Monday June 11, 2018
MaRS Discovery District- Main auditorium
101 College St. Toronto Ontario

GOAL: To enhance leadership skills of the new generation of spine surgeons with a focus on innovation, education, advancement, and quality improvement.

OBJECTIVES:

- To enhance awareness of clinicians and scientists with regard to incorporating quality assessments into clinical care and research;

- To consider individual clinician and academic performance metrics in education, innovation, research and patient care as compared to best practice standards from national and international perspective;

- To learn about strategies shared by key academics in leadership for advancing ones programmatic activities

ACREDITATION

Royal College of Physicians and Surgeons of Canada – Section 1:
This event is an Accredited Group Learning Activity (Section 1) as defined by the Maintenance of Certification Program of the Royal College of Physicians and Surgeons of Canada, approved by Continuing Professional Development, Faculty of Medicine, University of Toronto up to a maximum of (6.5 hours)
UHN-Toronto Western Hospital

W Mark Erwin PhD DC  
Michael G. Fehlings MD PhD FRCSC FACS  
Stephen Lewis MD MSc FRCSC  
Eric Massicotte MD MSc FRCSC  
Y Raja Rampersaud MD FRCSC  
Alexander Velumian PhD

UHN-Toronto Rehabilitation Institute

Karl Zabjek BSc MSc PhD

UHN-Techna

Margarete Akens Dr med vet PhD

Sunnybrook Health Sciences Centre

Leo da Costa MD  
Mahmood Fazl MD FRCSC  
Joel Finkelstein MD MSc FRCSC  
Michael H. Ford MD FRCSC  
Barry W. Malcolm MD FRCSC MBA  
Meaghan O’Reilly PhD  
Farhad Pirouzmand MD MSc FRCSC  
Arjun Sahgal BSc MD FRCP  
Victor Yang MD PhD PEng FRCSC  
Cari Whyne PhD  
Albert Yee MD MSc FRCSC

Hospital for Sick Children

James Drake BSE MB BCh MSc FRCSC  
Reinhard Zeller MD FRCSC

St. Michael’s Hospital

Jefferson Wilson MD, PhD FRCSC  
Henry Ahn MD PhD  
Howard Ginsberg MD PhD FRCSC

Mount Sinai Hospital

Carlo Ammendolia DC PhD CCRF  
Rita Kandel MD FRCP

University of Toronto

Cindi M Morshead BSc PhD  
Molly S Shoichet PhD FRSC

THE U of T Spine Program

is a combined neurosurgery and orthopaedic surgery program integrated across citywide clinical and research programs at the affiliated teaching hospitals: University Health Network (UHN), Sunnybrook Health Sciences Centre (SHSC), Hospital for Sick Children (HSC), St. Michael’s Hospital (SMH), and Mount Sinai Hospital (MSH)
This is a landmark year for the University Of Toronto Department Of Surgery Spine Program which marks 10th year since its formal creation. In honour of this, we have organized "A Decade Celebration of SpineFEST!"

SpineFEST has become the key city-wide annual academic spine event for the University of Toronto Spine Program and is held in June of each year. We celebrate the accomplishments of our clinical and research trainees, as well as learn from key academic thought leaders from both the clinical as well as scientific perspective. Because of your very strong support over the last decade, our program has grown a respected academic footprint locally, nationally, and globally. The blend of collaboration, inter-professional, inter-departmental, and inter-disciplinary knowledge exchange remains the key to our success.

As Co-Directors of this program, we would like to take this opportunity to thank our Program Council and Research and Education Committee members for their years of dedicated service and valued contributions.

Recent activities have leveraged education activities that has included the creation of a national spine surgery fellowship training curriculum for cognitive and procedural competencies. Building on this, our program established enhanced Neurosurgery and Orthopaedic Surgery training opportunities between Toronto Academic Health Sciences Network (TAHSN) spine hospitals (Toronto Western Hospital (TWH-UHN); Sunnybrook Health Sciences Centre (SHSC); Saint Michael’s Hospital (SMH) and Hospital for Sick Children (HSC)). We have built top tier academic hub attracting and training 12-15 fellow surgeons annually who have come to Toronto from across the world.

At the beginning of each academic year, we launch our university academic calendar of events. Dr Stephen Lewis (TWH-UHN & HSC) chairs an introductory city-wide fellows surgical skills course, introducing the anatomy of spine with fellows performing anterior and posterior surgical approaches and spinal instrumentation. This year, Dr Lewis plans to extend this course to include advanced complexed procedures (e.g. deformity osteotomy, minimally invasive surgery (MIS), and trauma techniques). Over the past two years, our program has piloted and continues to offer a two-year fellowship program with a first general spine training year followed by a second year with more focused and advanced subspeciality city-wide experience. Many thanks to Drs. Eric Massicotte, Stephen Lewis, Joel Finkelstein, Howard Ginsberg, Henry Ahn, and Reinhard Zeller for their valued help in shaping our city-wide fellowship training opportunities. Building on our national fellowship curriculum, in 2015 our program also launched a surgical case-log program designed by recent fellows (Drs. Jeremie Larouche and Tony Bateman) for future fellows. Finally, we thank Dr Massicotte for his longstanding contributions to spine residency training and appreciate his assisting as Drs. Jeff Wilson and Jeremie Larouche now take key leadership roles in organizing the training education course for the upcoming academic year.

