

HOLLAND MUSCULOSKELETAL PROGRAM TEAM NEWS

22nd Edition, Summer 2016



Welcome to Our New Program Chief



Dr. Albert Yee has recently been appointed as the new Chief of the Holland Musculoskeletal (MSK) Program, and the new Division Head (Marvin Tile Chair in Orthopaedic Surgery) for Sunnybrook.

Dr. Yee began his career with Sunnybrook in 2001. He is a Professor at the University of Toronto, Faculty of Medicine, Department of Surgery, where he also serves as Vice Chair of Research, Division of Orthopaedics, and Co-Director of the Department of Surgery Spine Program. He is an Associate Scientist

at Sunnybrook Research Institute and is a Full Member of the Institute of Medical Science, Faculty of Medicine, with a cross appointment at the Institute of Biomaterials and Biomedical Engineering, Faculty of Applied Science and Engineering, University of Toronto. A graduate of the University, he holds specialty certification in Orthopaedic Surgery from the Royal College of Physicians and Surgeons of Canada and he has obtained specialty certification in Orthopaedics and Spine from the American Board of Orthopaedic Surgery.

“Whether linked to disease or injury, musculoskeletal issues have a substantial impact on an individual’s function and independence, regardless of age. I am proud to be leading our collaborative Holland MSK teams who provide such expert and specialized care,” says Dr. Yee.

“To further enhance the patient experience, we will continue to build on our strengths in innovative

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Holland Musculoskeletal Team News offers updates on clinical services, education and staff activities.

We welcome suggestions for content and your articles for future issues. Please send ideas and/or submissions to natalie.chung-sayers@sunnybrook.ca

Welcome to Our New Program Chief continued

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tools and resources to help patients navigate the increasingly complex health care system. We will also continue to build collaborations across Sunnybrook and externally, to support the continuum of care from acute care to rehabilitation to reintegration into the community, for patients recovering from major musculoskeletal conditions.

We also have an opportunity to expand our research in discovery to meet the needs of our patients in the future. We foster a unique environment that synergizes efforts amongst musculoskeletal scientists and clinician researchers to better understand the mechanisms of disease, how to more precisely visualize their effects, so that we can develop new targets for

treatment. We are also looking at advances in technology to improve musculoskeletal diagnostics, and to help guide, for example, patient-specific precision therapy for targeted medical and surgical care.”

Dr. Yee takes over the role from **Dr. Hans Kreder**, also a surgeon and scientist with the Holland Musculoskeletal Program.



Good for Patients. Good for Practice.

Senior-level surgeons transition their practices, mentor and resource-share with new surgeons.

Holland MSK orthopaedic surgeons, **Dr. John Cameron** and **Dr. Richard Holtby** have a wealth of knowledge in highly specialized musculoskeletal care, gained from a combined and impressive 60 years of experience in helping patients get back to active living.

Dr. Cameron specializes in complex knee ligament reconstruction and osteotomy procedures for arthritis and patella instability. Dr. Holtby specializes in complex shoulder arthroscopy or minimally invasive shoulder joint surgery, and researches optimal ways to treat disease of the rotator cuff and ways to enhance repair.

As senior-level surgeons transitioning their practices and seeking continuity of care for their patients, Drs. Holtby and Cameron have been mentoring and resource sharing with two new surgeons.

Through a selection process in which Drs. Holtby and Cameron actively participated, **Dr. Sebastian Tomescu**

and **Dr. Patrick Henry** who are just starting their academic surgical practices, were appointed. Both were a good fit, sharing a commitment to patients, surgical skills, and a research passion for continued innovations in specialized knee and shoulder care.

Beyond the training that new surgeons get through fellowships, this transition plan requires collaboration, and the timing has to be right. The hospital, research institutes and the university also participate. The University of Toronto’s Department of Surgery encourages senior-level surgeons transitioning their careers, “to mentor and resource share with new recruits initiating their academic surgical practice”. This approach has also been adopted by the Canadian Orthopaedic Association.

“It was a matter of taking an outstanding new recruit and offering him or her, the potential of a job in five years,” says Dr. Cameron.

