

THE UNIVERSITY OF TORONTO
SURGICAL SKILLS CENTRE
AT MOUNT SINAI HOSPITAL

ANNUAL REPORT 2009

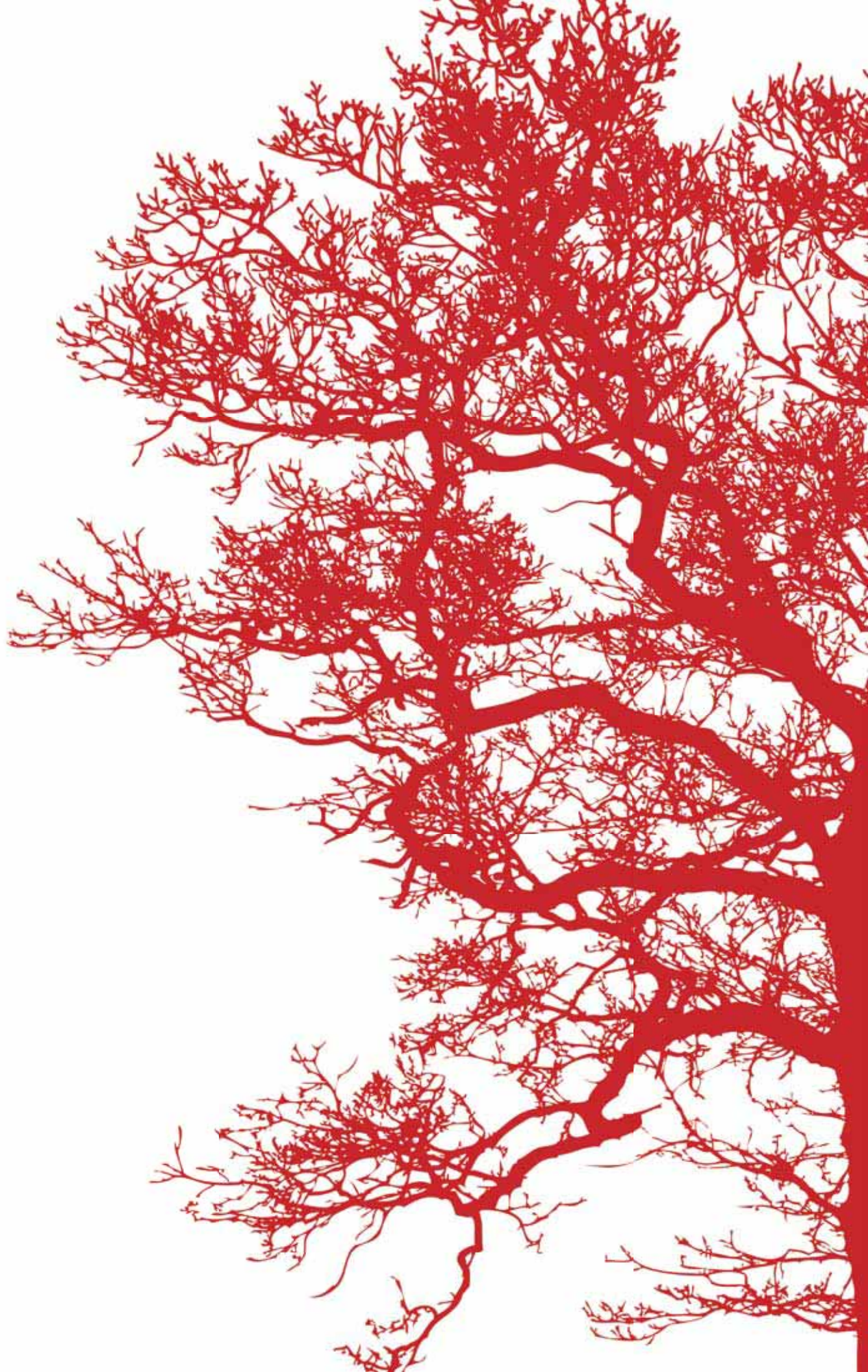
Knowledge







**Knowledge
is Infinite**





Practice

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Our Vision

Traditionally, surgical skills have been acquired in the operating room.

The complexity of surgical procedures and the premium placed on surgical time have increased. We can no longer expect surgeons to acquire novel skills in the operating room.

The University of Toronto Surgical Skills Centre at Mount Sinai Hospital provides a laboratory setting where basic and complex surgical procedures can be learned and practised. Surgeons will

achieve a higher level of expertise more rapidly in a laboratory setting, where they can employ educational principles of repeated practice with feedback.

Educational research is conducted in skills acquisition and evaluation.

This research will provide answers to fundamental educational issues and allow testing of innovations in surgery.

It is our goal that this facility become an internationally recognized centre of excellence in surgical education.

Our Mission

- To change the way fundamental surgical skills are taught and evaluated.
- To provide a platform for continuing education in surgical skills.
- To provide a laboratory for research in and development of surgical skills innovation.
- To promote and enhance the teaching of surgical skills through the Surgical Skills Centre.

Letter from Dr. MacRae

The University of Toronto Surgical Skills Centre at Mount Sinai Hospital continues to grow and innovate, now into its second decade.

We are now hosting more than 150 events per year and more than 40 individual visits. This is a testament to the value seen in the offerings of the Centre. The Centre has recently been reaccredited by the American College of Surgeons as a Level 1 Education Institute, acknowledging the high standards of our courses, support staff and resources.

Lisa Satterthwaite, Manager of the Centre, continues to set the standard of how a skills centre should be run. Lisa is currently working with the American College of Surgeons as the co-chair of the Leader of the Management Group for the ACS Accredited Education Institutes' Consortium.

Assistant Manager Shunne Leung, together with Surgical Technicians Dezan Rego, Marina Romanova, Jason Faria and Serenity Thomas, complete our team, each adding valuable skills to the Centre. This team has been very important in ensuring the delivery of high quality curricula and keeping the Surgical Skills Centre at the forefront of this area.

While initially conceived as a Department of Surgery Centre, the Centre is now used extensively by the whole University community, in all stages of the medical education continuum. We have welcomed learners from Internal Medicine, Emergency Medicine, Obstetrics and Gynaecology, Anaesthesia and Nursing, to name a few, underscoring the increasing recognition of the need for technical skills training outside the clinical setting.

The undergraduate curriculum in technical skills training, developed by Dr. David Backstein, continues to be highly regarded with the majority of comments that students want more! Our core curriculum for all junior surgery and otolaryngology residents served as a model for a similar curriculum developed by the American College of Surgeons and American Program Directors Society.

Division specific courses and continuing professional development for surgeons in the community remain a strong focus of the Centre. The implementation of the competency-based curriculum in Orthopaedics also reinforces the importance of a Skills Centre for the training of the surgeons of the future.

The success of the Centre is a function of the fabulous staff at the SSC as well as the enthusiasm and support of Richard Reznick, Chair of the Department of Surgery. Mount Sinai Hospital is also an important, vital partner.

It has been an honour to continue to serve as D.H. Gales Director of the Skills Centre. In the upcoming years, we hope to see further expansion of the Centre, with increasing emphasis on team training for surgical teams and research in skill acquisition to add to our strengths in technical skills training.

Helen MacRae, MD, FRCSC

D.H. Gales Director

Surgical Skills Centre

Letter from Dr. Reznick

I'm proud to say that the Surgical Skills Centre is still paving the way in surgical education and surgical simulation with its reputation getting stronger with every new endeavour it becomes involved with.

Under the superb directorship of Helen MacRae and the constant dedication of our Manager Lisa Satterthwaite, we are actively pursuing new initiatives and collaborations, pushing the boundaries of what is and what can be done.

Last year I commented on the creation of the Network of Excellence in Simulation for Clinical Teaching and Learning – an organization linking facilities, resources and services promoting inter-professional education and learning through simulation. NESCTL is now up and running with the Surgical Skills Centre playing a pivotal role in establishing the relationships and partnerships involved.

We have also managed to establish yet another pivotal role for the SSC in its involvement with the Department Surgery. Since 2002/2003 we have been planning and dreaming of developing a new approach to residency training. I am ecstatic to report that we started such a program this past July.

With extraordinary dedication from Bill Kraemer, Peter Ferguson, Ben Alman and a virtual army of orthopaedic educators, we have put together a modular competency based curriculum that has no parallel in the world. We have accepted three exceptional residents who will experience an orthopaedic residency program in a very different way from anyone before them. If the program is successful, they will be followed by three residents in 2010, three more the year after and so on.

The program has received generous financial support from the Ministry of Health and Long Term Care, which will enable us to truly push the limits of a new vista in residency education and the Surgical Skills Centre has played a huge component in the training of these residents. The initial feedback of the program has been exceptionally positive and we look forward to the potential of expanding it to other Divisions within our Department.