Over the past four years, we have also complemented the resident’s surgical training with our Royal College Mock Oral spine prep course

PREVIOUS SPINEFEST KEYNOTE SPEAKERS

2017  Professor Zoher Ghogawala, Tufts University School of Medicine
2016  Professor Daniel Riew, Columbia University Medical Center
2015  Professor Wilco Peul, Leiden University Medical Centre
2014  Professor Kenneth Cheung, University of Hong Kong
2013  Professor Alexander Richard Vaccaro, Thomas Jefferson University
2012  Professor Jean Dubousset, The University of Paris
2011  Professor Jens Chaplin, University of Washington
2010  Professor Eduard Benzel, Cleveland Clinic
2009  Professor Jeffrey Wang, University of California
Co-moderated by Drs. Fehlings and Yee. Our city-wide spine fellows have assumed a key leadership role in the organization of this course with the selection of case scenarios as well as related examination of the residents along with providing valuable ‘tips’ and an updated literature review.

Our program continues to facilitate live platforms to disseminate knowledge and exchange advances in spine surgery and research. We host City-wide Fellow Journal Club several times a year to discuss recent and controversial spine articles and a collection of relevant cases. At our last Journal club, our fellows discussed the newly established guidelines of Spinal Cord Injury (SCI) and guidelines of the Degenerative Cervical Myelopathy (DCM). Furthermore, we invite three to four world-renowned visiting professors each year to our hospital-based visiting professorship to provide lectures on their area of interest in spine care and research.

This year on February 26th, we were very pleased to host Dr Marcel Dvorak (Professor of Orthopedics at the University of British Colombia) who shared his thoughts on what improves care for patients with acute SCI. On May 7th, we also enjoyed a visit by Dr Ashwini Sharan (Professor of Neurological Surgery and Neurology at Jefferson University) who updated us on modern advances in spine modulation. Chaired by Dr Joel Finkelstein (SHSC), The U of T-GTA Spine rounds are also held three to four times a year. At these rounds, we hear interesting personal perspectives from our visiting professors reflecting on their own career and life as spine surgeons. We also bring together expertise and leading clinicians and scientists of spine and musculoskeletal care in the U of T & China Symposium held biennially in conjunction with the Division of Orthopedic Surgery and SHSC. Here we host a delegation of academic musculoskeletal and spine surgical oncology leaders from throughout China. In the fall of 2017 and jointly with the Krembil Neuroscience Centre, Toronto Western Hospital, and the Collaborative Program in Neuroscience we held our annual Tator-Turnbull Spinal Cord Injury Symposium. In this 16th annual meeting Dr Dalton Dietrich, the Scientific Director of Miami Project to Cure Paralysis in Florida, provided an interesting keynote address highlighting the current and future challenges of the translational studies for spinal cord injury.

In innovations and best practice efforts, our program has contributed in numerous initiatives.

**PREVIOUS VISITING PROFESSORS**

**2017**
- **May** Professor Ashwini Sharan, Thomas Jefferson University
- **February** Professor Marcel Dvorak, University of British Columbia
- **September** Professor Ziya Gokaslan, The Warren Alpert Medical School of Brown University

**2016**
- **May** Professor Mark Bilsky, Weill Medical College of Cornell University
- **April** Professor John Kostuik, Co-Founder of the K2M

**2015**
- **February** Professor Stefan Parent, University of Montreal
- **October** Professor Yu Liang, School of Medicine JiaoTong University Shanghai
- **February** Professor Fackson Mwale, McGill University

**2014**
- **November** Professor Robert Dunn, University of Cape Town
- **April** Professor David Choi, UCL Institute of Neurology

**2013**
- **October** Professor Alwin Crawford, University of Cincinnati Medical Center
- **April** Professor Alexander Rabchevsky, Kentucky Chandler Medical Centre

**2012**
- **November** Professor Charles Fisher, University of British Columbia
- **May** Professor Mauro Alini, Musculoskeletal Regeneration- AO Foundation

**2011**
- **November** Professor Thomas R Oxland, University of British Columbia

**2010**
- **October** Professor Charles E. Johnston, University of Texas Southwestern Medical Center

**2009**
- **October** Professor Satoshi Tani, Japan Jikei University
We are proud to have our Clinical Practice Guidelines for the Management of Patients with Acute Spinal Cord Injury and Guidelines for the Management of Patients with Degenerative Cervical Myelopathy approved by the AOSpine and published in the Global Spine Journal. Also, Dr Raj Rampersaud (TWH-UHN) and colleagues continue to lead important efforts toward enhancing triage and care of many of our ‘elective’ patients with degenerative conditions of the spine. Arising from the success of Inter-professional Spine Assessment and Education Clinic (ISAEC) pilot, the Ministry of Health and Long Term Care (MOH-LTC) is now expanding this triage and assessment Low Back Pain (LBP) framework province wide. Moreover, Dr Michael Fehlings has also led efforts at the provincial level aimed towards enhancing access to patients with urgent and emergent spinal conditions. In “Time is Spine” Dr Fehlings and his team, supported by analyses from the Institute for Clinical Evaluative Sciences (ICES) database, are advocating for timely surgical intervention within the first 24 hours after injury as critical for minimizing complications and maximizing recovery for patients with SCI.

To facilitate innovation, the UTSpine Program is emerging as a translational research hub to foster collaborative efforts in multi-centre clinical trials and to improve data sharing between the respective research institutes. There are a number of clinical trials in progress across our city-wide clinical research units (RISCIS, Riluzole in Spinal Cord Injury Study; INSPIRE, the neuro-spinal scaffold in treatment of AIS A thoracic acute spinal cord Injury; EPOS0, surgery versus radiotherapy in metastatic disease of the spine; VERTEX, VX-210 in acute traumatic cervical spinal cord injury; and the successfully completed Lumbar Spinal Stenosis Study).

In this respect, we are currently looking into implementing recommendations arising from our December 2017 strategic planning summit in support of creating a the U of T Spine Clinical Unit that will further synergetic efforts to induce better outcomes for better spine care.