Dr. Tomescu collaborates with Dr. Cameron. His clinical practice focuses

on hip and knee reconstructive surgery with a special interest in correction of lower extremity mal-alignment and osteotomies for patellar instability and osteoarthritis.

Dr. Henry collaborates with Dr. Holtby and is an orthopaedic trauma surgeon and an upper extremity specialist who focuses on shoulder arthroscopy and reconstruction.

“It’s a win all round,” says Dr. Holtby, “good for a new surgeon who is qualified in orthopaedic surgery but not able to find work, due to few jobs being available for surgical specialists. We are mentoring these individuals, helping them master techniques in complex procedures, but also showing them how to manage an academic surgical practice that balances patient care, research and teaching.”

“And continuity is important,” says Dr. Cameron. “Patients are well looked after by someone you have mentored and helped tailor their training over the years.”

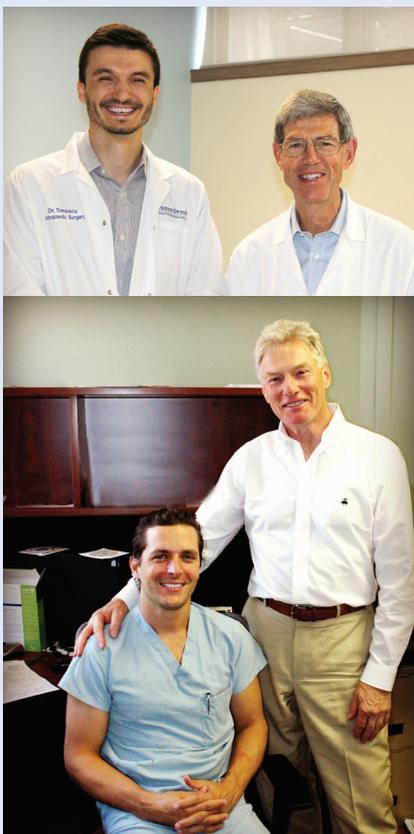
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Good for Patients. Good for Practice continued

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Says Dr. Henry, “It’s been a great process — the security that comes with a leading senior-level surgeon like Richard mentoring with you, to hone your surgical techniques and medical craft — while career mentoring on other facets of taking on an academic practice. The experience has also allowed me to be independent, but not isolated.”

Says Dr. Tomescu, “The mentorship has been a great opportunity to benefit from John’s expertise, and learning techniques from him that might otherwise have taken me years to develop. It’s about finding the right person on both ends - with the type of practice and the right background. I think there is a large pool of opportunity for more transitions like this, and patients are in good hands.”



Pay It Forward

Dr. Cameron recalls his own experience as a new recruit in the late 70s, being mentored by Dr. David MacIntosh, renowned sports medicine knee surgeon at Toronto General Hospital. He transitioned with Dr. MacIntosh, and then managed the University of Toronto Sports Clinic for 33 years. At the clinic (since renamed the David L. MacIntosh Sports Clinic), he cared for the full spectrum of patients, both with sports medicine and total joint replacement treatment needs, which enriched his perspective on innovations and optimal treatments.

Above: (left to right) Dr. Sebastian Tomescu and Dr. John Cameron

Below: (left to right) Dr. Patrick Henry and Dr. Richard Holtby

Photos by Louise Jardine



Improvements to Operating Rooms at the Holland Centre

Construction is underway to upgrade four operating rooms at the Holland Centre. These upgrades will be completed by Fall 2017, and will provide patients and clinicians with state-of-the-art surgical environments.

The project also includes system upgrades for medical gas monitoring, and the addition of a new, air handling unit as well as new generators to support 24/7 backup power.

The Holland Centre is working with its construction partners to continue to keep noise and disruption to a minimum during these improvements, and would like to thank patients and families, in advance, for their understanding.



System Leadership

Members of the Holland MSK Program have roles in quality improvement in musculoskeletal care, at both the provincial and national levels.

Dr. Shirley Chow, Rheumatologist, is also the Chair of Choosing Wisely Committee with the Canadian Rheumatology Association, is leading quality improvements across peer institutions, in the area of resource stewardship. She is also leading education in quality improvement at the University of Toronto Rheumatology training program.

