts. *Ann Thorac Surg* 2008;85:S1-S41.



## Creativity in Medicine

*What defines creativity? Where does creativity come from? Where does it exist in medicine?*



Tirone David

We were privileged to have someone who has been described as a *creative genius* enlighten us about these questions at a recent Surgical Services Rounds at the University Health Network. Dr. Tirone David, University Professor and Melanie Munk Chair of Cardiovascular Surgery at the Peter Munk Cardiac Centre, shared his unique insight on “Creativity in Medicine” to a rapt audience. Dr. David’s long history of technical and conceptual creativity in cardiac surgery has had a profound impact around the world -- from introducing Gortex chordae tendinae in mitral valve reconstruction, to inventing new types of heart valves and a valve sparing procedure, to his infarct exclusion operation.

Creativity, according to Dr. David, involves two fundamental qualities. The first relates to genius theory, some innate quality in an individual that portends an intrinsic skill in a particular area. As an example, Dr. David cited Albert Einstein as a widely recognized archetype of genius. Interestingly, following Einstein’s death, an examination of his brain revealed unique structural features that may explain his innate “genius”. The second quality that defines creativity is the stepwise, logical evolution of ideas, products, techniques, and in the case of surgery, operative procedures that follows from the work of thoughtful and skillful individuals.

Was the discovery of the structure of DNA by Watson and Crick an example of creative inspiration? No. Dr. David used this discovery to illustrate creativity as a logical stepwise progression of ideas from individual to individual. Starting from Oswald Avery’s 1935 discovery that DNA is the material of which genes and chromosomes are made, to Chargaff’s discovery in 1950 that in natural DNA the number of guanine units equals the number of cytosine units and the number of adenine units equals the number of thymine units, to Linus Pauling’s 1951

discovery of the alpha helical structure in proteins, Dr. David illustrated the logical progression of ideas that culminated in the next step: the discovery of the helical structure of DNA by Watson, Crick, Wilkins and Franklin in 1953. This sequence of events over decades serves as an example of Edison's description of creativity as 1% inspiration and 99% perspiration!

What describes creative individuals? They are skillful, self-motivated and knowledgeable, but those qualities alone are not sufficient. Creativity is something that not only has a flow, but is also judged within a domain, by a field of assessors, judges and peers who determine if an individual has demonstrated creativity. This process of judging creativity and discovery is clearly defined in medicine. The Nobel Prize winning discovery of *Helicobacter pylori* by Marshall and Warren aptly illustrates this process. In 1984, when Robin Warren observed small helical bacteria colonizing the antrum of the stomach in patients from which biopsies had been taken and signs of inflammation that were always present in the gastric mucosa close to where the bacteria were seen, he concluded that gastritis is a "bacterial disease". His peers did not believe him. However, when Barry Marshall, a young clinical fellow, became interested in Warren's findings and conducted a study including 100 patient biopsies with Warren, the findings were verified and finally judged by their peers to be a novel discovery that revolutionized treatment of peptic ulcer disease.

Creativity in medicine unfolds over time, a lifetime in most cases. Dr. David describes it as the synergy of many sources and not a product of a single mind. Why not? Because one cannot be knowledgeable in everything... Creative ideas are generated from the previous knowledge and experience of others and thus, creativity is in continuity with the past. Dr. David's passion for creativity is inspiring, as were his insights on creativity in medicine. We are privileged to have his creative genius amongst us at the university.

*Mitesh Badiwala*  
*Cardiac Surgery Resident*

## Trans-catheter Aortic Valve Implantation

New technologies are rapidly transforming how cardiac surgeons manage cardiovascular disease. Minimally invasive technologies hold the promise of reducing the risk and morbidity associated with cardiac procedures. Patients who would otherwise be deemed "inoperable" are now benefiting from these new minimally-invasive



Christopher Feindel

cardiac procedures. Amongst the areas in cardiac care that are rapidly changing is the management of valvular heart disease. Minimally-invasive, trans-catheter techniques for the implantation of aortic valves have been developed recently. We are privileged to have the leadership and expertise of Dr. Christopher M. Feindel, the Antonio and Helga DeGasperis Chair of Cardiovascular Surgical Research and Epidemiology at the Peter Munk Cardiac Centre, to bring this new technology in cardiac surgery to Toronto. Feindel is currently performing the innovative trans-apical trans-catheter technique of aortic valve implantation at Toronto General Hospital. He recently reviewed the current status of trans-catheter aortic valve implantation for us at the Surgical Services Grand Rounds at the University Health Network.

Aortic stenosis has a very poor prognosis once symptoms develop. The two year mortality exceeds 50% in symptomatic patients with aortic stenosis. As our population's life expectancy increases, more patients will present with aortic stenosis and increasing comorbidities. Dr. Feindel pointed out that the operative mortality for open aortic valve replacement in highly selected patients over the age of 80 currently ranges between 10 and 14%. However, there are and will be many patients who have comorbidities that increase the operative mortality to prohibitive levels. The driving force behind the development of alternative aortic valve replacement techniques has been the quest to treat these patients, who have an operative mortality >20% but who have a reasonable anticipated life expectancy.

The “proof of concept” studies of trans-catheter aortic valve implantation were performed in animal models by Andersen and colleagues in 1992. The initial studies involving porcine aortic valves mounted inside of stents and compressed on balloon catheters demonstrated the feasibility of the transcatheter implantation technique. The technique and technology evolved dramatically over the next 10 years and the first successful percutaneous trans-catheter aortic valve implantation in a human was performed in 2002 by Dr. Alain Cribier in France.