In communications and outreach, the Program has successfully leveraged a multi-media strategy with flyers, posters, and brochures. We launched a Program Newsletter several years ago and maintain an on-line presence through our newly updated website at the Department of Surgery and our social media activity such as LinkedIn and Twitter.

We held the biennial Ontario Spinal Cord Injury Research Network (OSCI RN) meeting in May last year as a combined meeting with Canadian Spinal Cord (CSC). We invite you all to attend the 19th
Annual Scientific Conference of the Canadian Spine Society Toronto is hosting next year from February 27th thru March 2nd, 2019. Additionally, our Program acts as local hosts for several key international meetings held and planned: the 44th Annual Meeting of the Cervical Spine Research Society (CSRS) in December 2016; The 18th Annual conference of the International Society for the Advancement of Spine Surgery (ISASS) held in April 11-13, 2018; the NeuroTrauma 3rd Joint Symposium August 11-16, 2018; and the Global Spine Congress in May 15-18, 2019.

In advancing our Spine Program academic calendar, we continue to pursue alternative sources of sustainable funding. Our program is grateful for the longstanding support of the University of Toronto Department Of Surgery, and the university Divisions of Orthopedic Surgery and Neurosurgery. We also value the support of Medtronic, Zimmer Biomet, DePuy Synthes, Ethicon, and Stryker.

Enjoy SpineFEST. We had an excellent program last year with an enlightening keynote address from our visiting professor Dr Zoher Ghogawala from Tufts University School of Medicine who spoke of searching for truth in spinal surgery. This year we are delighted to welcome Professor Sanford Emery as our key Tator-Hall Lecturer. Dr Emery is the Chair of Department of Orthopedics and Director of Surgical Services at West Virginia University. We very much look forward to his address on opportunities in leadership training for surgeons. In addition, we are excited to have our Deputy Minister of Health and Long-Term Care, Dr Robert Bell join us to share his journey of leadership in health care. We thank our city-wide Surgeon-in-Chiefs for sitting on a Leadership Panel Discussion (Dr Shaf Keshavjee at UHN; Dr Avery Nathens at SHSC; Dr Christopher Caldaroni at HSC; along with Dr Najma Ahmed, Vice-Chair Education at the U of T Department of Surgery and our visiting professor Dr Emery.

Special thanks to Ms. Nadia Jaber for all her expertise and valued help as our Program’s Coordinator.

Sincerely,

Michael & Albert
7:00  Breakfast & Registration

7:30  **INTRODUCTION**

**Opening Remarks**
Michael Fehlings & Albert Yee
Co-Directors, University of Toronto Department of Surgery Spine Program

**Greetings from the University of Toronto**
Peter Ferguson
Albert and Temmy Latner Chair, Division of Orthopaedic Surgery

Richard Hegele
Vice Dean, Research & Innovation Faculty of Medicine

7:45  **Introductory Talk**
**LEADERSHIP IN HEALTH CARE: MY JOURNEY**
Robert S. Bell, Deputy Minister of Health and Long-Term Care

8:15  **Remarks- Spine Academia on the 10th Anniversary**
Charles Tator & Hamilton Hall

**THE TATOR-HALL VISITING PROFESSOR LECTURE** (Chair: Michael Fehlings)

8:25  **Introduction of Visiting Professor Dr Sanford E. Emery**
Michael Fehlings

8:30  **Keynote Address**
**LEADERSHIP TRAINING FOR SURGEONS: FILLING THE PIPELINE**
Sanford Emery, Professor & Chair Department of Orthopedics, Director of Surgical Services, West Virginia University

9:15  **Discussions (15 Minutes)**

9:30  **Coffee Break**
SESSION I (Panel): THE ART OF SCIENCE AND MEDICINE IN SPINE SURGERY (Chair: Michael Fehlings)

9:45  INTRODUCTION TO PANELISTS
9:50  Shaf Keshavjee, Chief of Surgery - University Health Network
10:00 Avery Nathens, Chief of Surgery - Sunnybrook Health Sciences Centre
10:10 Christopher Caldarone, Chief of Surgery - Hospital for Sick Children
10:20 Najma Ahmed, Vice-Chair Education - U of T Dept. of Surgery
10:30 Sanford Emery, Visiting Professor - West Virginia University

10:40  Discussions (20 Minutes)

11:00  E-Poster Presentations & Judging (Co-Chairs: Cari Whyne, Carlo Ammendolia, Karl Zabjek)

12:30  Lunch and E-Poster Viewing

SESSION II: Quality Value-Based Surgery (Chair: Albert Yee)

13:15  QUALITY IMPROVEMENT: FROM THEORY TO PRACTICE
Jeremie Larouche - Sunnybrook Health Sciences Centre

13:30  CONSIDERING THE PROS AND CONS OF ONTARIO’S QUALITY BASED PROCEDURES (QBP) - A PRIMER AND SURGEON’S PERSPECTIVE
Albert Yee - Sunnybrook Health Sciences Centre

13:45  INTER-PROFESSIONAL SPINE ASSESSMENT AND EDUCATION CLINICS (ISAEC): FROM SELF-MANAGEMENT TO SURGERY, INTEGRATING THE CONTINUUM OF CARE.
Raja Rampersaud, Toronto Western Hospital - University Health Network

14:00  THE CHANGING EPIDEMIOLOGY OF SCI IN CANADA
Jeffery Wilson, Saint Michael’s Hospital

14:15  Discussions (30 Minutes)

14:30  Coffee Break
SESSION III: RESEARCH TRAINEE PRESENTATIONS  (Co-Chairs: Michael Fehlings & Albert Yee)

