

# OPEN SKIES

Department of Surgery Newsletter

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Dr. Jordan Buchko, Orthopedic Surgery (Regina)  
Silver Shovel Award Recipient



UNIVERSITY OF  
SASKATCHEWAN



Saskatchewan  
Health Authority

## CHAIRMAN'S MESSAGE



*“Surgery is a team endeavor ... it is imperative to have adequate resources directed to retain and recruit anesthetists, OR nurses & technicians.”*

As we tackle the surgical backlog of the COVID-19 pandemic, a major challenge is the decrease in OR personnel from nurses to diagnostic imaging and laboratory technicians. Over the past 9 years, we have more than doubled the number of surgeons in Saskatchewan to an all-time high of 256 surgeons practicing across the province in all surgical specialties. We have enough surgeons in the province to deal with the backlog, but surgery is essentially a team endeavor, and we need the rest of the surgical team to effectively face this challenge. The Department is working with our SHA partners on innovative approaches to deal with the backlog such as implementing new day surgery programs, pooled referrals and centralizing OR scheduling. However, it is imperative to have adequate resources directed to retain and recruit anesthetists, OR nurses and technicians.

Research in the Department is thriving. This was evident in the recent Faculty Research Day that displayed the research of our members. This issue of OPEN SKIES showcases the research of two our recently recruited surgeon-scientists, Dr. Amanda Hall, a Pediatric General Surgeon, and Dr. Paul Kulyk, an Orthopedic Surgeon. Peer-reviewed publications and research funding have reached the highest levels in the Department's history.

We want to congratulate Dr. Jordan Buchko from Regina for receiving the Silver Shovel Award, the highest teaching award of the Department of Surgery, awarded annually, for the most outstanding contribution to surgical education by a faculty member.

The familiar yellow canola fields are in bloom in the prairies and summer has brought back the welcomed warm sunny days to Saskatchewan. I wish all members of the Department well-deserved time of rest and enjoyment this summer in the company of friends and family.

Sincerely,

**Ivar Mendez, MD, PhD, FRCSC, FACS, FCAHS**  
F.H. Wigmore Professor of Surgery  
Saskatchewan Provincial Head of Surgery

OPEN SKIES Newsletter is a publication of the Department of Surgery at the College of Medicine, University of Saskatchewan.

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#### OPEN SKIES Credits

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## PEDIATRIC SURGERY RESEARCH

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(left to right) Dr. Amanda Hall, Pediatric General Surgery & Kimberley Hamonic (Research Assistant)

### Cellular Adaptations Required for Bowel Recovery in Infants

Gastrointestinal adaptation is a stumbling block in the recovery of many neonates with complex bowel pathologies. Infants who are born with congenital defects such as gastroschisis or intestinal atresia can develop intestinal failure, as can those who contract infections such as necrotizing enterocolitis. For reasons that are not fully understood, these infants may not regain bowel autonomy after successful surgical intervention, despite often having adequate length and continuity of bowel. They are therefore dependent on parenteral nutrition until their bowel adapts, a process which can take years.

Dr. Amanda Hall is a new Pediatric Surgeon at the University of Saskatchewan and her research focuses on this process of bowel adaptation in infants. She hopes to better understand the cellular changes required for bowel recovery, using an intestinal organoid model. Organoids are miniature, spherical models of intestine, derived from human stem cells.

The goal of this project is to determine how to upregulate intestinal transporters and Glucagon-like-peptide

2 (GLP-2). GLP-2 is a recognized marker of adaptation and also has beneficial effects such as encouraging growth of intestinal cells. Ideally, increased levels of GLP-2 and intestinal transporters will translate clinically into bowel that regains function faster. Dr. Hall's team will investigate if known 'gut-friendly' agents such as probiotics, and human breast milk, can increase production of these cellular targets. Individually, both probiotics and human breast milk have shown evidence that they may improve bowel adaptation in limited clinical settings, but these treatments have not been widely applied in intestinal failure and their mechanism is poorly understood. Hopefully, this project will contribute to a new treatment strategy for intestinal failure in infants.

Thank you to Dr. Mendez for supplying laboratory space, and to Dr. Alcorn, Dr. Wenzel, and Jim He for providing expertise on the maintenance of stem cells and organoids.