Trans-catheter aortic valve implantation has evolved into two approaches: a percutaneous trans-femoral approach and a trans-apical approach through a mini-thoracotomy incision. Dr. Feindel highlighted the important contributions that Canadians have made to the development and adoption of these techniques. Dr. John Webb in Vancouver has been a world leader in the trans-femoral approach which involves passing a 24-French catheter up the femoral artery, in a retrograde fashion, to the heart. Unfortunately, many elderly patients have aortoiliac vascular disease that prohibits this approach, and the alternative is a trans-apical approach involving a mini-thoracotomy incision and passing a catheter up through the apex of the heart. Dr. Samuel Lichtenstein, formerly at St. Michael’s Hospital and now in Vancouver, has been a world leader in the development of this approach. He visited Toronto and guided Dr. Feindel through his first trans-apical, trans-catheter aortic valve implantations at Toronto General Hospital.

Implanting an aortic valve through a trans-catheter approach in the operating room demands change, not only in the surgeon’s traditional operative technique, but also a change in operating room technology. A combination of echocardiography and angiography equipment is required to visualize the valve as the heart is rapidly paced and a balloon inflates to expand the stented valve into place. As this technology becomes adopted, operating rooms will have to change to become “multipurpose” or “hybrid” operating rooms that incorporate multiple imaging modalities.

Currently, Dr. Feindel is implanting these valves primarily as part of the REVIVAL (tRanscatheter EndoVascular Implantation of VALves) multi-center randomized clinical trial. This trial is evaluating the safety and efficacy of the transcatheter implantation technique in high-risk, symptomatic patients with aortic

valve disease. The hope is that this technology will prove to be safe and effective and provide a treatment option for high-risk patients that was previously unavailable. After having implanted over 7 aortic valves using the trans-catheter technique, Dr. Feindel thinks that this is the future of cardiac surgery. He sees the future involving the adoption of this and other innovative catheter-based technologies in the operating room. Finally, during these rapidly changing times in cardiac surgery, Dr. Feindel reassuringly observes through his own experience that, “you’re never too old to learn new things!”

*Mitesh Badiwala*  
*Cardiac Surgery Resident*

## Out of the Tunnel

THE KERGIN LECTURE



Rachel North



Susan Ormiston

The most riveting and moving University Grand Rounds of the year was given by a patient -- Rachel North. After hearing her speak on the BBC when he was in the UK, Richard Reznick invited Rachel, a young British marketing executive and writer, to be the Kergin Lecturer, interviewed by the able CBC correspondent Susan Ormiston.

Rachel told us the story of her experience on July 7, 2005, when a 19-year-old suicide bomber pushed himself into the overcrowded carriage she was riding on the London underground and detonated a rucksack full of explosives, killing 26 people at Kings Cross Station. Her heroic response was to lead survivors out of the train, along the dark underground passage to the next station. “Would we be electrocuted? Would there be

more bombs?” She described her care by the doctors and nurses and “ticket collectors who sprinted into the tunnel and tore their shirts to try to stop the bleeding”. Her empathetic response to her rescuers and fellow survivors is one of the most touching parts of her well-written book *Out of the Tunnel* – inspiring summer reading.

When Hugh Scully asked, “Have you connected with the first responders and the feelings that they have?” Rachel told us, “There are several first responders in King’s Cross United, the support group of survivors who continue to meet after the bombing. The police officer who was the first man into the train, who had to walk away from the carnage, suffered extremely severe post-traumatic stress. He had been involved in several traumatic events before and the 7<sup>th</sup> of July broke him. Underground ticket collectors who led out the wounded went on to suffer severely in the aftermath. I’m in contact with fire officers who had to carry some of the people out of the train without stretchers, using the coats dropped by passengers. One of the most difficult things for them is that as they carried out these people two of them died in their arms. There is an enormous, profound sense of gratitude to the first responders and an enormous sense of compassion, because we ran away – they went towards, which takes an extraordinary kind of courage, because they’re not protected by shock, they are knowingly walking into things that are appalling and that would make anybody despair. One of the things that we found helpful was to go to the pub with these people and say thank you. The police officer was particularly stressed by the fact that we had to leave people behind and he obsessed over it for a long time – the people he had to walk away from knowing the last thing they would see would be him walking away. It was only when he met all the people who didn’t die, and we were all jumping on him saying thank you, thank you, you were the first voice we heard, you were the person who told us we were going to get out, that he was able to recognize the fact that he had helped, that he had been part of people’s recovery. So we owe a great debt; these people are heroes.”

Chris Feindel asked what we can learn from her experience to help the patients who cope with the psychological and physical trauma we inflict as surgeons. “Help them feel that they are in control – not helpless victims.”

There is a back story of an earlier experience that helped prepare Rachel North for her ordeal. Read about it in her book, or visit <http://rachelnorthlondon.blogspot.com/>

*M.M.*

## Surgical Education Week – ASE Annual Meeting Program Highlights



Dimitri J. Anastakis, ASE Program Chair (right)

From April 15-19, the University of Toronto hosted Surgical Education Week – a week long meeting of both the Association of Program Directors in Surgery (APDS) and the Association for Surgical Education (ASE). Surgical educators from the United States, Canada and the UK participated in the program. As this year’s Program Chair, I am happy to announce that the meeting was a great success and share with you some of the highlights of the meeting:

- A new and innovative program for Clerkship Directors and Coordinators was held this year with a record number of attendees.
- Dr. William T. Branch of Emory University was the APDS keynote speaker; his talk on humanistic and spiritual aspects of medical care was a huge success and well received by the group.



Banquet

- The APDS panel with leaders from the Residency Review Committee, the American Board of Surgery and the American College of Surgeons discussed important changes planned for US resident education.
  - The ASE panel focused on empowering the learner. Panelists included Dr. James McGreevy, Flight Surgeon US Air Force, Dr. Sioban Nelson Dean of the Lawrence S. Bloomberg School of Nursing and Dr. Amy Edmondson from the Harvard Business School. Each provided their perspectives on the impact of learner empowerment in their respective disciplines.
  - The University of Toronto's Dr. Lorelei Lingard gave this year's "What's New in Surgical Education" lecture on the concept of *team competence*. It was the highlight of the meeting.
  - The J. Roland Folse Lectureship was given by Dr. Linda DeCossart from Chester Hospital, UK. Dr. DeCossart is a vascular surgeon with an international reputation for her expertise in teaching clinical judgment. Dr. DeCossart is also the Vice-President of the Royal College of Surgeons of England.
  - Toronto's Surgical Skills Centre at Mount Sinai Hospital was open to all participants and was a popular destination during the meeting – many thanks go to Manager Lisa Satterthwaite for her generosity and endless enthusiasm.
- Toronto remains an international leader in surgical education as highlighted by our strong faculty and student participation throughout the meeting. I would like to thank our faculty, residents and students for helping make this year's meeting such a great success.