INVITED SURGEON SCIENTIST TRAINEE PRESENTATIONS

14:45  PREDICTION OF SURVIVAL AND QUALITY OF LIFE IN PATIENTS WITH METASTATIC SPINAL CORD COMPRESSION MANAGED SURGICALLY
Anick Nater, PGY4 Neurosurgery Best Abstract 2nd Tie (clinical)

14:55  SURGICAL RISKS DISCLOSURE AND PATIENT INFORMATION NEEDS DURING INFORMED CONSENT FOR LUMBAR MICRODISCECTOMY
Kunal Bhanot, PGY4 Orthopaedic Surgery

15:05  Discussions (10 Minutes)

ORAL PRESENTATIONS

15:15  A PHASE I TRIAL ON THE USE OF PHOTODYNAMIC THERAPY IN VERTEBRAL METASTASES
Best Abstract 1st (clinical): Carl Fisher, Post Doc Research Fellow - Princess Margaret Cancer Centre

15:25  VERTEBRAL BODY SEGMENTATION IN CT IMAGES USING DEEP LEARNING
Best Abstract 2nd Tie (clinical): Geoff Klein, Graduate Student - MSc Biomedical Physics

15:35  AUTOMATED PIPELINE FOR ANALYSIS AND VISUALIZATION OF SPINAL CORD TRACTS FROM DIFFUSION TENSOR IMAGING
Best Abstract 1st (basic science): Vignesh Sivan, BASc Biomedical Engineering

15:45  SMaRT HUMAN NEURAL STEM CELLS TO DEGRADe SCAR AND OPTIMIZE REGENERATION OF THE CHRONICALLY INJURED SPINAL CORD
Best Abstract 2nd (basic science): Christopher Ahuja, PGY4 Neurosurgery

15:55  Discussions (10 Minutes)

AWARDS PRESENTATION AND CLOSING REMARKS

16:05  Award Presentations and Closing Remarks
Michael Fehlings & Albert Yee
Dr Sanford Emery, Professor and Chair of the Department of Orthopaedics and Director of Surgical Services at West Virginia University, has been in the active practice of orthopaedic surgery for the last 29 years, and sub-specializes in adult spine surgery. After completing his undergraduate studies at Dartmouth College and medical school at Duke University School of Medicine, Dr Emery completed his orthopaedic surgical residency at the University of Rochester/Strong Memorial Hospital, in Rochester, New York. He received his fellowship training at Case Western Reserve University Hospitals in Cleveland, Ohio. In 2003 Dr Emery earned an MBA at Weatherhead School of Management at Case Western Reserve University.

Dr Emery is immediate past president of the American Orthopaedic Association. He is a recent past president of the American Board of Orthopaedic Surgery (ABOS) and serves as one of its Senior Directors.

Introductory Talk

Dr Robert Bell appointed Deputy Minister of Health and Long-Term Care, effective June 2, 2014. Prior to this role, he served as President and Chief Executive Officer of University Health Network for nine years. He was previously the Chief Operating Officer at Princess Margaret Hospital and Chair of both Cancer Care Ontario’s Clinical Council and the Cancer Quality Council of Ontario. Dr Bell received his Doctor of Medicine from McGill University and a Master of Science from the University of Toronto. He also completed a Fellowship in Orthopaedic Oncology at Massachusetts General Hospital and Harvard University. Dr. Bell is a Fellow of the Royal College of Physicians and Surgeons of Canada, the American College of Surgeons and an Honorary Fellow of the Royal College of Surgeons of Edinburgh.

An internationally recognized orthopedic surgeon, health care executive, clinician-scientist, and educator, Dr. Bell brings more than 40 years of health care experience to his current role.

Robert S. Bell MD CM MSc FRCSc FACS
Deputy Minister of Health and Long-Term Care

Dr Emery is past president of the Cervical Spine Research Society, and a member of several professional medical societies including the American Academy of Orthopaedic Surgeons, North American Spine Society, Scoliosis Research Society, Orthopaedic Research Society, and West Virginia Orthopaedic Society. He has over sixty publications, thirty-three book chapters, one textbook, and has been invited to present his work on over two hundred occasions at local, regional, national, and international meetings. Dr Emery has chaired the Department of Orthopaedics at WVU since 2003. He has grown the department from five to thirty full-time faculty, established a resident research program, fostered a significant increase in both funding and productivity of basic and clinical research in Orthopaedics, and serves on several leadership committees in his institution including the University Health Associates Board of Directors.

Sanford E. Emery MD MBA
Chair of the Department of Orthopaedics
Director of Surgical Services
West Virginia University
Dr Hamilton Hall is a Professor in the Department of Surgery at the University of Toronto and on the orthopaedic staff at the Sunnybrook Health Sciences Centre. He started the first Acute Spinal Cord Injury Unit in Canada in 1974, and has reported on the epidemiology, prevention and treatment of spinal cord injury. He has undertaken seminal translational and clinical research in spinal cord injury. In 1992, he founded ThinkFirst, Canada, a national brain and spinal cord injury foundation whose mission is to reduce the incidence of catastrophic injuries in Canada. In 2012, ThinkFirst merged with three other charities to form Parachute Canada, the country’s foremost injury prevention agency, of which he is a founding Director.

In 2008, the University of Toronto Press published his book “Catastrophic Injuries in Sports and Recreation, Causes and Prevention-a Canadian Study.” He has held two research chairs at the University of Toronto, the Dan Family Chair in Neurosurgery and the Campeau Family-Charles Tator Chair in Brain and Spinal Cord Research. In 2000, he received the Order of Canada, and in 2009 he was inducted into the Canadian Medical Hall of Fame. In 2017, he was promoted to Officer within the Order of Canada, and was also inducted into Canada’s Sports Hall of Fame for his work on prevention of sports injuries.