The Centre also continues to open its doors to numerous international dignitaries and impresses our visitors with its educational experiences and innovative measures. We have also been selected to host the 2010 American College of Surgeons Accredited Education Institutes' Postgraduate Course. A significant event and honour.

I am extremely proud of all the accomplishments we have had to date. The need for deploying simulation at all levels of education is increasing in an exponential fashion. We are dedicated to pushing the boundaries in skills based practice and research and will continue to invest resources and energy to augment the role that our skills lab plays in the day-to-day education of our health care professionals.

Richard Reznick, MD,
FRCSC

R.S. McLaughlin Professor
and Chair

Department of Surgery,
University of Toronto

Staff

Dr. Helen MacRae

D.H. Gales Director

Dr. MacRae is a General and Colorectal Surgeon at Mount Sinai Hospital, with a special interest in laparoscopic colorectal surgery. She completed medical school and a general surgery residency in Edmonton, Alberta, and fellowship training in colorectal surgery at the University of Toronto. Dr. MacRae has a Master's degree in Medical Education from Springfield, Illinois. Her research interests are in the areas of evaluation of clinical competence, acquisition of technical skills and surgical judgment.

Lisa Satterthwaite

Manager

Ms. Satterthwaite holds an RPN diploma from Scarborough General Hospital and an honours diploma in Operating Room Techniques from Humber College. For the past 10 years she has managed the SSC, including supporting the development and delivery OSATS and PAME examinations, implementing of PGY-1 core curriculum, supporting research programs, aiding divisional specific and undergrad year 3 programming and continuing medical education sessions. Ms. Satterthwaite also offers consults for the development of medical education programs.

Shunne Leung

Assistant Manager

Mr. Leung joined the Surgical Skills Centre in 2001 as Assistant Manager and serves as the primary resource for technology related issues. Mr. Leung also serves as an adjunct and support to our Manager's office in day-to-day operations. With a B.Sc. degree in Pharmacology and a Certificate in Business, Mr. Leung offers a unique and diverse set of knowledge and skills that contributes to the successful implementation of medical curricula. His previous work experience in healthcare facilities, where his focus was medical products and surgical instrumentation, contributes in achieving our daily objectives and goals in delivering an efficient and effective medical and surgical learning experience by all who attend our training sessions.

Dezan Rego


Surgical Technician

Ms. Rego has worked at Mount Sinai Hospital for over 30 years, and has been a team member in the Surgical Skills Centre for the past decade. She holds a diploma in Sterile Supply Processing from Centennial College. In 2001 and 2006 Ms. Rego was the proud recipient of the Karen McGibbon Award of Excellence from Mount Sinai Hospital. She enjoys working one-on-one with both the medical students and surgical residents and offering guidance to the enthusiastic group of co-op students and volunteers who frequent the lab.

Marina Romanova

Surgical Technician

Ms. Romanova has been a part of the team at the SSC since 2002. She holds an M.D. diploma from Riga Medical Institute, Latvia, and a PhD in medical Science from the University of Russia. She attained a certificate in Large and Small Animal Care from the University of Toronto. Before joining the team, Marina worked as a Cardiology Research Technician at St. Michael's Hospital vivarium. Appreciation of individuals with such a wide range of education and experience working together efficiently is very satisfying to Ms. Romanova. She also finds that problem solving with co-workers and working and coming together as a team is especially rewarding.



Each of our staff members comes from different educational and employment backgrounds, but this allows us all to bring different and unique strengths to the table.

The staff is very dedicated and hard working, and want to ensure that the very best learning experience is provided for the learner.

Serenity Thomas

Surgical Technician

Ms. Thomas began working in the lab part-time in 2005 after graduating with a Bachelor of Arts in Bioethics from the University of Toronto in 2000. She assists with all course duties, lab set-up, the annual report and assists with administrative tasks, such as invoicing. Ms. Thomas appreciates that while at work, she is able to continue her learning experience. Serenity and her husband are expecting their first child in April 2010, and along with the rest of the lab crew, is anxiously awaiting the arrival of the newest team member!

Jason Faria

Surgical Technician

Mr. Faria joined the team full time in February 2008 following an intensive co-op from Central Commerce Collegiate. His keen interest and team spirit is a wonderful asset to the group. Jason assists with course duties and setups, audio-visual and lab inventory. He is responsible for ordering lab supplies and coordinating with medical companies to ensure the successful implementation of courses.

We Have Grown

When our doors first opened, the Surgical Skills Centre was a venue to practice educational and technical skills.

Today, our Centre has realized its potential and is internationally recognized for providing a foundation of skills training for both residents and faculty in all medical disciplines and at all stages of their careers.

We have grown from a staff of one, to a full time staff of five, a part-time staff member and a research-scientist, complemented by an army of volunteers.

We have grown from training 800 students and residents per year, to over 8,000.

We have grown our capacity to train by offering more programming, more advanced curriculum and leading edge technology and research.

The exponential growth of our research program is now helping students around the world better learn surgical techniques.

And, we have grown our community outreach in a variety of capacities, among them, by offering our knowledge, support and ideas to help build other skills labs and further our reach into their medical communities.

We have grown each year, yet the very root of our Centre remains unchanged: to advance the development of surgical skills through teaching and research.

With a decade of experience behind us, we look to the future for more opportunities to improve and reach further, because our growth, we know, plays a valuable role in the growth and development of the medical community. And, a stronger, more skilled surgical community, results in better patient care and outcomes.

Through teaching, research and outreach, we are making a difference.







Teaching

At our very core, is the education of tomorrow's health care providers and supporting today's medical professionals. Whether it is through our core curriculum, department or divisional programs or industry courses, the Surgical Skills Centre offers a variety of education opportunities.

Surgical Skills

Core Curriculum 2008-09



CBC Residents in the Operating Room

Core Curriculum

During the academic year – September 2008 to May 2009 – first year surgical residents from the University of Toronto from all departments attended mandatory, weekly two-hour sessions.

Each week, the residents were taught a new surgical skill, such as knot tying or suturing, and then given time to practice and really learn the procedure hands-on with models.

The sessions were led and supervised by faculty surgeons or fellows and provide a valuable and unique learning experience outside the operating room.

During the 2008-09 academic year, the PGY-1 class was 52 residents from General Surgery, Cardiac Surgery, Neurosurgery, Plastic Surgery, Orthopaedic Surgery, Urology, Vascular and the Department of Otolaryngology.

Feedback was extremely positive, and students noted that the sessions were not

only valuable in improving their surgical skill level, but an enjoyable way to learn with their colleagues. Residents are encouraged to use the lab on their own time as well and we invite them to book time for individual practice sessions so that they may hone their techniques.

Practice, Practice

Despite a host of organized sessions throughout the year, residents and fellows often want more time to develop and hone their skills. We offer

both high and low-fidelity models for our students practice and encourage them to come in on their own time to learn.

Last year, we hosted an additional 362 practice sessions for our residents, fellows and faculty – a dramatic increase in the last few years. Residents in particular, come in for practice on laparoscopic suturing, which demonstrates the need for extensive practice outside the operating room.

September 9, 2008	Principles of Asepsis and Instrument Identification
September 16, 2008	Instrument Handling and Knot Tying/Suturing
September 23, 2008	Line Insertions - IJ, Subclavian, Femoral, IV Insert and Cut Down
October 7, 2008	Catheterization and Suprapubic, Urethral and Abdominal Wound Closure
October 14, 2008	Tissue Handling Dissection and Wound Closure
October 21, 2008	Tendon Injuries and Carpal Tunnel Release
October 28, 2008	Mini Objective Structured Assessments of Technical Skills (MOSATS)
November 4, 2008	Chest Tube, Thoracentesis and Arterial Line
November 11, 2008	Airway Management and Surgical Airway
November 18, 2008	Advanced Tissue Handling and Wound Closure
November 25, 2008	Bowel Anastomosis - Hand Sewn and Stapled
December, 2, 2008	Bone Fixation and Casting
January 13, 2009	Microsurgery and Bone Harvesting
January 20, 2009	Microsurgery and Skin Grafting
January 27, 2009	MOSATS
February 3, 2009	Laparoscopic Skills I
February 10, 2009	Laparoscopic Skills II /Arthroscopy-Gallbladder and Knot Tying
February 17, 2009	Laparoscopic Skills III /Arthroscopy-Gallbladder and Knot Tying
February 24, 2009	Laparoscopic Skills IV
March 3, 2009	Laparoscopic Skills V - Competition
March 24, 2009	MOSATS
March 31, 2009	Skin Liver and Breast Biopsy and Electrosurgery
April 7, 2009	Vascular Control - Arterial and IVC
April 14, 2009	HSK Animal Annex Group A Vascular Control - Arterial and IVC
April 21, 2009	HSK Animal Annex Group B Vascular Control - Arterial and IVC
April 28, 2009	Practice Session
May 5, 2009	Practice Session
May 12, 2009	OSATS EXAM

Letters

Dear Ms. Satterthwaite,

I am writing to you with regards to the Surgical Skills Centre at Mount Sinai Hospital. In my capacity as the Neurology and Skull Base fellow at Sunnybrook Health Sciences Centre, I have been lucky enough to be able to utilize the skills lab on a number of occasions. I feel that the skills centre is an incredibly useful and valuable learning resource for all of us who are trying to optimize our surgical technique. The staff are always helpful and generous with their time. The quality of the equipment is amazing. The facility is world class and I feel that the trainees at the University of Toronto are lucky to have access to such a world-class facility.