*Dimitri Anastakis*

"I became increasingly fascinated with the patients' stories, which came tumbling out as my mentor seemingly magically opened some lock around the patient's heart. I remember a particular patient who had survived more than one episode of malignant ventricular arrhythmias. The professor began exploring what the patient thought had triggered these life-threatening events. She told the story of her life in Germany and survival in a concentration camp as a musician for the German officers, her attempts to smuggle food to her parents and siblings in the camp, and her despair and guilt when they were exterminated. His back was turned, but I could see the patient's face. Her eyes were riveted to my mentor's as she told her story quietly. When she was done, he turned slowly to face the group. Tears were streaming down his face. I will never forget that moment. The meaning of listening and allowing the patient's experience to enter you -- sharing the experience in one's heart and re-emerging with a connection to the experience forever embedded in my mind. As time went on, I came to realize that when he turned to face us, I too had shared not only the experience with the patient, but also his experience. I knew he was teaching me what it meant to be a doctor."

William T. Branch, et al. Teaching the Human Dimensions of Care in Clinical Settings. JAMA. Sept. 5, 2001;286(9):1067-1074.



## Scientists in Surgery

*Approximately 15% of our surgical faculty are individuals who are non-MDs and work as full time scientists. These individuals are significant contributors to the research effort of our Department. This section will endeavour to profile excellence in research among the scientists in our Department.*



Paulo Koeberle

Paulo Koeberle joined the Anatomy Division as an Assistant Professor in the tenure stream in September 2006. He completed undergraduate studies at McMaster University in 1997 and then began doctoral studies in Neuroscience under the supervision of Dr. Alexander Ball. His early research work established the

neuroprotective effects of several growth factors following axotomy of retinal ganglion cells. This experience fostered his interest in the mechanisms of neuronal degeneration and regeneration in the injured adult CNS. He followed his PhD program with postdoctoral studies, first with Mathias Bahr at the University of Goettingen, Germany, then with Lyanne Schlichter at the Toronto Western Research Institute. While at Goettingen, Paulo investigated the mechanisms of the neuroprotection provided by GDNF and Neurturin, demonstrating their role in reducing glutamate-mediated excitotoxicity in injured neurons by upregulating expression of certain glutamate transporters. While working with Lyanne Schlichter, Paulo uncovered the role of Kv1 family potassium channels in promoting apoptosis in injured retinal ganglion cells.

Since joining the Anatomy Division Paulo has set up his lab with funding from the Glaucoma Society of Canada, The Glaucoma Foundation (TGF, U.S.), the Connaught Foundation, the Canadian Foundation for Innovation Leadership Opportunity Fund (with a matching grant from the Ontario Research Matching Fund) and the CIHR. His research is currently focused on identifying novel proteins that are involved in neuronal apoptosis as well as the role of extracellular matrix

interactions in determining the survival of neurons. Paulo has also established very active collaborations with Cindi Morshead in the Anatomy Division and Michael Fehlings in the Division of Neurosurgery. His work with Cindi Morshead is directed at understanding the factors that control the differentiation of retinal stem cells with a view to promoting the development of new retinal ganglion cells. With Michael Fehling's research group he is investigating the neuroprotective effects of VEGF and its ability to promote neovascularization in the CNS. By exploring ways to up-regulate VEGF expression Paulo hopes to contribute to improving the clinical outcomes for stroke patients.

Paulo currently teaches students in both the Faculties of Arts and Science and in Medicine. Next year he will take over as the Course Director for Neuroanatomy in the PT program. Paulo has a bright future and is an outstanding addition to the Division of Anatomy.

*Michael Wiley  
University Division Chair, Anatomy*

## Cardiac Resident Made History as Harvard and MIT Business Plan Team Winner

Gilbert Tang (CardSurg), a June 2008 MBA graduate of the Harvard Business School (HBS), made history with his business plan team, Diagnostics For All (DFA), as the first ever winner of both the HBS and MIT business plan contests. The team consists of 6 Harvard and MIT students, including Gilbert.

The business plan contests at HBS and MIT are hallmark venues for budding entrepreneurs to enter their ideas to compete for attention and funding from venture capitalists. Many past contest winners have become successful companies, several of which are now worth billions of dollars.

This year's winner was chosen from among 18 contestants at HBS and 232 contestants at MIT. What



Gilbert Tang, MIT 100K Team Winner

made Gilbert's team special was this was the first ever non-profit entry that won the MIT contest. The HBS prize consists of \$10,000 cash and \$10,000 in-kind services, while the coveted MIT prize consists of \$100,000 in cash. Gilbert's winning team was featured in the Boston Globe. ([http://www.boston.com/business/ticker/2008/05/mit\\_100k\\_compet.html](http://www.boston.com/business/ticker/2008/05/mit_100k_compet.html))

DFA, a start-up non-profit enterprise, was co-founded by Dr. Hayat Sindi, a research scholar who worked with the esteemed Harvard Professor of Chemistry George Whitesides (<http://gmwgroup.harvard.edu/research.html>). The company aims to provide a new generation of point-of-care diagnostic tools to transform health management in the global health community.

Gilbert describes the project: "The initial application of our platform technology is to perform LFTs on patients on medications for TB & HIV/AIDS in the developing world. Currently, no active monitoring programs are in place and even if there are it takes weeks to get results back and by that time that patient is gone and cannot be tracked. This would have never happened in Canada or the US. As a result, one million patients can die from drug-induced liver failure from the side effects of these medications.