Dr Charles Tator is a Professor in the Department of Surgery, at the University of Toronto, and a neurosurgeon at the Toronto Western Hospital. He is the former Chair of Neurosurgery at the University of Toronto. He started the first Acute Spinal Cord Injury Unit in Canada in 1974, and has reported on the epidemiology, prevention and treatment of spinal cord injury. He has undertaken seminal translational and clinical research in spinal cord injury. In 1992, he founded ThinkFirst, Canada, a national brain and spinal cord injury foundation whose mission is to reduce the incidence of catastrophic injuries in Canada. In 2012, ThinkFirst merged with three other charities to form Parachute Canada, the country’s foremost injury prevention agency, of which he is a founding Director.

In 2008, the University of Toronto Press published his book “Catastrophic Injuries in Sports and Recreation, Causes and Prevention-a Canadian Study.” He has held two research chairs at the University of Toronto, the Dan Family Chair in Neurosurgery and the Campeau Family-Charles Tator Chair in Brain and Spinal Cord Research. In 2000, he received the Order of Canada, and in 2009 he was inducted into the Canadian Medical Hall of Fame. In 2017, he was promoted to Officer within the Order of Canada, and was also inducted into Canada’s Sports Hall of Fame for his work on prevention of sports injuries.

Charles H Tator OC MD PhD FRCSC FACS
Professor of Neurosurgery, U of T
Div of Neurosurgery, Toronto Western Hospital
Founding Director, Parachute Canada
Director, Canadian Concussion Centre

Dr Hamilton Hall is a Professor in the Department of Surgery at the University of Toronto and on the orthopaedic staff at the Sunnybrook Health Sciences Centre. He completed his medical degree at the University of Toronto then joined CARE and was stationed at a rural hospital in Malaysia. Dr Hall returned to Toronto for his orthopaedic residency which concluded with a fellowship in medical education at the University of Dundee, Scotland. In 1974, because of his interest in patient education and rehabilitation, Dr Hall founded the Canadian Back Institute which expanded into the CBI Health Group, now, with over 13,000 employees, the largest rehabilitation company in Canada. Dr Hamilton Hall continues to serve as its Medical Director.

Dr Hall is co-founder and Executive Director of the Canadian Spine Society and has served on the editorial boards of Spine, The Spine Journal and The BackLetter.

Dr Hamilton Hall has received Outstanding Paper and Poster awards from the North American Spine Society and the International Society for the Study of the Lumbar Spine. He is a recipient of the Best Undergraduate Clinical Lecturer Award at the University of Toronto, the NASS Henry Farfan Award for outstanding contributions to the field of spine care and a Lifetime Achievement Award from the Canadian Spine Society.

Dr Hall’s concept of a syndrome approach to classifying mechanical back pain is an essential component of several Canadian provincial initiatives to improve spine care. In addition to over 130 published articles and book chapters and over 1200 invited presentations, many as Visiting Professor, to universities in North America, Europe and Asia, he is author of the best-selling Back Doctor series of books for the lay public.
Dr Michael Fehlings is the Vice Chair Research for the Department of Surgery at the University of Toronto and Head of the Spinal Program at Toronto Western Hospital, University Health Network. Dr Fehlings is a Professor of Neurosurgery at the University of Toronto, holds the Gerry and Tootsie Halbert Chair in Neural Repair and Regeneration, is a Scientist at the McEwen Centre for Regenerative Medicine and a McLaughlin Scholar in Molecular Medicine. In the fall of 2008, Dr Fehlings was appointed the inaugural Director of the University of Toronto Neuroscience Program (which he held until June 2012) and Co-Director of the newly formed University of Toronto Spine Program.

Dr Fehlings combines an active clinical practice in complex spinal surgery with a translationally oriented research program focused on discovering novel treatments for the injured brain and spinal cord. This is reflected by the publication of over 800 peer-reviewed articles (h-index 81) chiefly in the area of central nervous system injury and complex spinal surgery. Dr Fehlings leads a multi-disciplinary team of researchers which is examining the application of stem cells, nanotechnology and tissue engineering for CNS repair and regeneration. He is also a principal investigator in the Christopher and Dana Reeve Foundation North American Clinical Trials Network, chair of the internationally renowned AOSpine North America network and leads several international clinical research trials.

Dr Michael Fehlings has received numerous prestigious awards including the Gold Medal in Surgery from the Royal College of Physicians and Surgeons (1996), nomination to the Who’s Who list of the 1000 most influential scientists of the 21st century (2001), the Lister Award in Surgical Research (2006), the Leon Wiltse Award from the North American Spine Society for excellence in leadership and/or clinical research in spine care (2009), the Olivecrona Award (2009) -- the top award internationally for neurosurgeons and neuroscientists awarded by the Nobel Institute at the Karolinska Institute in Stockholm for his important contributions in CNS injury repair and regeneration, the Reeve-Irvine Research Medal in Spinal Cord Injury (2012), the Golden Axon Leadership Award (2012), the Mac Keith Basic Science Lectureship Award for significant contributions to the basic science of cerebral palsy and childhood onset disabilities (2012), and was the Mayfield Lecturer (2012). In 2012, Dr Fehlings served as the 40th President of the Cervical Spine Research Society (CSRS) -- the only Canadian to do so -- and was honoured with the CSRS Presidential Medallion for outstanding leadership and contributions to cervical spine research. In 2013, Dr Fehlings was honoured with the Queen Elizabeth II Diamond Jubilee Medal presented to him by the Honourable Stephen Harper, the H. Richard Winn Prize from the Society of Neurological Surgeons, the Jonas Salk Award for Scientific Achievements from the March of Dimes Canada and the Henry Fartan Award from the North American Spine Society. In 2014, Dr Fehlings was elected to the Fellowship of the Royal Society of Canada and to the Canadian Academy of Health Sciences, and in 2016 won the Royal College of Physicians and Surgeons Mentor of the Year Award.