I wish that my training program in Australia attached to such a great facility. I commend surgical skills centre on their outstanding work.

Yours Sincerely,
Simon Greenberg
Neurology and Skull Base Fellow
Sunnybrook Health Sciences Centre,
University of Toronto

Dear Ms. Satterthwaite,

My name is Dr. Sagit Meshulam Derazon. I'm a plastic surgeon from Israel. In a few months I am about to finish my one year of fellowship in breast reconstruction here in Toronto, go back to Israel and start building my own breast reconstruction practice.

When I just started this fellowship I had no experience in microsurgery, which is an essential part of breast reconstruction. Therefore I felt it was absolutely necessary for me to first practice my microsurgical skills on an animal model. The surgical skills lab has perfectly met my needs. My weekly trainings at your lab allowed me to operate with greater confidence and knowledge.

I would like to thank you and the rest of your crew, Dezan, Marina, and Jason for being there for me whenever I needed.

Yours Truly,

Sagit Meshula

Sagit Meshula
Derazon Rabin Medical Centre, Israel



The winning team in action

Laparoscopic Skills Challenge

Our Laparoscopic Skills Challenge gives first year residents the opportunity to practice a number of laparoscopic techniques in a fast and fun environment. Generously sponsored by Covidien, this contest helps reinforce learned procedures.

This year, the residents chose teams of two for the competition, and faced off to set the fastest time in a series of three laparoscopic tasks: peg transfer, rope task and intracorporeal suturing.

The 2008-09 winners were a General Surgery team! Congratulations to Luke Szobota and Milan Ernjakovic of Team Blueberry Muffins.

Prior to the competition, this team was in the lab almost daily practicing, truly demonstrating that practice makes perfect.

Teaching Award

Each year, the PGY-1 residents select one outstanding faculty member who led their Core Curriculum sessions.

Congratulations to Dr. Paul Binhammer, Division of Plastic Surgery, the 2008-09 winner of The University of Toronto at Mount Sinai Hospital Education Award for Outstanding Contributions to Surgical Skills Education.

Dr. Binhammer is a very dedicated and reliable instructor, who continually offers constructive and thorough guidance to the residents.

FLS Accreditation

In 2008, the Surgical Skills Centre became an Accredited testing site for the Fundamentals of Laparoscopic Surgery, or FLS, by the American College of Surgeons.

FLS testing provides surgical residents, surgeons and fellows a consistent and scientifically accepted method of learning laparoscopic skills. These comprehensive training modules greatly contribute to understanding and utilization of the fundamental knowledge and technical skills required for laparoscopic surgery. In addition, it also tests cognitive and technical skills, as well as surgical decision-making, all of which contribute to improved patient care.

FLS curriculum is now a part of all surgical residency programs and includes mandatory testing. The SSC also offers this training as part of the Core Curriculum for PGY-1 residents.

The manager of the SSC, Lisa Satterthwaite, was trained as an official proctor to conduct these tests as mandated by the American College of Surgeons. The FLS test module has been implemented with both the McMaster University and University of Toronto General Surgery Residency Programs.

Divisional Curricula

The Department of Surgery at the University of Toronto is the primary focal point for education at the Surgical Skills Centre. The Department of Surgery is made up of nine divisions, including the Division of Anatomy. Courses are developed by each Division to meet the specific needs of their curriculum for residents in PGY-1 to PGY-5.

The divisional courses held this year were:

Division of Cardiac Surgery

Mitral and Tricuspid Valves/Modified MAZE
Off-Pump Coronary Artery Bypass Animal Lab
Aortic Valves/Root Pathology
Myectomy/Patch techniques
Endovascular Aneurysm Repair Group 1, 2
Transesophageal Echocardiography Course

Division of Vascular Surgery

Femoral Anastomosis, IVC Repair
Abdominal Aortic Aneurysm Repair,
Iliac Bifurcation graft
Carotid Endarterectomy
Tibial Anastomosis

Division of Neurosurgery

39th Annual Lougheed Neuro Course
Hands-On Epilepsy Course

Division of Thoracic Surgery

Video-Assisted Thoracoscopy Surgery Animal Lab

Division of General Surgery

General Surgery Summer School for PGY-1 and 2
Fundamentals of Laparoscopic Surgery Course

Division of Plastic and Reconstructive Surgery

Craniofacial Reconstruction
Upper and Lower Extremities Flaps
Facial Flaps

Division of Orthopaedic Surgery

Ortho Summer School-PGY1 and PGY2: Casting and Bone Plating
Ortho Down Days-Shoulder Arthroscopy and Carpal Tunnel Release

Division of Urology

Divisional Laparoscopic Surgery Animal Lab
Microsurgery
Ureteroscopy and Removal of Bladder Stones
Laparoscopic Suturing

**SURGICAL
SKILLS
CENTRE**

Departmental Programs

In addition to the Department of Surgery PGY-1 core curriculum and divisional specific programs, our Department affiliates play an important role in training, education and research. Synergy between these groups greatly enhances the learning experience for our residents and continues to build our educational platform.

Department of Obstetrics and Gynaecology

The Department of Obstetrics and Gynaecology continues to use the Surgical Skills Centre for teaching its residents. In addition to the longstanding junior curriculum, the SSC provides an opportunity for senior residents and fellows to practice advanced skills. Our trainees particularly appreciate the flexible hours and we note an increase in use for individual practice, separate from the scheduled sessions. It continues to be cited by applicants to our program as a real strength compared to others in the country. Many thanks to Drs. Rory Windrim and Herb Wong, course coordinators.

Heather Shapiro, MD, FRCSC
Director, Postgraduate Medical Education
Department of Obstetrics and Gynaecology, University of Toronto

Obstetrics and Gynaecology Curriculum 2008-09

- Skills PreTest OSATS
- Introduction to the Curriculum
- Knot Tying/Suturing/Instruments
- Forceps: Outlet and Mid
- Breech
- Shoulder Dystocia
- Perineal Repairs
- B-Lynch Sutures
- Marsupialization/Wound closure
- Bowel Repairs
- Bladder Repairs
- Surgical Emergencies
- Endometrial Biopsies/IUD insertions
- Hysteroscopic Endometrial Resection
- Laser/Electro-surgery

Department of Otolaryngology – Head and Neck Surgery

The Surgical Skills Centre is used heavily throughout the academic year by the Department of Otolaryngology-Head and Neck Surgery at the University of Toronto.

As part of the weekly PGY-1 core curriculum sessions, our first year residents also attend in order to learn and practice the basics of surgical skills.

Other sessions are offered throughout the year just for the residents and fellows in the Head and Neck surgery program. These practical sessions include surgical training and observation by faculty in endoscopic sinus surgery, temporal bone dissection, techniques in rhinoplasty, soft tissue dissection of the face and neck dissection/voice box, allowing the residents and fellows to learn a wide range of procedures on cadaveric and simulation models.

The SSC also hosts the world-renowned “International Temporal Bone Course,” designed and implemented by Dr. John Rutka. After overseeing the organization and implementation of the course since its conception, Dr. Rutka has now handed over the reigns to Dr. Adrian James of Sick Kids Hospital.

International Temporal Bone Course

Many disorders of the ear that cause hearing loss, can be treated with surgery. With the intricate anatomy of the ear – not only the delicate structures required for hearing, but the facial nerve and major blood vessels to and from the brain – specialist training is essential to develop an adequate understanding of this complex anatomy and the techniques required to operate safely and effectively.

Our annual temporal bone course for surgeons of all levels attracts faculty and delegates from around the world. The course aims to provide maximum opportunity for gaining surgical experience in the ear.

Corporate sponsors generously provide the microscopes, drills, lasers and endoscopes required for modern otologic surgery. Also provided are prosthetic devices that allow us to simulate cochlear implant, bone anchored hearing aid and ossicular reconstruction surgery.

With collaboration from the Ontario Cancer Institute at Princess Margaret Hospital, we are adding image-guided assistance with cone beam CT to the course. As a further addition this year we are offering a special day of endoscopic middle ear surgery to develop minimally invasive otologic surgery.