Image of Cell

(Dark Masses in Image are a Sphere of Functioning Intestinal Cells - Mini Organs)



*Dr. Nathan Ginther, General Surgery  
1<sup>st</sup> Place Award Recipient*



*Dr. David Sauder, Orthopedics Surgery  
2<sup>nd</sup> Place Award Recipient*



*Elisabet Jakova, Surgery Research PhD Candidate  
3<sup>rd</sup> Place Award Recipient*

The Department of Surgery Faculty Research Day was held on Thursday, May 12<sup>th</sup>, 2022 at Royal University Hall Lecture Theatre & virtually for the remainder of attendees. The hybrid event was attended by over 70 people. There were 14 presentations from faculty members and graduate students.

The Research Day Keynote Speaker was Dr. Trevor Schuler, Associate Professor from the Division of Urology at the University of Alberta. He spoke on "Evidence Decision Support Program and PACOSI – Provincial Advisory Committee on Surgical Innovation". Session chairs for the event included Dr. Gary Groot (General Surgery) and Dr. Paul Mick (Otolaryngology). The esteemed judges included Dr. Roland Auer (Neurosurgery), Dr. Suzanne Harriman (General Surgery), Dr. Paul Kulyk (Orthopedic Surgery), Dr. Ritesh Kumar (Neurosurgery) and Dr. Trevor Schuler.

2022 Faculty Research Day winners included:

- 1<sup>st</sup> Place Podium Presentation – Dr. Nathan Ginther (General Surgery)
- 2<sup>nd</sup> Place Podium Presentation – Dr. David Sauder (Orthopedic Surgery)
- 3<sup>rd</sup> Place Podium Presentation – Elisabet Jakova (Dr. Francisco Cayabyab Lab)

Dr. Ivar Mendez, Provincial Head of Surgery and Dr. Daryl Fourney, Director of Research in the Department of Surgery also presented special research awards including:

- Recipients of the 2022 Open Access Fees Awards
  - Dr. Francisco Cayabyab (Basic Surgical Research) – Award \$1,667
  - Dr. Silvana Papagerakis (Basic Surgical Research) – Award \$1,667
  - Dr. Gary Groot (General Surgery) – Award \$1,667
- Recipients of the 2022 New Faculty Seed Funding Awards
  - Dr. Garson Chan (Urology) - Award \$10,000
  - Dr. Jennifer Culig (Vascular Surgery) - Award \$10,000
  - Dr. Abbas Khani-Hanjani (Cardiac Surgery) – Award \$10,000

# VIRTUAL CARE SYMPOSIUM

The Saskatchewan Virtual Care Symposium was held on June 28<sup>th</sup>, 2022 at the University of Saskatchewan. The purpose of the symposium was to launch the SHRF-funded research project, Delivery of Virtual Care in Saskatchewan, and to bring together the research team, as well as other partners and knowledge keepers to collaborate and discuss virtual care in Canada.

This one-day event brought together 42 individuals both in-person and virtually, representing some of the most prominent experts in virtual care from across Canada. The plenary and module sessions focused on the research projects' four primary objectives: appropriateness, equity, evaluation, and implementation. The senior research team members, including Drs. Ivar Mendez, Paul Babyn, Caroline Tait, Stacy Lovo, and Vern Behl, moderated the plenary and module sessions.

The plenary session focused on the current state of virtual health, with insightful presentations from Drs. Ewan Affleck and Sacha Bhatia. Dr. Jay Shaw and Sandra Cascadden provided us with their perspectives of appropriateness of virtual care, and Drs. Alike Lafontaine and Kirsten Mattison discussed the impact that virtual care can have on the equity of health care access.

The participants heard from Drs. Jonathan Choy and Janette Brual who explained how evaluation is necessary for the sustainability of virtual care, and we learned about evaluation frameworks currently being developed nationally. Christine Meyer shared her experience implementing virtual care for Ontario Health and provided some key insights to consider here in Saskatchewan.

The research team had an opportunity to discuss learnings from all the presenters of the day. Saskatchewan is in an ideal position to learn from what has already been done in other provinces, and to use this to develop an evidence-based made-for-Saskatchewan solution.