The product is based on a platform paper-based technology using microfluidics that can simultaneously perform different biochemical reactions on a piece of paper to give semi-quantitative lab results (think of a urine dip stick). Our LFT devices will measure serum liver enzyme levels in 60 seconds by putting a drop of blood on a

piece of paper. The blood wicks through multiple channels, each containing a separate reagent that changes colour upon reaction. The colour change matches a semi-quantitative scale which allows field clinicians to make treatment decisions on the spot, preventing liver damage from even happening in the first place. The device is as small as a stamp and costs a penny to make. It enables health providers in the field to get lab results in minutes and transform the way health monitoring is done in developing countries.

In the future, we plan to expand monitoring to kidney function (e.g. creatinine, BUN), electrolytes, hemoglobin, and even glucose & cholesterol for the developed world. Future applications include paediatrics, emer-



DFA device

gency response, bioterrorism, consumes and water testing. In fact, Unilever and J&J have already expressed interest in licensing our technology for commercial use, and licensing revenues will sustain our non-profit operations."

Gilbert will resume his cardiac surgery residency in July. He will also continue to oversee DFA's operations to ensure the team's success translates to real social impact.

## NEW STAFF

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



Jenny and Stefan Hofer with their children Lisa and Daniel

We are delighted to welcome Stefan Hofer to the Division of Plastic Surgery at the University Health Network (UHN). Dr. Stefan Hofer is the Division Head, Plastic Surgery at UHN and the second Wharton Chair in Head and Neck Reconstruction. He is appointed as an Associate Professor and Surgeon-Investigator and is the Division's first international candidate to be recruited in over a decade.

Dr. Hofer obtained his medical degree from the University of Amsterdam in 1992. He then completed his PhD studying tissue oxygen tension as an indicator of tissue perfusion with Prof. Dr. P.J. Klopper, Department of Surgical Research, Academic Medical Center, Amsterdam. Stefan then obtained his board certification in Plastic Surgery from the Netherlands in 2000. Prior to moving to Toronto, Dr. Hofer was a Staff Plastic Surgeon in the Department of Plastic and Reconstructive Surgery, Erasmus Medical Center, Rotterdam and the Head of Plastic and Reconstructive Surgical Oncology.

Stefan is an accomplished plastic and reconstructive surgeon and has a strong international reputation for his outstanding contributions in the areas of clinical service, education, and research. Dr. Hofer's clinical interest is in head & neck and breast oncologic reconstructive surgery. Dr. Hofer will focus on technical improvements of reconstructive techniques, and functional and aesthetic outcomes after reconstructive surgery. Stefan's research is in angiogenesis

and tissue engineering, more specifically the vascularization of three-dimensional tissue engineered constructs.

Dr. Hofer's practice will be based out of his office at the Toronto General Hospital. Stefan is actively recruiting to the Division of Plastic Surgery – with his eye on building Canada's largest oncology reconstructive program.

We welcome Stefan, his wife Jenny and his children Lisa and Daniel to Toronto, UHN, the Department of Surgery and the Division of Plastic Surgery.

*Dimitri Anastakis*  
*University Division Chair, Plastic Surgery*



Markku Nousiainen

Markku Nousiainen, recently appointed to the staff of the Holland Orthopaedic & Arthritic Centre – SHSC, graduated from Queen's University at Kingston with an Honours Bachelor of Arts Degree in 1993. He then completed a Master of Science in Biology at the University of North Carolina at Charlotte in 1995 and obtained his M.D. at the University of Toronto in 2000. His residency training in orthopaedic surgery was also at the University of Toronto; he graduated in 2005. Dr. Nousiainen has performed two fellowships, one in adult lower extremity reconstruction with Drs. Alan Gross and David Backstein at Mount Sinai Hospital in Toronto, and the other in orthopaedic trauma with Dr. David Helfet at the Hospital for Special Surgery in New York, NY. He is currently completing a Master of Education degree at the Ontario Institute of Studies in Education, University of Toronto, specializing in Health Professions Education.

Dr. Nousiainen's clinical interests lie in adult trauma (pelvic, acetabular, periarticular fractures) and reconstruction (primary and revision total hip and knee arthroplasty). His research interests involve training policy in fellowship-level education and in surgical skills education (particularly involving computer navigation) at the novice and expert levels.

*Benjamin Alman*  
*University Division Chair, Orthopaedic Surgery*

### Mark Peterson

It is a pleasure to announce the recruitment of Dr. Mark Peterson as a cardiac surgeon/investigator to our group. Dr. Peterson has completed his MD at the University of Manitoba and had his full cardiac surgical residency training here at the University of Toronto as well as his PhD. He completed his post training fellowship in endovascular surgery where he worked at the Arizona Heart Institute under Dr. Ted Diethrich. He has had funding from the Heart and Stroke Foundation and the CIHR as well as PSI grants. His special interest in large vessel stenting will be in concert with the vascular surgeons and diagnostic imaging. (See related article on page 11.)

### Ori Rotstein

*Surgeon-in-Chief, St. Michael's Hospital*



John Theodoropoulos

John completed his medical school at Queen's University and orthopaedic residency at McGill University, during which he did an elective at Mount Sinai. He completed a sports fellowship at the University of Illinois Chicago. Since then he has been in practice at William Osler Hospital. He feels that the future of sports medicine

is in developing better biologic based repair therapies (e.g. tissue engineering or cartilage regeneration), and would be interested in working with a team to develop novel therapies. He also has a strong interest in teaching residents, and has an interest in using the skills lab to help develop techniques to teach the residents how to do arthroscopy. He has a real interest in working as part of a translational research team to develop novel therapies for sports related research. John is our first orthopaedic recruit into the new Women's College Hospital.

### Benjamin Alman

*University Division Chair, Orthopaedic Surgery*

## Centre for Faculty Development (CDF)

The Centre for Faculty Development (CDF) is pleased to announce the registration schedule is now posted online at the following URL address: <http://www.cfd.med.utoronto.ca/workshops.htm>.