The state-of-the-art facility and equipment, together with the knowledgeable and enthusiastic Skills Centre staff, has established the pre-eminent status of this valuable course.

Adrian James, DM FRCS (ORL-HNS)
Course Director

Other department courses offered this year:

Department of Obstetrics and Gynaecology

Fundamentals of Gynae Endoscopy: Course for Fellows

Forceps Session for Junior Residents

Department of Otolaryngology

Advanced Sinus Course

Flaps Course

Voice Box Course

Advanced Sinoscopy Course

Rhinoplasty Session

Advanced Sinus Surgery

Temporal Bone Dissection for ENT Residents

International Microvascular Head and Neck Reconstruction

Maxillo-Facial Platting

Department of Internal Medicine

Internal Medicine Airway Course I and II

Internal Medicine Program: Core Resident Integrated Scholarly Program

7th Annual Canadian Hospital Medicine Conference: Internal Medicine

Bedside Procedures Session

Department of Respiriology

The Basics of Bronchoscopy: Introductory Course for 1st year Respiriology Residents in Ontario

Department of Family Medicine

Family Medicine Session: Suturing, Airway Management and Difficult Deliveries

PGY-1 Airway Course

Department of Ophthalmology

Eyelid repair

Flaps

Department of Paediatric Emergency Medicine

Sick Kids Hospital: Emergency Nail Bed Repair Workshop

Paediatric Trauma Procedure Course

Family Medicine: Suturing, Airway Management and Difficult Deliveries

Summer International Paediatric Emergency Elective

Department of Emergency Medicine

Each year, the Emergency Medicine courses grow larger and become more popular and strives to improve the clinical skills of Emergency residents. Full-day workshops are taught by EM faculty who guide the residents through various procedures using simulation and wet lab models.

- Postgraduate Curriculum:
- Percutaneous Cricothyrotomy
- Chest Tube Insertion
- Percutaneous Thoracostomy
- Lumbar Puncture
- Intraosseous Injection
- Difficult Airway Intubation
- ENT procedures
- Upper Extremity Casting
- Faculty Development
- The ProWESS Course (PROcedure Workshop for Emergency Surgical Skills)
- Mount Sinai Hospital EM Faculty Development Workshops

Competency Based Curriculum

In June 2009, the University of Toronto, Department of Surgery launched the Orthopaedics Competency Based Curriculum, or CBC.

The program, made up of 21 modules, is designed to teach technical skills in a structured, cumulative method. To start, three residents were selected to participate and were encouraged to move through the modules at their own pace by first mastering basic skills before moving onto the next module.

Participating residents were led through Module 1- Basic Surgical Skills, which focuses on attaining competence in basic technical skills and building the

foundation to perform more complex procedures. The residents trained in the operating room and fracture clinics and each morning they spent time at the Skills Lab developing their skills on dry models and cadaver specimens.

In addition, Module 1 involved a research component that assessed the skills of all Year 1 Orthopaedic residents including the CBC candidates. As the final assessment of Module 1, the residents performed a surgical procedure on a full cadaver specimen in a mock operating room setting.

Oleg Safir, MD, MEd, FRCSC

Hip and Knee Reconstruction

**Division of Orthopaedic Surgery,
Mount Sinai Hospital**

**Assistant Professor of Surgery,
University of Toronto**

Hosted Events

2008 Rosen-Daniels
Visiting Professorship
in Surgical Oncology
Translational Research

Princess Margaret
Hospital Operating
Room Nurses Visit

Bethune Round Table
Meeting

Mount Sinai
Hospital Operating
Room Nurses Gallie
Day Session

Centennial College RN
Perioperative Session

Perioperative
Gallie Day

Psychiatry: Think Tank
on Depression

Continuing Medical Education Events

Continuing Medical Education Events are courses that are specifically designed in order to help those in the medical field learn about new and developing techniques, as well as maintain competence in their specific field. The CME programs are developed, delivered and reviewed by faculty who are experts in their specific clinical areas.

1st Annual
International Cadaveric
Program on
Emerging Techniques
and Technologies in
Spine Surgery-Spine
Universe

Microvascular
Head and Neck
Reconstruction Course

39th Annual
W. Loughheed
Microsurgical Course

The Toronto Voice
Course featuring
Laryngeal Disorders,
Stroboscopy, Thyro-
plasty, Percutaneous
Injection Techniques
and Percutaneous
Tracheotomy Update

Advanced
Sinus Surgery

U of T Annual
Spine Session

Industry Sponsored Events

Industry Courses are booked at the Surgical Skills Centre throughout the year by individual medical products companies. These courses allow the various medical companies to demonstrate their products and techniques to surgeons from around the world.

- Aesculap Spine Session
- Allergan Academy Canadian FACE Meeting
- Allergan Academy Toronto Regional Symposium
- Alphatec Spine Session
- Bard- Advances in Female Pelvic Medicine
- Benvenue Medical Spine Session
- Biometrics Ortho Session
- Canadian Urological Association: Course of Basic and Advanced Urology Laparoscopy Skills
- Carticept Medical
- Covidien Animal Lab Gynae/Oncology
- Covidien Hernia Symposium
- Covidien Single Incision Laparoscopic Surgery Training Session
- Dental Implant Techniques
- Gynecare-Women's Health Solutions: Advanced Pelvic Floor Course
- Johnson & Johnson In Vitro Fertilization Course
- Kyphon Balloon Kyphoplasty
- Medicis Aesthetics Canada: Restylin Injection Course
- Medtronic 4th Annual Canadian Contemporary Spinal Techniques Course
- Paradigm Spine
- Sexual Society Meeting (Male Infertility)
- Smith & Nephew A Vision of Progress-Pre-market Launch of BMHR
- Smith & Nephew Arthroscopy
- Smith & Nephew Hip Solutions workshop
- Spinewave Canada
- Stryker Advanced Locking Plates
- Stryker Clavicular Fractures
- Stryker Deformity and Navigated Spine
- Stryker Elbow Lab
- Stryker Lower Spine Session
- Stryker Triathlon Primary and Revision Cadaveric Training
- TranS1 Inc Session
- US Spine Session
- Vertos Medical Spine





U of T Biomedical Communications Graduate Students Draw on the SSC

The University of Toronto Biomedical Communications (BMC) graduate program trains students with a background in both science and visual art, methods in the visual communication of medicine.

As part of the core curriculum, students take an

introductory course on the illustration of surgical procedures, including observing live surgery where they hone their understanding of surgical procedures, as well as their observation skills.

Over the past two years, the Surgical Skills Centre has invited BMC students experience their first live surgery. The students watch in a classroom equipped with a large screen displaying a live feed from the operating room, and a two-way audio system, allowing direct auditory communication with the operating room. The procedure is narrated in real-time by the surgical staff and students are able to receive immediate responses to their questions as the procedure progresses.

This experience is safe and well structured, helping foster student confidence and preparing them for the challenge of watching and collecting notes. Furthermore, the information students collect is invaluable data they refer to while visually reconstructing the procedure in a series of descriptive illustrations that form a major component of their course work.

**Michael Corrin,
Lecturer, Biomedical
Communication,
University of Toronto**



Details from a laparoscopic assisted sub-total colectomy (2009) by first-year graduate Lorraine Trecroce. This piece was created in part based on observation of the procedure at the SCC on January 28, 2009



Research

Our research helps us understand how people learn new skills, what processes control motor skills and how the integration of sensory and motor information changes as a function of learning and practice.

Research

Our research helps us understand how people learn new skills, what processes control motor skills and how the integration of sensory and motor information changes as a function of learning and practice.

Research at the skills lab this year has primarily focussed on improving current methods of measuring and assessing technical abilities and applying recent developments in sports sciences and applying them to the field of surgical education.

One major project we're currently working on is a NESTCL-funded project to develop a better approach of evaluating technical skills. Current methods of evaluation are extremely resource intensive and rely heavily on expert observers to make subjective decisions regarding the performance of surgical trainees. With the development of a new battery of assessment tools, we will be able to quantify more objectively, various markers of performance in surgeons at all levels. This work will enable us to offer more frequent and timely feedback to trainees while they are acquiring new skills and offer a more objective assessment at key stages of training.

This year, we have also integrated more research projects into the core curriculum. To do this, we revised some of the models and it has greatly improved participation among residents who are now able to participate in projects during time they are already in the skills lab.

The new CBC Orthopaedics program has created many opportunities to examine how residents learn and perform skills at the start of their training compared to more traditional models of education. Preliminary analysis of the first module shows many

potential benefits to offering an intensive technical skills training course at the inception of residency programs; notably that our trainees are picking up technical skills faster than trainees participating in more traditional residency programs. Trainees who participated in an intensive technical skills course also report much greater confidence, both in their own abilities and in the training they have received. Future research will examine the impact of such a training course on progress at later stages of residency.