Dr Fehlings is active in many medical societies and journal editorial boards including Journal of Neurosurgery: Spine (Past-Chairman Editorial Board), Neurosurgery (Associate Editor) and Spine where he holds the position of Deputy Editor.
Albert Yee MD  MSc  FRCSC DABOS
Professor of Orthopaedic Surgery
Vice-Chair Research, Division of Orthopaedic Surgery
Department of Surgery
Co-Director Spine Program
University of Toronto
Holland Bone & Joint Program Chief
Marvin Tile Chair Division of Orthopaedic Surgery
Sunnybrook Health Sciences Centre

Dr Albert Yee is the Holland Bone & Joint Program Chief and the Head of the Division of Orthopaedic Surgery at Sunnybrook Health Sciences Centre, where he holds the Marvin Tile Chair in Orthopaedic Surgery. Dr Yee is an Orthopaedic Spine Surgeon at Sunnybrook Health Sciences Centre, an Associate Scientist (Physical Sciences Platform) at Sunnybrook Research Institute and a Consultant in Surgical Oncology, Bone Metastasis Clinic, Odette Cancer Centre. He is a Full Professor at the University of Toronto in the Institute of Medical Sciences with a cross appointment in the Institute of Biomaterials and Biomedical Engineering. He is the Vice Chair of Research in the Division of Orthopaedic Surgery and Co-Director of the University of Toronto’s Department of Surgery Spine Program. Dr Yee is the Past President of the Canadian Orthopaedic Research Society, President-Elect of the Canadian Spine Society and Co-Chair of Bone & Joint Canada. He is the Canadian Lead for the Young Investigators Initiative (YII) of Bone & Joint Canada, and the US Bone & Joint Initiative, a grant mentorship and career development program. Dr Yee has over 100 peer reviewed publications and has received academic honours including the American British Canadian (ABC) International Travelling Fellowship (American Orthopaedic Association / Canadian Orthopaedic Association, 2013), the Charles H. Tator Surgeon-Scientist Mentoring Award (2012), and the Canadian Orthopaedic Foundation J. Edouard Samson Award (2011). Dr Yee’s laboratory focuses on translational orthopaedic research utilizing pre-clinical surgical models to evaluate novel minimally invasive vertebral metastatic therapies (e.g. Photodynamic Therapy, Radiofrequency Ablation). His work has led to first in human clinical trials and FDA approval with commercialization of new minimally invasive spine technology. He has interest in understanding mechanisms of disease in cancer invasiveness to bone with an aim towards identifying potential new promising therapeutic targets.
Dr Shaf Keshavjee is a Thoracic surgeon and Director of the Toronto Lung Transplant Program. He is Surgeon-in-Chief, James Wallace McCutcheon Chair in Surgery, Director Toronto Lung Transplant Program, Director Latner Thoracic Research Laboratories, Professor Division of Thoracic Surgery and Institute of Biomaterials and Biomedical Engineering, and Vice Chair for Innovation, Department of Surgery at the University of Toronto.

Dr Keshavjee completed his medical training at the University of Toronto in 1985. He subsequently trained in General Surgery, Cardiac Surgery and Thoracic Surgery at the University of Toronto followed by fellowship training at Harvard University and the University of London for airway surgery and heart-lung transplantation respectively. He joined the faculty at the University of Toronto in 1994 and was promoted to full professor in 2002. Dr Keshavjee served as the Chair of the Division of Thoracic Surgery at the University of Toronto from 2004 to 2010. He was also the inaugural holder of the Pearson-Ginsberg Chair in Thoracic Surgery.

Dr Keshavjee’s clinical practice is in thoracic oncology, lung cancer and lung transplantation. He has a passion for surgery and innovative research. He is a scientist in the McEwen Center for Regenerative Medicine at UHN. He leads a team of researchers in a foremost research program and is widely published in the field. His specific research interest is in lung injury related to transplantation. His current work involves the study of molecular diagnostics and gene therapy strategies to repair organs and to engineer superior organs for transplantation.

Dr Keshavjee has served on the board of directors of the International Society for Heart and Lung Transplantation, The Canadian Society of Transplantation and on the Governing Council of the American Association for Thoracic Surgery. He has received numerous awards for contributions to medicine, including the George Armstrong Peters Young Investigator Award, Canada’s Top 40 Under 40 Award, the Colin Woolf Award for Excellence in Medical Education and the Lister Prize in Surgery - the highest award for research achievement in the University of Toronto Department of Surgery. He is a Fellow of the Canadian Academy of Health Sciences and has been awarded an Honorary Doctor of Science Degree from Ryerson University, as well as an Honorary Doctorate of Science from Queen’s University. He has also received two Queen Elizabeth II Diamond Jubilee Medals. He was awarded the Order of Ontario and also received the country’s highest civilian honour with an appointment as an Officer of the Order of Canada.
Dr Avery Nathens is currently the Chief of Surgery and the Trauma Medical Director at Sunnybrook Health Sciences Centre, Canada’s largest Level 1 trauma centre and Professor of Surgery at the University of Toronto. He is an attending trauma surgeon and epidemiologist with a focus on trauma system design. He is Director of the American College of Surgeons Trauma Quality Improvement Program. His research interests include trauma system effectiveness and quality of trauma care. He holds the DeSouza Chair in Trauma Research and has published over 325 peer-reviewed manuscripts including many landmark works on trauma care in Lancet, NEJM and JAMA. He has been the recipient of several million dollars of research funding from the NIH, Canadian Institutes of Health Research and many other agencies.