*Carol Rose GoldenEagle, Opening Blessing & Song*



*Dr. Sacha Bhatia, Plenary Session (Virtual Presentation)*



*Dr. Joan Wheat Hozack, Orthopedic Surgeon and patient, Derek Wagmann (post-surgery)*

*With nearly 9000 patients waiting for hip or knee arthroplasty province wide, the demand for more Orthopedic Surgery OR time in Saskatchewan is at an all-time high.*

In an effort to expand the number of surgeons to manage the work of providing orthopedic care in the northwest (NW), the Lloydminster group began to make use of available OR space in Meadow Lake in December 2020. Dr. Wheat Hozack and Dr. Kowalczyk now each do clinics and day surgery OR slates there monthly. The number of referrals from Meadow Lake and area increased for both elective surgery as well as trauma cases. The transition of Lloydminster Orthopedics towards a model of NW Orthopedics is already saving many patients from having to travel to Saskatoon for Orthopedic care.

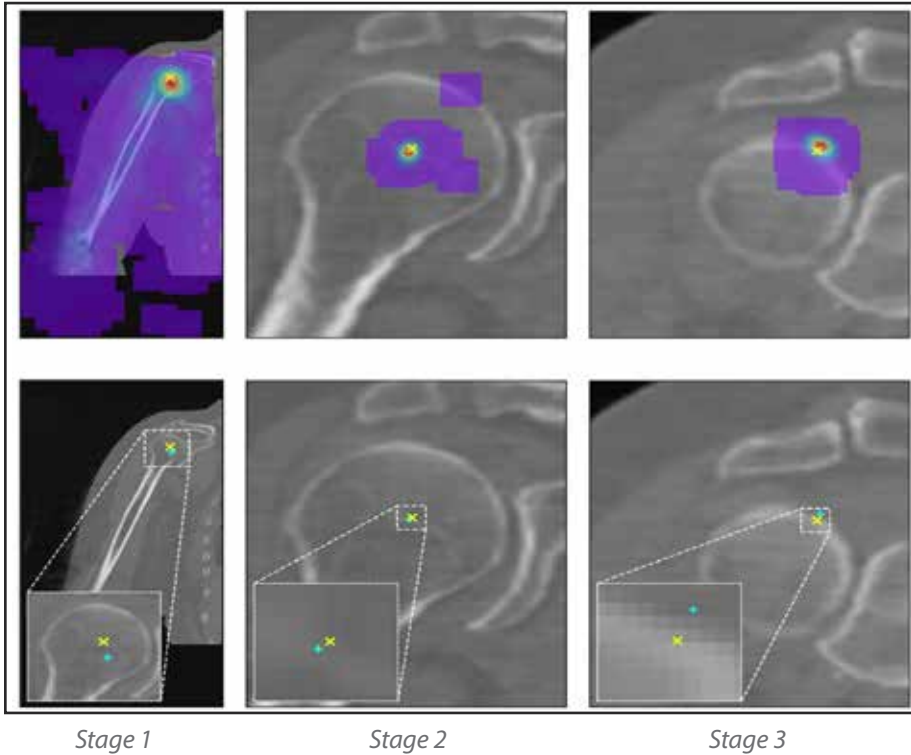
The first total joint was done in Meadow Lake Hospital on June 1, 2022 by Dr. Joan Wheat Hozack. The

unicompartmental knee arthroplasty was done in a carefully selected local patient, Darryl Wagmann, who had the other knee done successfully a year ago in Lloydminster. Mr. Wagmann stayed overnight, was seen by physio and occupational therapy post-operative day 1 and discharged home that afternoon. At his 2-week follow-up appointment he was doing great, getting chastised by the nurse for not using his cane!

This success is due to exemplary teamwork. Lloydminster's arthroplasty pre-op program (PT, OT, Pharmacy, Anesthesia and OR booking) makes sure all patients are well prepared for surgery and recovery. This has resulted in the Orthopedic service boasting the shortest length of stay for joints in the province, and shorter than average for total hip arthroplasty's (THA) in Canada. Specifically, coordination of all pieces for this first joint in Meadow Lake took efforts from hospital management (Emily Harder), OR nursing (Kristinn Lajeunesse, Karen Selinger and the team), Physiotherapy (Jill George) and industry reps from Zimmer/Biomet (Dean Eisner and Conor Dickson) to make sure no detail was overlooked. Thanks to all who made the first one go smoothly and paved the way to do arthroplasty in Meadow Lake regularly.