In April 2009, Dr. Ranil Sonnadara led a workshop at the Association for Surgical Education Meeting in Salt Lake City, Utah that discussed models of learning, teaching and skill acquisition developed for expert-level coaches in the context of surgical education. The workshop was well received and has fostered ongoing collaborations further explore this topic.

All of the applied research we do in the Surgical Skills Centre has a strong theoretical foundation which is driven by more basic science. We continue to explore the neural mechanisms which underpin skill acquisition, particularly focusing on how information across different sensory, cognitive and motor domains is used and how information processing changes as a function of experience.

Current research projects include:

- Evaluation tools for medical and surgical competence
- Early predictors of surgical excellence
- Optimising the acquisition of complex motor skills in new surgical trainees

- Expertise and gender effects on visually-guided movements
- Long-term athlete and coaching development for high performance sport

Dr. Ranil Sonnadara PhD,

**Assistant Professor,
University of Toronto**

**Research Scientist
Surgical Skills Centre**



IPPI Project:

Integrated Procedural Performance Instrument

Junior surgical residents must learn to perform procedural skills while their patient is awake and aware.

To better prepare them, we offer an integrated surgical skills course, supporting complex communication and procedural skills. The Integrated Procedural Performance Instrument (IPPI) consists of clinical scenarios in

which bench top models (e.g. latex skin pad) are positioned on standardized patients (SPs), with appropriate draping and instrument set up. The SP is carefully trained to interact with the learner by providing communication challenges (e.g., anger or fear) just as it occurs in the real clinical setting.

This study is assessing the effects of incorporating IPPI-based combined technical and communication instruction in the first year surgical curriculum. The program consists of four 30-minute sessions over four weeks. During their regular clinical skills lab time on Tuesday morning, participants practice basic technical skills on an SP and are given feedback from the SP on their communication behaviours. Participants perform a procedure in an IPPI scenario (i.e. SP with simulator kit, e.g. suture pad, in a simulated setting). In each scenario there is communication challenge to manage while performing the procedural skill. Immediately post interaction, participants will enter into a feedback dialogue with the SP using the video-taped record to prompt points for discussion. This one-on-one interaction takes a total of 30 minutes.

Participants found the scenarios relevant to their practice and would like to see more combined technical and communication skills training during their residency.

Diana Tabak, MEd(S)
Lecturer, Department of Family and Community Medicine
Associate Director, Standardized Patient Program (SPP)
University of Toronto



A standardized patient being treated by a resident

Publications

Sonnadara, R.R. Evaluation and Surgical Education. McMaster University. May 2009

Sonnadara, R.R. and MacRae, H. Evaluation and Surgical Education: Lessons from sport science. Association for Surgical Education Meeting, Salt Lake City. April 2009

Sonnadara, R.R., Gonzalez, D., Hansen, S., Elliott, D., Lyons, J.L. (2009). Spatial properties of perceived pitch: influence on reaching movements. *Annals of the New York Academy of Sciences*, (1169).

Accepted August 18, 2009: Marlies P. Schijven, Richard K. Reznick, Olle Th. J. ten Cate, Teodor P. Grantcharov, Glenn Regehr; Lisa Satterthwaite; Anthony S. Thijssen, Helen M. MacRae. Competence of surgeons at the start of their professional career: a transatlantic comparison. Manuscript # BJS-0501

K. Dorman, Satterthwaite L, Howard A, Woodrow S, Derbew M, Reznick R, Dubrowski A. (2009) Addressing the severe shortage of healthcare providers in Ethiopia: bench model teaching of technical skills. *Medical Education* 43: 621-627.

LeBlanc VR, Tabak D, Kneebone R, Nestel D, MacRae HM, Moulton CA: Psychometric properties of an integrated assessment of technical and communication skills. *American Journal of Surgery* 2009 Jan; 197(1): pp 96-101. C

Moulton CA, Tabak D, Kneebone R, Nestel D, MacRae HM, LeBlanc VR: Teaching communication skills using the integrated procedural performance instrument (IPPI): a randomized controlled trial. *American Journal of Surgery* 2009 Jan; 197(1): pp 113-8. C

Workshops

Satterthwaite, L., America College of Surgeons Annual Consortium Meeting of ACS Accredited Education Institutes. "Critical Issues for Managers, Administrators and Coordinators" Chicago IL, March 2009

Satterthwaite, L., Tabak, Diana, Delaney-Laaupacis, Karen, Health Professions Education, "From Duct Tape to Doc...Model creation from bench top to standardized patient application" University of Toronto Heart House, May 2009

Satterthwaite, L., The Association of Surgical Education, Committees on Simulation, Clerkship Directors, Nurses and Coordinators, The Use of Simulation in Medical Student Education, Salt Lake City May 2009 Moderator

Satterthwaite, L., Dubrowski A., Pittini, R., Tajirian, T., Strategies for Effective Training of Healthcare Professionals, Interprofessional Train the Trainers Program March 30 – April 2 2009, Surgical Skills Centre, Black Lion Hospital, Addis Abba, Ethiopia

Invited Presentations

Lisa Satterthwaite

What is the Surgical Skills Centre?, The Joint Department of Medical Imaging (JDMI) of Mount Sinai Hospital, University Health Network and Women's College Hospital, Mount Sinai Hospital, Toronto, October 29, 2008.

Dr. Helen MacRae

International Colorectal Meeting, Mexico City, Mexico, Feb 16, 2009 - Feb 20, 2009. Sexual dysfunction in rectal surgery.

International Colorectal Meeting, Mexico City, Mexico, Feb 16, 2009 - Feb 20, 2009. Current concepts in the management of colon cancer.

International Colorectal Meeting, Mexico City, Mexico, Feb 16, 2009 - Feb 20, 2009. Laparoscopic sigmoidectomy in diverticular disease.

International Colorectal Meeting, Mexico City, Mexico, Feb 16, 2009 - Feb 20, 2009. Round table-Select topics in colorectal surgery.

International Colorectal Meeting, Mexico City, Mexico, Feb 16, 2009 - Feb 20, 2009. Sexual dysfunction in rectal surgery.

International Colorectal Meeting, Mexico City, Mexico, Feb 16, 2009 - Feb 20, 2009. Surgical management of perineal Crohn's disease.

International Colorectal Meeting, Mexico City, Mexico, Feb 16, 2009 - Feb 20, 2009. Total colectomy. How I do it?

2009 ASCRS Meeting, Hollywood, Florida, May 1, 2009 - May 6, 2009. How to Develop (and pay for) a Simulation Centre.

2009 ASCRS Meeting, Hollywood, Florida, May 1, 2009 - May 6, 2009. Laparoscopic Right Hemicolectomy - How I do it.

Canadian Surgery Forum, Victoria, BC, Sep 9, 2009 - Sep 13, 2009. Role of Laparoscopic Surgery for Inflammatory Bowel Disease - Emergency and Elective.

American College of Surgeons - Division of Education - Postgraduate Course Seattle, Washington, Sep 24, 2009 - Sep 26, 2009. Residency Education.

Committees

Dr. Helen MacRae Department of Surgery Committees

- Skills Centre Steering Committee, member, 2001 – Present
- Core Curriculum Committee, Skills Laboratory, Head, 2001 – Present
- Surgical Education Directorate Wightman-Berris Academy, member, 1998 – Present
- Division of General Surgery Research Committee, member, 1997 – Present
- Division of General Surgery Postgraduate Education Committee, member, 1997 – Present
- Undergraduate Education Committee, member, 1997 – Present
- Surgical Clerkship Coordinators Committee, member, 1997 – Present
- Education Research Subcommittee, member, 1997 – Present
- Surgical Education Fellowship Training Committee, member, 1997 – Present



Lisa Satterthwaite

- Co-Chair, Management and Administration Group for the ACS Accredited Education Institutes' Consortium, Associate Member, 2009 – Present
- Centennial College Perioperative Program Advisory Committee, Member, 2008 – Present
- Peter A. Silverman Centre for International Health, Global Health Scholar, Mount Sinai Hospital, Member, 2007 – Present
- Centers of Excellence in Simulated Teaching and Learning, Health Faculties at the University of Toronto, Member, 2006 – Present
- Ad Hoc Committee for the Accreditation of American College of Surgeons Education Institutes, Member, 2005 – Present
- American College of Surgeons Surgical Simulation Curriculum Project, Member, 2005 – Present
- International Medical Graduates of Ontario Examination, Site Supervisor, 2003 – Present
- Surgical Skills Centre Core Curriculum Committee, Vice Chair, 1999 – Present
- Surgical Skills Centre Steering Committee, Member, 1999 – Present
- SAGES, Fundamentals of Laparoscopic Surgery, Test Centre Proctor, 2008 – Present
- Association of Surgical Education (ASE) Nurses in Surgical Education Committee, Member, 1999 – Present
- Association of Surgical Education (ASE), Member, 2000 – Present
- College of Nurses of Ontario, Member, 1986 – Present



Community Outreach

We strive to connect with our many communities to educate, inform, inspire and enlighten. We reach out to our colleagues, our local community and also to the next generation of healthcare professionals.