These workshops are devoted to the enhancement of teaching skills and are offered throughout the academic year. Each workshop is free to faculty in the Faculty of Medicine. Registration is required.

If you are not a faculty member, but are active in the teaching of health professionals at the University of Toronto, please feel free to register for workshops. Your name will be placed on the waiting list. Within three weeks of the course date you will be notified if there is space available. If at that time you are still interested in attending, you will be fully registered for the session. A \$50 registration will apply to all non Faculty of Medicine participants.

Workshops meet the accreditation criteria of the College of Family Physicians of Canada and have been accredited for 3.5 MAINPRO-M1 credits per each workshop (unless otherwise noted). Workshops have also been approved as an Accredited Group Learning Activity under Section 1 of the Framework of CPD options for the Maintenance of Certification Program of the Royal College of Physicians and Surgeons of Canada - 3.5 hours per workshop (unless otherwise noted).

For questions/comments please contact: Hailey Garcia-Gonzalez at: [garciah@smh.toronto.on.ca](mailto:garciah@smh.toronto.on.ca) at: 416-864-6060 Ext. 3524.

## A Systems Approach to Surgery



Martin McKneally

During the SARS outbreak, there was remarkable variation between surgery units in our university affiliated hospitals. Some surgeons-in-chief worked diligently and effectively at telephone triage to inform referring doctors where to send their patients, optimizing care throughout the area. “Open fracture in a transplant patient

– send her to the ER, bypass the screen, I’ll set it up.” “Open fracture in a healthy patient – take him to Barrie – I’ll make the contact.”

Others, barricaded out of elective surgical practice, examined outpatients in the offices of colleagues in the city. One went off looking at potential positions elsewhere. None seemed aware of what their counterparts were doing. As I informally surveyed and summarized these responses for a health policy talk ([www.ctsnet.org/doc/7771](http://www.ctsnet.org/doc/7771)), I realized I was looking at a non-system of surgical care.

### SURGERY AS A SYSTEM OF CARE

Surgery can be viewed as a subsystem within the health-care “system”, though the usage is strained in both instances. System implies orderly linkages between inter-communicating parts. The word derives from Greek roots for standing together. The Canadian Oxford Dictionary defines a system as a complex whole; a set of connected things, parts, or institutions ... functioning together.

The recent development of the Toronto Academic Health Sciences Network (TAHSN) has helped to systematize approaches to educational experience in our hospitals. Participants are enthusiastic about the results. Similar efforts are underway to harmonize the remarkably disparate approaches of Research Ethics Boards across the city. Both of these efforts indicate recognition of the need for “standing and functioning together to improve complex processes”.

The Senior Advisory Committee of our Department

includes the surgeons-in-chief of our affiliated hospitals along with university division chairs. Its valued role is advisory to the chair. Perhaps a more focused management role for SICs or their delegates could help bring surgical care closer to a coherent system.

### ETHICAL STANDARDS FOR HEALTHCARE SYSTEMS

Competent systems should meet the standards of care appropriate for organizations or jurisdictions of comparable size, mission, attributes and assets. The standard of knowledge requires the system to assure timely knowledge among caregivers and to maintain nimble, effective information systems. The standard of skill includes the ability to give access to those in need of care (e.g. by ambulance, aircraft, water transport), and to take them through the entire process of care, providing relief, security and appropriate treatment without compromising their dignity. The brilliant book *Redefining Health Care* by Harvard Business School University Professor Michael Porter, presents a value based vision of how this can be accomplished – by competing on results of the overall course of care, not just individual procedures. The standard of judgement requires healthcare systems to choose and provide the right facilities, personnel and policies to the right patients at the right time. As in the dyadic relationship of individual caregivers to their patients, the systems of care should inform the larger populace of appropriate treatments and preventive measures, including current advances and warnings of significant health hazards.

Martin McKneally  
Editor

## Surgical Spotlight Online

The Surgical Spotlight is now available online in a new and expanded format with links to additional content. Please take a look and subscribe at [www.surgicalspotlight.ca](http://www.surgicalspotlight.ca). We welcome your comments and suggestions as we explore this new format.

## CORRESPONDENCE

*Letters to the Editor are welcomed to keep the community informed of opinions, events and the activities of our surgeons, friends and alumni.*

Dear Martin:

I enjoyed your column in the Winter Surgical Spotlight. I was surprised that you did not make reference to the well known comment regarding good judgement: "Good judgement is the result of experience. Experience is the result of bad judgement".

I enjoyed the column; I thought it was timely and relevant.

Thank you.

Yours truly,

James P. Waddell, MD, FRCSC

Professor, Division of Orthopaedic Surgery  
University of Toronto

## FAMILY NEWS

*Please send us birth and marriage announcements with photographs, as well as any other family news you would like to share with the Department of Surgery community.*



Madison Lauren Okrainec

Welcomed with love by Dr. Allan Okrainec (General surgeon, Toronto Western Hospital) & Dr. Joeline Huber (Dept. of Paediatrics, U of T) on March 19, 2008, 7 lbs 11 oz, 21 inches.

## HONOURS/AWARDS/ACCOMPLISHMENTS

Congratulations to the following individuals who have been promoted this academic year. The University of Toronto holds a high standard with regards to academic promotion and so these promotions are a product of a lot of hard work and extreme dedication.