Patricia Dickson, Advanced Occupational Therapist is a member of the Ontario Rehab Alliance Hip Fracture Quality Based Procedures Advisory Group and Task Group. She is also a member, along with **Ellen Valteau**, Social Worker, **Dr. Hans Kreder**, and **Anne Marie MacLeod**, Operations Director, of the Health Quality Ontario’s Hip Fracture Quality Standard Advisory Committee.

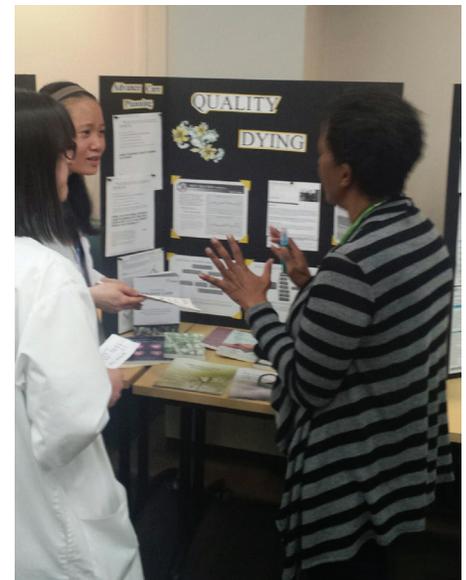
'Best Practice' Benefits Patients



Best Practice is about continuous improvements to clinical care, and the teams of the Holland MSK Program and across Sunnybrook are working to enhance person-centred care by embedding the voice of the patient, says **Lindsay Crawford**, Occupational Therapist, and Patient Transition Coordinator with the Sunnybrook Transition Enhancement Program (STEP) at the Holland Centre.

“In our care practices, every day, we look to always use inclusive language such as ‘we’ and ‘us’, and strive to find out what’s important to each patient, and her or his family. Sometimes the things that we, as practitioners may think are most important to patients may very well not be the case, so it’s critical that we explore that journey in collaboration with the patient,” says Crawford.

The Holland teams are involved in 14 Best Practice initiatives including, Falls Risk, and Early Mobility. “Each patient is screened everyday for their risk of falls. The team initializes universal, or individual, precautions to better ensure that risks are minimized. Adds Crawford, “We also strive to make Falls Risk an interdisciplinary



The teams at the Holland Centre showcase the hard work being done there to promote Best Practice.

approach, engaging everyone on the team from Nursing, Occupational Therapy, Physiotherapy, Social Work and Patient Service Providers (PSP). A PSP may consider – is the table with the water for the patient, too far from the patient? Is there a Falls Risk?”

The Early Mobility initiative encourages patients in post-operative recovery to engage in early but moderate mobility. “Every patient is to have three mobility moments in their day,” says Crawford. “We have

also focused on improvements in the sharing of information about the patient’s day, with the rest of the care team.”

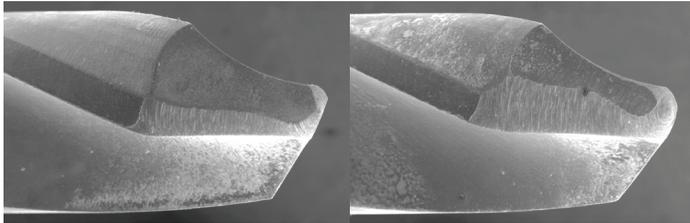
Best Practice teams at the Holland Centre recently hosted an event to highlight their work and celebrate successes. The event also served as an informal forum for the exchange of ideas, and to discuss perspectives on what may make a patient, at times, feel more vulnerable, and suggestions to address this.

MSK Research: Up Close

The Holland MSK Program continues to lead in musculoskeletal research. Here are examples of recent work.