Outreach is a great opportunity for us to learn more about our community and to provide our resources and knowledge in a useful and valuable capacity.

Train-the-Trainer Program

Black Lion Hospital, Addis Ababa University, Ethiopia

Our work with The University of Addis Ababa Surgical Skills Lab in Ethiopia continues to move forward.

Care: An Interprofessional, Educational, Leadership and Skills Training Program.

In April 2009 our grant team conducted the first faculty training session entitled "Strategies for Effective Training of Healthcare Professionals". A return trip in November 2009 furthered the faculty training with a course entitled "Abbreviated course in

important aspect of our role.

Tours and discussion sessions could help a high school student if they want to pursue a career in medicine or it may encourage a donor to provide support to the lab. If nothing else, we love featuring the great work the lab fuels and its impact on patient care.

performed by Dr. Helen MacRae

- University of Toronto Department of Engineering students: Introductory Lecture to Basic Surgical Techniques, Instrumentation and OR Culture
- University of Toronto Discovery Day in Health Sciences: This event was held in conjunction with the Canadian Medical Hall of Fame. They were given an introductory lecture about becoming a surgeon (in particular an Orthopaedic Surgeon), and were able to practice such skills as BK Splint, short arm cast, and bone plating
- Young Presidents Club Tour: They came to visit our lab, learned about surgery and were able to practice some basic surgical skills



Groups that came to see us this year, included:

- Grade 9 students through Take Our Kids to Work Day: We hosted 2 groups of Grade 9 students throughout the day. Each group was given a tour of our facility and learned about what education and training is needed in order to become a surgeon
- Mount Sinai Hospital Foundation donors: The Surgical Skills Centre had a booth set up for the donors to view equipment and basic procedures that are used in the lab

Extra! Extra!

We never know where our outreach will take us either! In the summer, the SSC was approached by the History Channel to help film some scenes for a show *Ancients Behaving Badly*. They wanted to recreate how Attila the Hun and Alexander the Great may have died.

Using models our residents use combined with some old-fashioned ingenuity, we were able to recreate how Attila the Hun choked on his own blood. Filmed by a professional crew, this show has already aired. Dr. Rahim Valani, Family and Emergency Medicine, helped recreate the medical components and explain the medical issues.

Since the start of our affiliation in 2006 the lab has grown significantly in both prestige and activity. Funding for the creation of the lab was provided through the Canadian Network for International Surgery (CNIS. www.cnis.ca) spearheaded by Dr. Ron Lett, CNIS president, in conjunction with the Ethiopian Innovation Project in 2005-2007. The inauguration of the skills lab in Addis was the first of its kind in Africa!

Our current work in Addis is supported by a 3 year British Council Development Partnership in Higher Education Grant entitled "A Training Cascade for Ethiopian Surgical And Obstetrical

Simulation Based Education and Programs".

In accordance with the DelPHE (Development Partnerships in Higher Education) proposal these activities resulted in a "Hand-book for simulation-based teachers" developed to teach future cohorts of simulation-based teachers and educators.

Local Outreach

Helping people understand the dedication and required training of our medical community and the services we provide in the Lab is an

- Mount Sinai Hospital Volunteers Program: A group of 20 Mount Sinai Hospital volunteers came to the Surgical Skills Centre in order experience some hands on teaching. They were given a tour of our facility, and were able to practice some basic surgical skills including: suturing, laparoscopic tasks, intubation and colonoscopy using a virtual simulator
- St. Clement's School high school students: They were able to practice some basic tasks such as intubation and suturing, and they watched a live laparoscopic surgery from the OR which was



Co-operative Education and Volunteers

The Surgical Skills Centre is both fortunate and proud to have such a strong relationship with the Volunteer Services Department here at Mount Sinai Hospital.

Most of the volunteers/co-op students who come through our doors have an interest in entering the medical field and the experience they gain offers them a unique view into the medical community.

Nearly 60 students have worked alongside our staff here at the lab and our team enjoys helping support them and watching their progression as they gain confidence and practical experience.

"The Surgical Skills staff encourages and inspires our volunteers to flourish by getting practical experience which is invaluable to these aspiring health care providers. This opportunity is usually the very beginning, the very root of their future careers. We are extremely grateful for this outstanding collaboration."

-- Lesli Herman, Volunteer Coordinator, Mount Sinai Hospital

Our co-op students from September 2008 to September 2009 were a group of four outstanding gentlemen. In fact, they were so great, we hired each of them on to work on a casual basis at the Lab.



Massih Bidhendi

Massih Bidhendi, Grade 12 student at Delphi Secondary Alternative School

"My experience at the Skills Lab was eye opening, it was motivating, and it allowed me to see things in perspective. The Centre is like a magic mirror, the image presented to each viewer is different, and is based upon what each person wants from it. I wanted to experience what it felt like working in a hospital setting, with an amazing team of people wanting to teach something new at every given opportunity, and that's exactly what I got."

My main motive for applying to a cooperative education placement at a hospital was to see if a career in medicine was right for me. Thankfully, my placement at the Surgical Skills Center granted me the opportunity to interact with a variety of medical professionals in their varying fields of expertise. Through my experience I was able to make it clear for myself that a career in medicine is truly what is right for me."

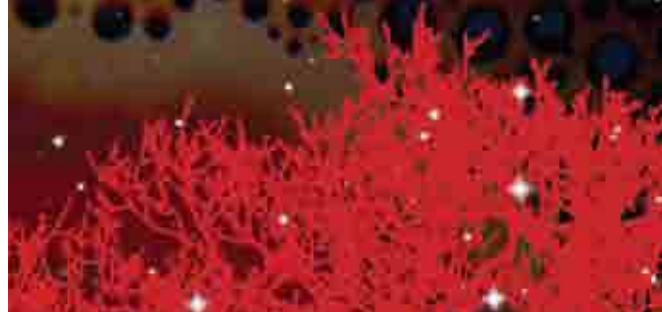


Andy Kang

Andy Kang, Grade 12 student at Bishop Allen Academy

"The co-op experience at the Surgical Skills Centre was certainly one of the highlights in my life because it gave me a chance to look further into a career in medicine as I saw the fascinating advancements in surgery through the course of the semester. It also gave me an opportunity to be part of an organization where I can learn and discover a great deal from various courses and sessions held in the labs."

Working with cadavers and specimens was the most interesting job. Although setting and cleaning up the specimens isn't the cleanest job in the world, it is definitely worthwhile to see surgeons operating, knowing that it would help save many lives. My experience with the surgeons and the senior staffs at the SSC inspired me to pursue a career as a medical doctor."



Anthony Chaseendran

**Anthony Chaseendran,
Grade 12 student
at William Lyon
Mackenzie C. I.**

"My overall experience in the Surgical Skills Lab was positive. Every morning I looked forward to coming here, learning something new and enhancing my knowledge in the medical field. My favourite job at the SSC was helping out with the sessions because I got to stick around and listen to what they were teaching. It was always interesting to see how procedures were done. Thanks SSC for a wonderful co-op placement!"

**Andrew Campbell,
Grade 13 student
R.H. King Academy**

"My co-op placement at the SSC was the best educational experience I have ever had. I learned invaluable lessons about medicine, working in a professional hospital environment, and most importantly, myself. I left the SSC with a wealth of knowledge, work experience, and a career goal for the future. The experience and connections I gained while working at the SSC galvanized my interest in pursuing a career in medicine and I have now applied to several colleges for the Paramedic program."



Andrew Campbell



Visitors

Each year, we host visitors from every corner of the world and with a wide variety of medical, educational and political backgrounds. They come to learn more about our Centre, and about how we teach and promote medical education.