Educational background:
* Queen’s University Medical School, Kingston, ON (1990)
* Resident, General Surgery, University of Toronto (1998)
* Surgical Scientist (PhD), Institute of Medical Sciences, University of Toronto (1997)
* Fellowship, Trauma and Surgical Critical Care, Harborview Medical Center, Seattle, WA (2000)
* Master in Public Health (MPH), University of Washington (2000)

Previous positions:
* Attending Trauma Surgeon, Harborview Medical Center, Seattle, WA (2000-2006)
* Director, Surgical Critical Care, Harborview Medical Center, Seattle, WA (2002-2006)
* Director, Acute Care Section, Harborview Injury Prevention and Research Centre (2002-2006)
* Division Head, General Surgery and Director of Trauma, St. Michael’s Hospital, Toronto (2006-2012)

Christopher Caldarone MD FRCSC
Surgeon-in-Chief, Hospital for Sick Children
Professor of Surgery, University of Toronto

Dr Christopher Caldarone joined the Cardiovascular Surgery staff at the Hospital for Sick Children in 2003. Currently, he is the Surgeon-in-Chief and Chief of Perioperative Services at the Hospital for Sick Children. He is a Professor of Surgery at the University of Toronto and holds the Robert Salter Chair in Surgery at the Hospital for Sick Children. Other previous roles have included Chair of the Division of Cardiac Surgery at the University of Toronto and Managing Director of the Congenital Heart Surgeons Society Data Center. Dr Caldarone is an Associate Scientist in the Research Institute for the Hospital for Sick Children and cross-appointed in the Institute of Biomaterials and Biomedical Engineering at the University of Toronto. Dr Caldarone currently maintains a translational science laboratory focused on pulmonary vein stenosis and upstream pulmonary vasculopathy with Dr Rachel Vanderlaan and prior funding from the CIHR. Additionally, Dr Caldarone participates in a collaborative research project with Craig Simmons and Paul Santerre exploring tissue engineering in congenital heart surgery with NSERC funding. Finally, Dr Caldarone serves as an Associate Editor of the Journal of Thoracic and Cardiovascular Surgery.
Najma Ahmed MD PhD FRCSC FACS
Vice Chair of Education and Professor of Surgery
University of Toronto

Dr Najma Ahmed completed Medical School and General Surgery Residency at McGill University. She holds a PhD in Surgical Infections and Sepsis which was completed during her surgical residency. Following her residency she pursued fellowship training in Trauma Surgery and Critical Care at the University of Michigan and the University of Toronto. Najma was recruited to St. Michael’s Hospital in the Division of General Surgery in 2001. Her clinical focus and practice is in Acute Care Surgery, Trauma and Critical Care. She has been committed to clinical training processes and outcomes since the beginning of her career. In 2008, became the Residency Program Director for General Surgery. The General Surgery Residency Training Program at the University of Toronto is the largest and most complex surgical training program in North America. Under her leadership the program has become recognized as a highly functional, cohesive program focused on providing excellent learning opportunities for all learners.

Najma has held the position of Chair of the Education Committee of the Trauma Association of Canada and under her leadership Trauma Surgery was the first surgical discipline to be granted recognition as an Area of Focused Competence by the Royal College of Physicians and Surgeons of Canada. Dr Ahmed is the author of over 75 peer-reviewed papers. Her areas of academic interest are in surgical education and models of care that support clinical excellence in Acute Care and Trauma Surgery. Najma was a member of the Royal College’s National Steering Committee on Resident duty hours and currently sits on the a Royal College Joint Working Group on Resident Hours of Work.

Her current scholarly activities relate to Resident duty hours, Resident wellness and the application of a competency based framework to surgical training. In 2017, she became the Vice Chair Education, Department of Surgery at the University of Toronto. In this role, she provides visionary leadership for training success for medical students, residents and fellows, as well as career success of surgeon-teachers within the Department of Surgery. Her contributions to post graduate surgical education have been recognized by numerous awards, including the prestigious Royal College AMS/Donald Richards Wilson Award in 2016. Dr Ahmed’s daughter Izza is 13 years of age and attends Branksome Hall School.
Dr Jeremie Larouche is an orthopaedic surgeon who currently practices out of Sunnybrook Health Science Centre. He completed his residency training at the University of Toronto before going on to complete a fellowship in orthopaedic trauma at the University of British Columbia and returning to Sunnybrook as a Clinical Associate.

Dr Larouche previously worked at the University of California San Francisco as an assistant professor of clinical orthopaedics. He has recently returned to Toronto, and his completing a Master of Science in Quality Improvement and Patient Safety. His current practice focuses on the treatment of the polytraumatized patient and systemic optimization in clinical care delivery.

Dr Jefferson Wilson entered the neurosurgery program at University of Toronto after completing his MD at the University of Saskatchewan in 2007. During residency he earned a PhD through IMS and the Surgeon Scientist Program under the mentorship of Michael Fehlings and Abhaya Kulkarni with his research focused on the epidemiology and clinical epidemiology of traumatic spinal cord injury. Jeff's research has been funded by multiple grants from the Christopher and Dana Reeve Foundation, Cervical Spine Research Society and the Ontario Neurotrauma Foundation; further, he has been the recipient of numerous prestigious awards including: the K.G. McKenzie Prize from the Canadian Federation of Neurological Sciences, the Synthes Spinal Cord Injury Award from the American Association of Neurological Surgeon and the Shafie S. Fazel Outstanding Resident Surgeon and Investigator Award from the U of T Department of Surgery. After obtaining his FRCSC in neurosurgery in 2015, Jeff undertook a combined neurosurgery orthopaedic fellowship in complex spine surgery at Thomas Jefferson University in Philadelphia, PA under the mentorship of James Harrop and Alex Vaccaro. Jeff returns to Toronto as a Surgeon Scientist at St. Michael’s Hospital with clinical focus on the full spectrum of spinal disorders. From a research perspective, he is primarily interested in topics related to the epidemiology and clinical epidemiology of spinal trauma and spinal cord injury. Currently he serves as the Deputy Editor of the journal Clinical Spine Surgery.