Thermal cycling can help with surgical tool durability

Holland MSK research led by **Cari Whyne**, with investigators, **Dr. Joel Finkelstein**, **Dr. Hans Kreder**, **Dr. Ryan Katchky**, **Stewart McLachlin** and **Edwin Wong** shows the ability of



Thermally cycled surgical tool (left) has significantly less outer corner wear, compared to the other (right)

thermal cycling to improve the performance of orthopaedic surgical instruments. Thermal cycling involves cooling and then heating of materials until they undergo molecular reorganization. This reorganization “tightens” the particulate structure of the material throughout, to relieve stresses, reduce metal fatigue and help delay the forces of oxidation and chemical degradation. The results of this work, done in collaboration with Thermal Technology Services Limited, a local company, are published in the *Journal of Orthopaedic Research*.

Fine-tuning imaging to enhance craniofacial implants for patients

Reconstructing the craniofacial skeleton after trauma often requires implants that must match the facial structure of the patient to restore both function and cosmetic appearance. Holland MSK researchers are working to improve imaging visualization of thin bones in the face, in order to enhance the design of these implants.

Cari Whyne, Senior Scientist, **Michael Hardisty**, Research Engineer, Sunnybrook Research Institute, and **Amani Ibrahim**, a student working in the orthopaedic biomechanics laboratory, are developing software to improve the image-processing technology. They are collaborating with Calavera Surgical Design, a startup company out of Sunnybrook Research Institute, which has developed a process that uses patient-specific molds from CT (computed tomography) scans to shape mesh into customized craniofacial implants.

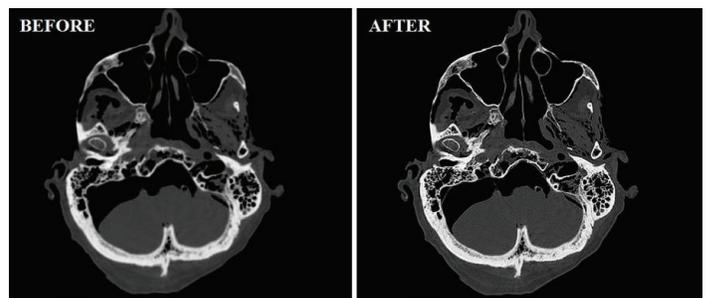
Clinical CT scans provide only limited visualization of finer structures such as the orbital floor of the eye socket or bones near the nasal cavity. The researchers whose work is funded by the Ontario Centres of Excellence and FedDev Ontario, are using filters from point data to sharpen and de-blur these images to create smooth continuous surfaces which can be 3D printed into patient specific molds.

At this year’s 14th Annual Imaging Network Ontario Symposium, Amani Ibrahim received the first prize

“Summa cum Laude” award in the bone and joint category for her oral presentation, “Image Processing Software for Designing Custom Craniofacial Implants”.



Amani Ibrahim - Photo Credit: Eleni Kanavas



CT scan of finer craniofacial bones (left).
Image after de-blurring technique (right)

Surgeon Recognized for His Significant Contributions to Sunnybrook



Congratulations to **Dr. Richard Holtby**, this year's recipient of the **Marvin Tile Award** who is being honored for his sustained and significant contributions to Sunnybrook Health Sciences Centre.

Dr. Holtby is an Orthopaedic Surgeon of the Holland Musculoskeletal Program, an Affiliate Scientist with Sunnybrook Research Institute, and an Assistant Professor in the Department of Surgery at the University of Toronto.

His contributions include his work with the Research Ethics Board (REB) and Health Records Committee, his roles as executive member and as past President of the MDMSA (Medical-Dental Midwifery Staff Association), and as Chair of the AFP (funding for academics) Management Board.

He has also contributed significantly in clinical practice and in research, having helped propel collaborations in patient-centric orthopaedic care, across the Bayview and Holland Centre campuses of the organization. His innovations in arthroscopic surgery of the shoulder are also well

known within Sunnybrook, and at the University of Toronto's Division of Orthopaedics and the Department of Surgery.

"Recognition through the Marvin Tile Award is very special to me, both because of Dr. Tile's own contributions, and because Sunnybrook has been a big part of my career. As physicians we interact at so many levels – at the University level, through peer associations and at the hospital level, and it means that much more, to be recognized for your contributions over the years to the organization itself," says Dr. Holtby.