This year our visitors included:

Donald Gales, D.H. Gales Family Charitable Foundation

Dr. Mark J Jackson

Dr. Petrie Roodbol, Director of Education, Groninger University Hospital, Netherlands

Dr. Noah Zucker, New Mexico

Dr. David Birks, Visiting Professor, Melbourne, Australia

RBC Foundation

Delegation from Bahrain

Delegation from the Aga Khan University

Dr. Peter Yao, Anaesthesia, Toronto General Hospital, and Dr. Ming Yao, Director of International Relations at the faculty of Medicine, University of Toronto

Chris Paig and six delegates from China

Kim Tardioli, RPN, Ottawa, Ontario

Peter A. Silverman Centre for International Health with 15 State Ministers from Brazil

Northern Ontario School of Medicine Group

Dr. Chen Ming, China

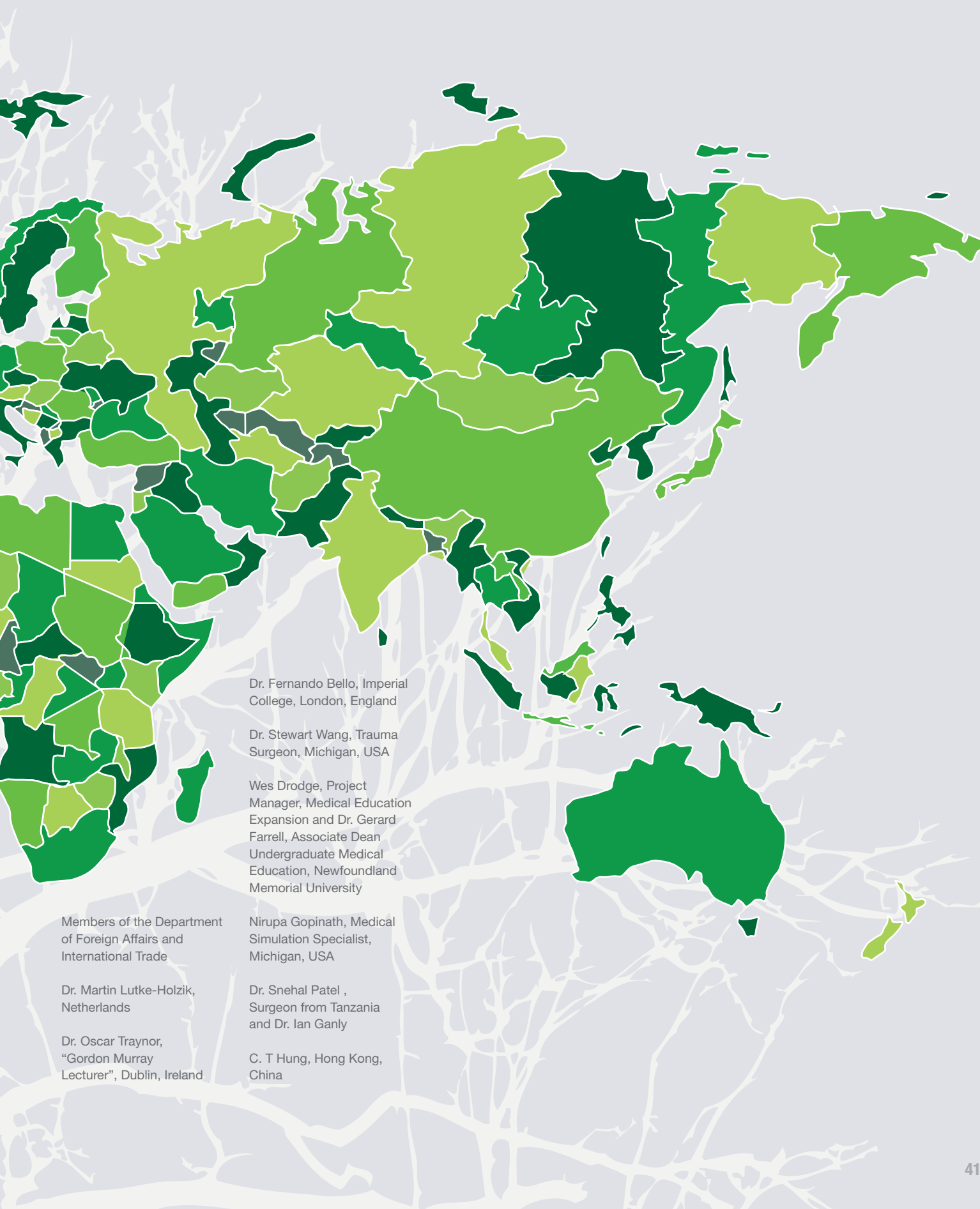
Dr. Alici Ponton-Carss, Leader of the Core Surgical Skills Curriculum, Department of Surgery, University of Calgary

Dr. Nyunya, Obstetrics and Gynaecology surgeon, Kenya

Dr. Jitte Valsted Eriksen, Obstetrics and Gynaecology specialist, Netherlands

Dr. Jean Langlois, Sherbrooke, Quebec

Mike Levine, Director for the Anesthesia program, University of Toronto



Dr. Fernando Bello, Imperial
College, London, England

Dr. Stewart Wang, Trauma
Surgeon, Michigan, USA

Wes Drodge, Project
Manager, Medical Education
Expansion and Dr. Gerard
Farrell, Associate Dean
Undergraduate Medical
Education, Newfoundland
Memorial University

Members of the Department
of Foreign Affairs and
International Trade

Dr. Martin Lutke-Holzik,
Netherlands

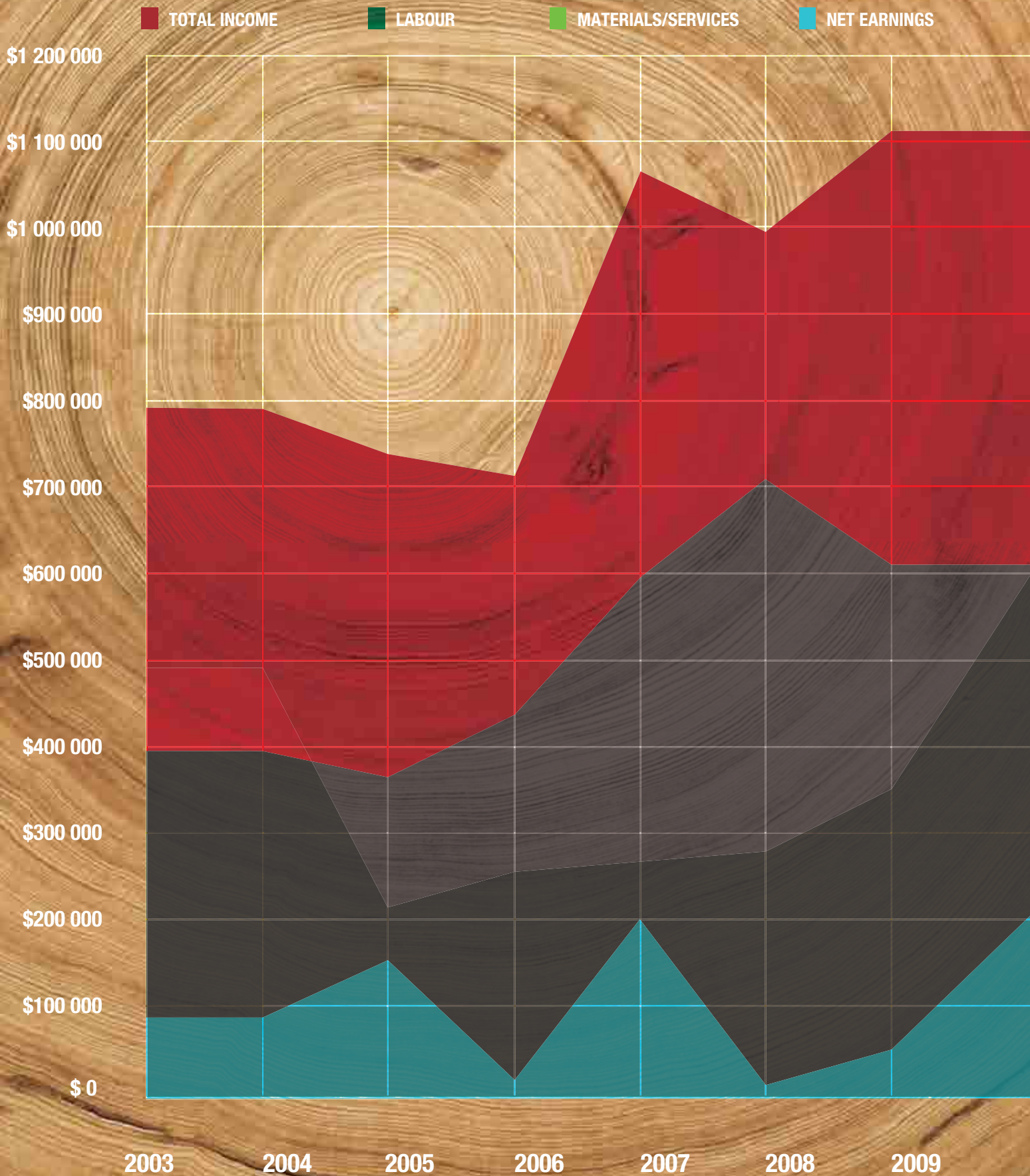
Dr. Oscar Traynor,
"Gordon Murray
Lecturer", Dublin, Ireland

Nirupa Gopinath, Medical
Simulation Specialist,
Michigan, USA

Dr. Snehal Patel ,
Surgeon from Tanzania
and Dr. Ian Ganly

C. T Hung, Hong Kong,
China

Finances





Supporters

The Surgical Skills Centre at Mount Sinai Hospital would like to thank their many supporters for their generosity and contributions over the years. It is through this support, not only financial but also through resources, equipment and knowledge. This support has played a vital role in our success, and has helped us to expand and gain valuable experience.