*R.K. Reznick*

### FULL PROFESSOR

Terry Axelrod - Orthopaedic Surgery, Sunnybrook Health Sciences Centre

Lee Errett - Cardiac Surgery, St. Michael's Hospital

Michael McKee - Orthopaedic Surgery, St. Michael's Hospital

Avery Nathens - General Surgery, St. Michael's Hospital

### ASSOCIATE PROFESSOR

David Backstein - Orthopaedic Surgery, Mount Sinai Hospital

Nancy Baxter - General Surgery, St. Michael's Hospital

Peter Chu - General Surgery, Sunnybrook Health Sciences Centre

Robert Cusimano - Cardiac Surgery, UHN / Toronto General Hospital

Abhaya Kulkarni - Neurosurgery, Hospital for Sick Children

Calvin Law - General Surgery, Sunnybrook Health Sciences Centre

Robert Nam - Urology Surgery, Sunnybrook Health Sciences Centre

Albert Yee - Orthopaedic Surgery, Sunnybrook Health Sciences Centre

### ASSISTANT PROFESSOR

George Vincent - Orthopaedics Surgery, St. Joseph's Health Centre

Paul Wong - Orthopaedics Surgery, Toronto East General Hospital

**Dimitri Anastakis** (PlasSurg) is the recipient of the 2008 Canadian Association for Medical Education Certificate of Merit Award. The aim of this award is to promote medical education in Canadian medical schools and to recognize and reward faculty's commitment to medical education.

**Michael Cusimano** (NeurSurg) is this year's winner of the John Provan Award given by the Canadian Association of Surgical Chairs. The award recognizes Dr. Cusimano's long standing contributions to the field of education.

**Michael** is also the recipient of the 2008 Alan R Hudson Neurosurgery Faculty Teaching Award.

**Rod Davey** (OrthSurg) has been awarded a 2007-2008 Wightman-Berris Academy Individual Teaching Award in the Postgraduate Category.

**Michael Fehlings** (NeurSurg) and colleagues from the Mayo Clinic received a 5 year award (\$1.7 million) from the National Institutes of Health for a study entitled "Regulation and Function of Kallikreins in Spinal Cord Injury and Repair".

**Michael** has also been awarded a 2007-2008 Wightman-Berris Academy Individual Teaching Award in the Allied Health Category.

**Michael Jewett** (UrolSurg) has been awarded a Wyeth Pharmaceuticals/CIHR R&D Clinical Research Chair in Oncology (\$1.1M) for studies on "Understanding the Nature and Improving the Treatment of Kidney Cancer".

**Shaf Keshavjee** (ThorSurg) has been awarded a Wyeth Pharmaceuticals/CIHR R&D Clinical Research Chair in Transplantation (\$1.1M) for studies on "Ex-vivo Gene Repair of Injured Donor Lungs for Transplantation".

**Thomas Lindsay** (VascSurg) has been awarded a 2007-2008 Wightman-Berris Academy Individual Teaching Award in the Undergraduate Category.

**Andres Lozano** (NeurSurg) was appointed to the

International Advisory Board, Danish Neuroscience Centre, Aarhus University Hospital 2008-2009.

**Andres** has also been appointed to the The Lifeboat Foundation Scientific Advisory Board 2008.

**Loch Macdonald** (NeurSurg) has been appointed an External Evaluator for Appointments and Promotions Committee of the Mount Sinai School of Medicine.

**Loch** has also been appointed an External referee, National Institutes of Health National Institutes of Neurological Disorders and Stroke Intramural Program quadrennial review of faculty, 2008.

**Robert Nam** (UrolSurg) has been named the recipient of the 2008 Medal in Surgery from the Royal College of Physicians and Surgeons of Canada. Robert is receiving this award for his work in the TMRSS2:ERG en fusion and prostate cancer.

**Andrew Pierre** (ThorSurg) has been presented with the following awards for the 2007 -2008 academic year:

- The Ross Fleming Surgical Educator Award. This Award is given by the Surgeon-in-Chief for excellence in surgical education.
- The Robert J. Ginsberg Award for Excellence in Postgraduate Teaching.
- The Gail E. Darling Award for Excellence in Undergraduate Teaching.

**Sid Radomski** (UrolSurg) has been awarded a 2007-2008 Wightman-Berris Academy Individual Teaching Award in the Postgraduate Category.

**James Rutka** (NeurSurg) has been appointed to a CNS Special Committee for Governance and Administration of Neurosurgery, and is Editor Designee of the journal *Neurosurgery*.

**Charles Tator** (NeurSurg) has been presented with the Distinguished Service Award in appreciation of his vision and leadership in establishing ThinkFirst Canada (National Injury Prevention Foundation) as a model program, and for his guidance and commitment to the global development of ThinkFirst. Dr. Tator served on the Board

of Directors 1992 – 2008. The award was presented by Dr. Russell Amundson, Chairman, Board of Directors, at the 2008 ThinkFirst Conference on Injury Prevention and at the Board of Directors meeting, April 27, 2008.

Congratulations Charles! The Campeau Chair in Neurosurgery at the Toronto Western Hospital will be renamed as The Robert Campeau Family Foundation / Dr. C.H. Tator Chair in Brain and Spinal Cord Research effective July 1, 2008.

**Michael Taylor** (NeurSurg) was appointed to the Data Safety Monitoring Committee of the Pediatric Brain Tumor Consortium.

**Michael** has also been appointed to the Scientific Program Committee for the Society of Neuro-Oncology Annual Meeting and promoted to Scientist in the Research Institute, The Hospital for Sick Children.

**Christopher Wallace** (NeurSurg) is this year's recipient of the Aikins Award in the category of Individual Teaching Performance - Small Group. The W.T. Aikins Award is the most prestigious Faculty award for commitment to and excellence in undergraduate medical education. Winners of this award are selected from nominees identified in a Faculty-wide process. The criteria for the awards are extremely rigorous, and each nomination requires extensive support from both peers and students. The award honours Chris' invaluable contribution to the Faculty of Medicine's educational mission.

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We are pleased to report the results of:

**The 2008 Annual Laparoscopic Competition, Surgical Skills Centre** held on Tuesday, March 4th, 2008 for PGY I surgical residents at UofT. Participants on a team of 2 residents were required to complete 3 laparoscopic tasks (Bean Drop, Cobra Rope and Triangle Transfer). The winners were determined based on the team with the lowest total time of both participants, for all 3 tasks.

Winners: **Bharat Sharma** (GenSurg Resident) and **Kengo Asai** (GenSurg Resident)

Runners Up: **Melise Keays** (UrolSurg Resident) and **Steve Kim** (UrolSurg Resident)

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**Douglas Cook** (NeurSurg Resident) is the recipient of the 2008 Alan R. Hudson Neurosurgery Resident Teaching Award.