The Marvin Tile Award is given to an individual who has contributed significantly in the areas of teaching, research and professional activity within the University of Toronto's Department of Surgery.



New Resources Help Patients Improve their Pain Management Experience

To help patients better manage their pain when they return home after joint replacement surgery, **an interprofessional team led by Amy Wainwright**, physiotherapist and Holland Musculoskeletal Health Professions Innovation Fellow, have developed a detailed brochure, *Top 10 Questions About Pain Medication*.

The booklet includes handy Medication Tracking Sheets which patients and their loved ones can complete, and features information on topics such as:

- helpful tips for taking pain medication
- what to do if medication supplies are running low
- how to slowly reduce medications when they are no longer needed
- commonly used pain medications and how they work

A related video is also available for patients during their post-operative stay at the Holland Centre, and both resources are online at www.sunnybrook.ca/hipkneepain



Research Highlights

The Holland Musculoskeletal Program continues to be:

- **productive in knowledge translation, helping move research into clinical application to improve health services:**



Dr. Kreder in the OR.

35 peer-reviewed publications since December 2015

Book chapter: Orthopaedic Surgeons, **Dr. Richard Jenkinson** and **Dr. Hans Kreder** wrote “Principles of Internal Fixation of Fractures” (pp 1321-1340 IN) for *Encyclopedia of Trauma Care*, Springer-Verlag Berlin Heidelberg publishers, 2015. Written by leading experts in trauma care, the

book features authoritative, practical information on major topics and organ-specific injuries in trauma management.

The 8th Annual Orthopaedic Conference organized by **Girlie Hart**, Advanced Practice Nurse, included presentations by surgeons, **Dr. Michael Ford**, Dr. Richard Jenkinson, **Dr. John Murnaghan** and **Dr. David Wasserstein**.

- **successful in Grant funding to conduct new research or to expand on existing work:**

Dr. David Henry, Senior Scientist, is a co-investigator on a successful CIHR (Canadian Institutes of Health Research) Rapid Funding for DSEN (Drug Safety and Effectiveness Network) Targeted Research grant, “Access to Electronic Medical Record data for studies of drug effects for CNODES (Canadian Network for Observational Drug Effect Studies) and as a platform for pragmatic trials” for \$248,634.



Meaghan O'Reilly, Scientist was awarded a \$125,000 NSERC (Natural Sciences and Engineering Research Council of Canada) Discovery grant for her research, “Targeting Ultrasound Therapy to the Spine”.

Dr. Ben Safa, Anesthesiologist and Affiliate Scientist, and **Dr. Stephen Choi**, Anesthesiologist and Affiliate Scientist, were awarded a \$47,000 grant from PSI (Physicians' Services

Incorporated) to conduct their study “Comparison of the analgesic duration of 0.5% Bupivacaine with 1:200,000 epinephrine versus 0.5% Ropivacaine versus 1% Ropivacaine for low volume ultrasound-guided interscalene brachial plexus block”.

Cari Whyne, Senior Scientist was awarded a \$170,000 NSERC Discovery grant for her research, “Multimodal image analysis and modeling of thin bone structures in the human skeleton”.



Cari Whyne working in the orthopaedic biomechanical laboratory

Cari Whyne is also the single Principal Investigator (PI) on a successful CIHR Proof of Principle Program, Phase 1 grant with her project, “Bone Tape Optimization of a novel method for reconstructing the cranio-maxillofacial skeleton” for \$160,000 along with co-investigators, Dr. Jeffrey Fialkov, also a Holland MSK scientist, and Dr. Paul Santerre.

Dr. Albert Yee, Surgeon and Scientist and Cari Whyne are the Principal Investigators on a CIHR-NSERC Collaborative Health Research grant of \$330,000 for “Image-guided Radiofrequency Ablation (RFA) - Development, Validation, and Integration of Multimodality Treatment Planning for Vertebral Tumours”.



Dr. Yee in the Operating Room.

Injury-free Gardening: Tips

by Andrea Bean and Gargi Singh, Physiotherapists at the Holland Centre

There is a lot to do: digging, raking, pruning, lifting, moving and planting. These activities can lead to back, neck, shoulder, wrist and knee pain.