We have enjoyed all of our relationships and partnerships and appreciate them tremendously.

We look forward to the continuation of these relationships and their growth and development in the future, and also creating new ones.

To our wonderful supporters, our sincere thanks. We couldn't have done it without each and every one of you.

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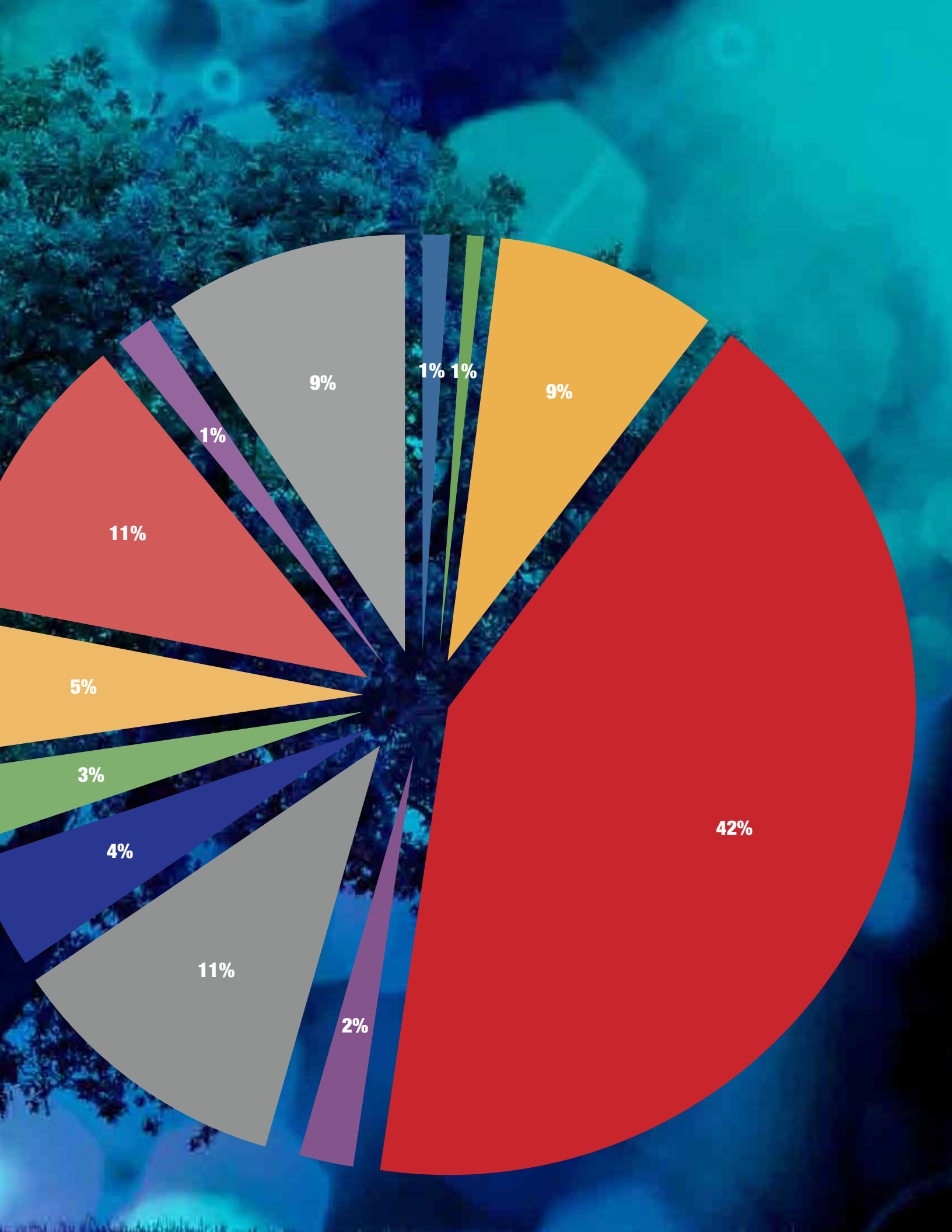
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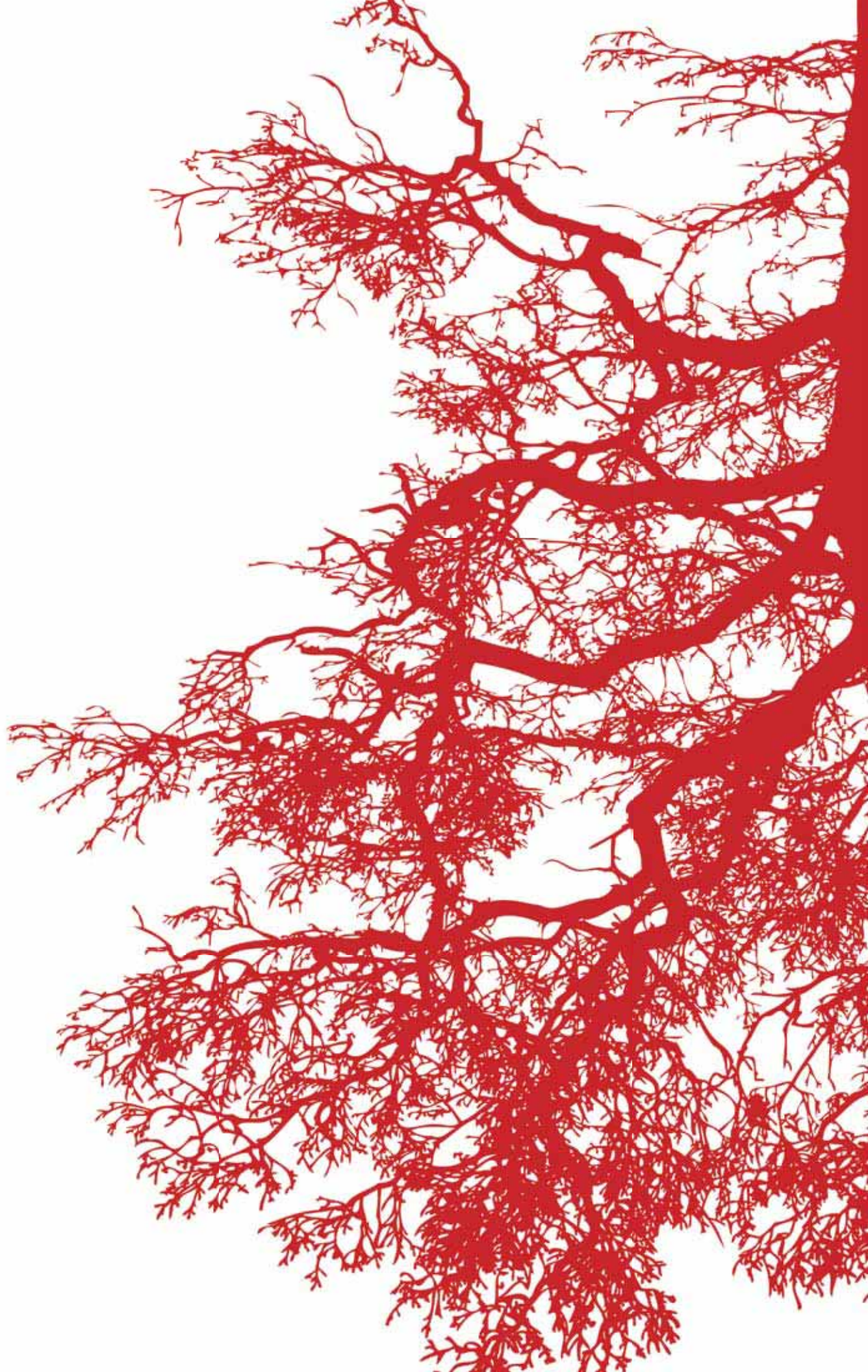
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By The Numbers

10 cc syringes	Table covers	Suction tubing	Exam gloves	Virox wipes	4x4 gauze	Surgical blades	Bouffant caps	Shoe covers	Blue absorbent pads	Marking pens	Sterile lap sponges
400	250	3,280	15,950	800	4,200	1,650	1,100	2,000	4,200	560	3,600
● 10 cc syringes	● Table covers	● Suction tubing	● Exam gloves	● Virox wipes	● 4x4 gauze	● Surgical blades	● Bouffant caps	● Shoe covers	● Blue absorbent pads	● Marking pens	● Sterile lap sponges









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