**Betty Kim** (NeurSurg Resident) and **Paul Kongkham** (NeurSurg Resident) won 1st place for this year's Morley Prize.

**Betty** has also received the 2008 K.G. McKenzie Memorial Prize for Basic Science Research. Her research project is entitled "Engineered Nanoparticles for Enhancing Therapeutic and Cellular Responses", and was selected as a participant to attend a Cold Spring Harbor Course funded by the Howard Hughes Medical Institute.

**Karim Mukhida** (NeurSurg Resident) is the recipient of the Stem Cell Network Cross-Disciplinary Internship Award.

**Ann Parr** (NeurSurg Resident) presented at the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves in Orlando as the winner of the Mayfield Basic Science Award, her project entitled "Transplanted Adult Spinal Cord Derived Neural Stem/Progenitor Cells Promote Early Functional Recovery through Neuroprotection after Rat Spinal Cord Injury" on March 1, 2008.

**Demitre Serletis** (NeurSurg Resident) won 2nd place for this year's Morley Prize.

**Scellig Stone** (NeurSurg Resident) is the recipient of the 2008 Warren Ho Memorial Scholarship Award.

**Patrick Tawadros** (GenSurg Resident) was awarded first place for best scientific paper oral presentation at the Surgical Infection Society Annual Meeting in South Carolina, May 2008.

**Vanessa Wong** (PlasSurg Resident, Supervisor: **Robert Cartotto**) won the Best Abstract Presentation at the Canadian Special Interest Group of the American Burn Association for her abstract entitled "Objective Estimation of Survival in Burn Patients Re-visited". The Canadian Special Interest Group is a representation from physicians, nurses, therapists (physical, occupational, respiratory), nutritionists, pharmacists, and social workers from Canadian burn centres who attend the annual meeting of the American Burn Association.



## GRANTS / FELLOWSHIPS

**Benjamin Alman** (OrthSurg) has been awarded a CIHR Open Operating Grant (\$931,675) in the September 2007 Competition for a study titled “Molecular Mechanisms in Fracture and Wound Healing”.

**Ben** has also received a National Cancer Institute of Canada / CCS Research Grant (\$681,140) for a study titled “Beta-catenin in Aggressive Fibromatosis: Molecular Pathology and Implications for Therapy”.

**David Backstein** (OrthSurg) with PI applicant, James Henry have been awarded a CIHR Grant (\$500,000) for a study in pain management titled “Community Alliances for Health Research and Knowledge Exchange in Pain”.

**Nancy Baxter** (GenSurg) has been awarded a CIHR Open Operating Grant (\$355,254) in the September 2007 Competition for a study titled “The Young Adult Survivors of Cancer”.

**Mark Cattral** (GenSurg) is the recipient of a Heart & Stroke Foundation of Ontario – Operating Grant (\$230,082) for a study titled “Role of Immediate Dendritic Cell Precursors in Allograft Rejection and Tolerance”.

**Natalie Coburn** (GenSurg) has received a National Cancer Institute of Canada / CCS Research Grant for New Investigators (\$552,466) for a study titled “Improving Gastric Cancer Survival: Development and Measurement of Quality Indicators Using the RAND/UCLA Appropriateness Method and Population-based Data Analysis”.

**John Coles** (CardSurg) has been awarded a CIHR Open Operating Grant (\$409,668) in the September 2007 Competition for a study titled “Role of Integrin-linked Kinase (ILK) in Tetralogy of Fallot”.

**John** is also the recipient of two Heart & Stroke Foundation of Ontario - Operating Grants for studies titled “Integrin-linked Kinase (ILK) Promotes

Compensated Cardiac Hypertrophy” (\$156,600) and “Defective Cell Signaling in Tetralogy of Fallot (TF)” (\$158,600).

**Peter Dirks** (NeurSurg) has been awarded a CIHR Open Operating Grant (\$505,830) in the September 2007 Competition for a study titled “Asymmetrical Self Renewal in Normal and Cancer Stem Cells of the Human Brain”.

**Michael Fehlings** (NeurSurg) is the recipient of a Heart & Stroke Foundation of Ontario – Operating Grant (\$253,167) for a study titled “The Ischemic Axon: Cross-talk With Myelin in K<sup>+</sup> Channel Terms”.

**Michael** has also received a one-year grant from the Rick Hansen Man in Motion Foundation for \$132,796 for his study “Examination of the Key Imaging and Clinical Determinants of Outcome After Traumatic Spinal Cord Injury”.

**David Grant** (GenSurg) is the recipient of a Heart & Stroke Foundation of Ontario – Operating Grant (\$265,800) for a study titled “fgl2/FGL2 and Xenograft Transplantation”.

**Ab Guha** (NeurSurg) is the recipient of a grant from b.r.a.i.n Child for his work on “Embryonic Stem Cell Based Models of Low Grade Glioma”.

**Ab** received an Ontario Institute of Cancer Research (OICR) – Cancer Stem Cell Group Grant to UHN and Sick Kids, 2008-2012.

**Andras Kapus** (Research) has been awarded a CIHR Open Operating Grant (\$617,820) in the September 2007 Competition for a study titled “Myocardin-related Transcription Factor: A Central Regulator of Epithelial-myofibroblast Transition”.

**Soheila Karimi** (Research) with co-applicant **Michael Fehlings** (NeurSurg) received a one-year Young Investigator Research Grant Award from AOSpine North America for her study “Translating the Promise of Cellular-based Strategies for Repair of Spinal Cord Injury: Impact of Combined Therapy with Neural Precursor Cells, Growth Factor Delivery and Inhibition of Glial Scar Formation”.

**Peter Kim** (GenSurg) has been awarded a CIHR Open Operating Grant (\$517,452) in the September 2007 Competition for a study titled “Models and Mechanisms of Accelerated Ageing: P63 Regulation of Progenitor Cells and Cellular Senescence in Intestine”.