Using proper body mechanics and pacing yourself can make all the difference!

Plan Your Day

Do your gardening when you feel at your best. Try gardening in the mid-morning or later in the afternoon when you've had more time to move around.

Do Some Stretches

Before gardening, do a warm up! Muscles are less prone to injury when they are warm. Do light stretching of the wrists, pectorals, upper back, lower back, quadriceps, hamstrings and calf muscles. Or go for a short 10-minute walk.

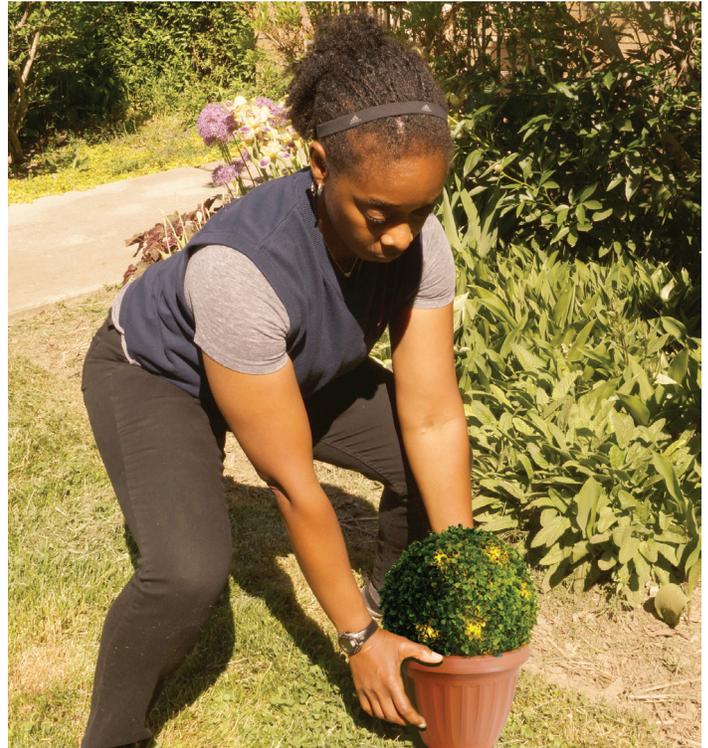
Pace Yourself

Take breaks - 15 minutes for every hour -- and stretch! Rest and hydrate!

Change It Up

Switch tasks every 30 minutes, like going from raking to weeding. Avoid sustained positions, especially when bending, kneeling or crouching. If you have knee or back problems, use a low stool when you're weeding instead of squatting close to the ground or kneeling. If your knees will allow it, use a cushion to protect the knees and avoid soreness later.

To help avoid lower back strain, kneel on one knee instead of two. Make sure your back is straight and elongated in this position. Alternate your feet as needed.



Andrea shows how to keep the back upright and bend the hips and knees when lifting a flower pot.

Always Think About Body Mechanics

Whether you're lifting, weeding or planting, remember:

- Use your abdominal muscles (we call this 'bracing') to help protect your back when lifting, carrying or digging, or when using a wheelbarrow.
- Keep your back upright and bend your hips and knees when lifting objects from the ground
- Bend from your hips, not from your waist
- When lifting tools or bags of soil, or plants, use your legs and keep the weight close to your body

Happy Gardening!

For more health blogs, visit <http://health.sunnybrook.ca>

The Holland Musculoskeletal (MSK) Program is one North America's finest in musculoskeletal care, education and research, and provides integrated services in orthopaedic surgery, orthopaedic trauma, rheumatology and rehabilitation. Located at the Holland Orthopaedic and Arthritic Centre and Bayview sites of Sunnybrook Health Sciences Centre, the Holland Musculoskeletal (MSK) Program is a key referral centre for complex traumatic orthopaedic surgery, spine surgery, hip and knee joint replacement, soft tissue injury reconstruction, and shoulder and upper extremity surgery, and also encompasses the Working Condition program and the Sunnybrook Centre for Independent Living.