Dr Raja Rampersaud is a recognized leader and innovator in minimally invasive spinal surgery. His clinical research focuses on health services, quality of care including comparative/cost-effectiveness analyses for orthopaedic disorders such as low back pain and osteoarthritis. He is an advocate for interprofessional models of care for spine and musculoskeletal disorders. He is the provincial clinical lead for the Ministry of Health and Long-Term Care Low Back Pain Strategy and serves as the co-chair for the Provincial Quality Based Pathway, Neck and Low Back as well as the Quality Standard for Low Back Pain.

Dr Raja Rampersaud
Professor of Surgery, University of Toronto
Orthopaedic Spine Surgeon
Toronto Western Hospital, University Health Network
Provincial Clinical Lead, Low Back Pain Pathway
Advocacy Chair for the Canadian Spine Society

Jefferson Wilson
MD PhD FRCSC
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Division of Neurosurgery, St. Michael's Hospital
Scientist, Li Ka Shing Knowledge Institute

Raja Rampersaud MD FRCSC
Professor of Surgery, University of Toronto
Orthopaedic Spine Surgeon
Toronto Western Hospital, University Health Network
Provincial Clinical Lead, Low Back Pain Pathway
Advocacy Chair for the Canadian Spine Society
Anick Nater is a PGY-4 in Neurosurgery at the University of Toronto. She initially enrolled in a Master program under the supervision of Dr Michael Fehlings. However, Anick realized she is not only wished to be capable of appraising and applying research outcomes to her clinical practice, but she also wanted to develop the skills to be an active member of the transitional research community as an independent scientist. Consequently, she transfers to the PhD stream. Anick’s PhD thesis is focused on developing and validating clinical prognostic models of survival and quality of life in patients with metastatic spinal cord compression who underwent surgical treatment. Anick’s goal is to become an academic neurosurgeon with a clinical and research interest in spinal oncology, knowledge translation and implementation as well as actively participating in teaching future neurosurgery resident in Canada and worldwide.

Kunal Bhanot is a PGY-4 resident in Orthopaedic Surgery at the University of Toronto, obtaining his MD from the Michael G. DeGroote School of Medicine at McMaster University in 2014. Kunal completed his MSc in musculoskeletal molecular medicine in 2009. His current research interests are in patient safety and informed consent improvement. Kunal will be completing his fellowship in 2019-2020 in Spine and Trauma with Dr Henry Ahn at St. Michael’s Hospital in Toronto, after which he hopes to pursue clinical and research interests as an academic spine surgeon.

Dr Carl J Fisher received his Bachelor of Science in Biochemistry from McGill University. Following this, he pursued post graduate studies at the department of Medical Biophysics with the University of Toronto earning his Doctorate. His PhD work focused on improving the treatment efficacy of photodynamic therapy for malignant gliomas. Currently, Carl is a Post-Doctoral Research Fellow at Princess Margaret Cancer Centre/University Health Network focusing on pre-clinical translational studies in both small and large animals under the direction of Dr Brian C Wilson. In addition, he has worked on various clinical trials including PDT for spinal metastases with Dr Albert Yee and PDT for bladder cancer with Dr Lothar Lilge.

Carl has experience in small and large animal studies/surgeries/protocols as well quantifying biological processes and therapeutic responses to treatment using MRI, optical based methods including point spectroscopy fluorescence, and MR-PET systems. In addition, he has experience in cell culture techniques including 3D growth platforms and cancer stem cells, live-cell imaging, and finally multiple molecular biology techniques.
Geoff Klein is currently a first year MSc student in Biomedical Physics at the University of Toronto. Geoff achieved a Bachelor of Science in Engineering in Engineering Physics with a specialization in Mechanical Engineering from Queen’s University in Kingston, Ontario. Geoff also has a Master of Applied Science Degree from Queen’s University which focused on modelling an electromagnetic measurement tool used in the Canadian Deuterium Uranium (CANDU) nuclear reactors. Geoff is currently working on using neural networks to automatically segment both healthy and metastatically involved vertebral bodies from Computer Tomography (CT) scans, fluorescence, and MR-PET systems. In addition, he has experience in cell culture techniques including 3D growth platforms and cancer stem cells, live-cell imaging, and finally multiple molecular biology techniques.

Vignesh Sivan is currently pursuing a BASc degree in Biomedical Engineering at the University of Waterloo. Vignesh was a coop student at Dr Cari Whyne’s Orthopaedic and Biomechanics Lab, where he had the opportunity to work on the development of a pipeline for spinal cord tractography. Outside academics, he is an avid follower of cricket.

Chris Ahuja is a neurosurgery resident and 3rd year PhD student studying bioengineered human neural stem cell therapies for traumatic spinal cord injury in the lab of Dr Michael Fehlings at UHN. He completed his medical training at Queen’s University in Kingston before joining the Division of Neurosurgery at the University of Toronto where he is currently in his 4th year. His ongoing work focuses on strategies to modify the acute and chronic post-injury extracellular matrix to generate an environment that is more conducive to cell-based regeneration.
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