**Laurence Klotz** (UrolSurg) has received a National Cancer Institute of Canada / CCS Research Grant – Prostate Cancer (\$153,174) for a study titled “Phase I Evaluation of the Feasibility and Safety of MRI-guided Transurethral Ultrasound Therapy for the Treatment of Localized Prostate Cancer”.

**Paulo Koeberle** (Anatomy) has been awarded a CIHR Open Operating Grant (\$257,217) in the September 2007 Competition for a study titled “The Role of Extracellular Matrix Interactions in Adult CNS Neuroprotection”.

**Abhaya Kulkarni** (NeurSurg) is the recipient of a 2 year Physician’s Services Incorporated Foundation (PSI) Grant (\$98,000) for his study “White Matter Brain Injury in Children with Hydrocephalus”.

**Ren-Ke Li** (Research) has been awarded a CIHR Open Operating Grant (\$681,120) in the September 2007 Competition for a study titled “An Angiogenic Progenitor Cell Niche in the Uterus: Potential Implications for Cell Therapy”.

**Cindi Morshead** (Anatomy) is the recipient of a Heart & Stroke Foundation of Ontario – Operating Grant (\$459,330) for a study titled “The Development of Drug and Cell Delivery Systems for Use in Cell Based Therapies to Treat Stroke”.

**Allan Okrainec** (GenSurg) and co-PI, **Georges Azzie** (GenSurg) are the recipients of a Society of American Gastrointestinal and Endoscopic Surgeons (SAGES) Grant (\$25,753) for their project “The Effectiveness of Telesimulation for Teaching the Fundamentals of Laparoscopic Surgery in Africa”.

**James Rutka** (NeurSurg) has received a National Cancer Institute of Canada / CCS Research Grant (\$378,000) for a study titled “The Role of Aberrant HGF/cMET Signaling in Medulloblastoma”.

**Charles Tator** (NeurSurg) received a two year Research Grant from the Multiple Sclerosis Society of Canada for his project entitled “Neural Stem/Progenitor Cells for Remyelination and Recovery in Multiple Sclerosis”.

**Michael Tymianski** (NeurSurg) has been awarded a CIHR Aging Competition Grant (\$166,052) for a study titled “Role of TRPM Channels in Ischemic Brain Damage”.

**Glen Van Arsdell**, (CardSurg) is the recipient of a Heart & Stroke Foundation of Ontario – Operating Grant (\$134,680) for a study titled “Selective Generation of Cardiac Progenitor Cells and Cardiomyocytes from Mouse Cells”.



*“May I call you back? I’m right in the middle of a commencement address.”*

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## Fellowships in Ethics, Policy and Global Health

The Program on Life Sciences, Ethics and Policy at the McLaughlin-Rotman Centre for Global Health (University Health Network and University of Toronto) is currently recruiting for a Senior Fellowship position.

This position is with the Ethical, Social, Cultural and Commercial (ESC2) Program for Water-Efficient Maize for Africa (WEMA) that aims to assess and monitor social, cultural, ethical and commercial issues related to the WEMA Project. The program will conduct annual audits of WEMA and serve as an additional communication channel for stakeholders involved in the project.

Please see the advertisement at:  
<http://cts.vresp.com/c/?MRCPLEP/c60f425675/2e50dbbd6b/181d48c5a6>

For more information on the positions and the McLaughlin-Rotman Centre for Global Health please visit our website at [www.mrcglobal.org](http://www.mrcglobal.org) and our facebook page at 'Global Health Engage'.

*Peter A. Singer & Abdallah S. Daar  
McLaughlin-Rotman Centre for Global Health  
University Health Network  
and University of Toronto*

**Thomas Waddell** (ThorSurg) has been awarded a CIHR Open Operating Grant (\$563,146) in the September 2007 Competition for his study titled "The Role of Bone Marrow Progenitors in Lung Regeneration".

**Cari M. Whyne** (Research) has been awarded a CIHR Open Operating Grant (\$379,864) in the September 2007 Competition for a study titled "Bone Stability and Tumour Burden in the Metastatic Spine: Implications of Variable Disease Patterns".

**Jay Wunder** (OrthSurg) has been awarded a CIHR Open Operating Grant (\$807,945) in the September 2007 Competition for a study titled "Hedgehog Signaling in Cartilage Neoplasia and Development".

**Mae Cantos** (GenSurg Resident) is the recipient of the Pfizer / Surgical Infection Society Foundation Fellowship for 2008-2009.

**Gregory Hawryluk** (NeurSurg Resident) and **Michael Fehlings** (NeurSurg) were successful in obtaining a US\$60,000 renewal for year two of their grant from the Craig H. Neilsen Foundation to study "Transplantation of Neural Stem Cells and Tissue Engineering Approaches to Repair Chronic, Severe Spinal Cord Injury".

**Betty Kim** (NeurSurg Resident) is the recipient of a 2008 AANS/NREF Research Fellowship Award.

**Cian O'Kelly** (NeurSurg Resident) is the recipient of a 2008 Congress of Neurological Surgeons (CNS) / Micrus Endovascular Neurosurgery Fellowship.

**Scellig Stone** (NeurSurg Resident) is a recipient of a CIHR Fellowship for his work on "Amplification of Neurogenesis in the Adult Dentate Gyrus Using Deep Brain Electrical Stimulation of Limbic Inputs: Morphological, Gene Expressional, and Behavioural Evidence for Enhanced Preferential Incorporation of New Granule Cells into Hippocampal Memory Networks".

**Alexander Velumian** (NeurSurg Resident) is the recipient of a NSERC Grant for his work on "The Living Myelin Sheath: Functional Organization and Role in Dynamic Modulation of Axonal Function in CNS".

The deadline for the Fall 2008 Surgery Newsletter is September 1, 2008. All members of the Department are invited to submit news items, articles, pictures, ideas or announcements. You may reach us by:

***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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