## RESEARCH IN ORTHOPAEDIC SURGERY

07

*Intraoperative Tools: 3D Printed Models***Orthopaedic Surgery and Engineering**

Dr. Paul Kulyk is an orthopaedic surgeon in his first year of practice in Saskatoon with a subspecialty in foot and ankle. Before medical school, he had a short career in engineering. This led to his

interest in the technical aspects of alignment and materials in orthopaedic surgery.

Past projects have looked at image guided therapy and preoperative planning. Initially some work was done with complex fractures and utilizing 3D printed models as an intraoperative tool for acetabular fixation. His master thesis work focused on deep learning methods for automated shoulder arthroplasty planning software. This work, done at the University of Bern in Switzerland, demonstrated several new techniques for automatically identifying shoulder anatomy and alignment in CT scans and was significantly faster than standard techniques.

During his foot and ankle fellowship at the University of British Columbia he worked on a project looking at factors contributing to failure in total ankle replacement. This was a strong motivator to look at optimizing implant alignment in ankle replacement as over the past 40 years many were extremely prone to failure often due to alignment and material design issues.

After starting practice, his work continues to look at automated techniques for surgical planning but with reduced radiation exposure and cost. In some current work the goal is to validate novel techniques in 2D to 3D reconstruction that will allow accurate 3D modeling of the foot with biplanar radiographs. Going forward, this will allow planning complex procedures such as multiplanar osteotomies and alignment prediction after ankle replacement. Ultimately, the goal is to produce a mechanically balanced foot and improve surgical outcomes.

Orthopaedic surgery draws heavily on mechanics and engineering in advancing treatments for many musculoskeletal problems. In particular, the foot and ankle suffers from small joint surfaces and high mechanical loads requiring precise alignment. Dr. Kulyk is looking forward integrating his past engineering experience in his research work as he settles into his new career with Drs. Trent Thiessen and Lee Kolla at the Saskatoon Foot and Ankle Clinic.

*Dr. Paul Kulyk, Orthopaedic Surgery*

**SPIRIT OF THE COLLEGE OF MEDICINE AWARD****TRUSTIN DOMES, MD, FRCSC**

Dr. Trustin Domes was presented the “Spirit of the College of Medicine Award” at the Highlights in Medicine alumni reception on June 16<sup>th</sup>, 2022.

This award was established by the Alumni Association in honour of Dr. Louis Horlick, Professor Emeritus, Department of Medicine. The Spirit of the College award is presented to an individual associated with the college who has contributed over and above the call of duty and shows the spirit, dedication and enthusiasm that Dr. Horlick has exemplified over his career.

Dr. Domes was nominated for this award because of his vigor, commitment, and passion to inspire and empower others, to improve ways of teaching and to reform medical education to improve access and meet the needs of the province.

**NEW APPOINTMENTS IN SURGERY****INTERIM HEAD, DIVISION OF VASCULAR SURGERY**

Dr. Kylie Kvinlaug, a graduate of the University of Saskatchewan College of Medicine, returned to Saskatoon in 2011 after completing a Vascular Surgery Fellowship at McGill University. Locally, he developed the surgical endovascular program by performing ruptured and elective EVARs in the OR as well as lower extremity angioplasties and endovenous procedures.

As program director for eight years, he led the conversion of Surgical Foundations to Competency by Design. He looks forward to advancing divisional priorities including building an operative hybrid angio theatre and a multidisciplinary wound and varicose vein centre at St. Paul’s Hospital.

**PROVINCIAL LEAD, SURGICAL ROBOTICS PROGRAM**

Dr. Varun Bathini attended the University of Alberta prior to obtaining his medical degree from the University of Saskatchewan in 2009. He then went on to complete his urology training at the University of Western Ontario in London, Ontario. After completing his residency in 2014 Dr. Bathini joined Saskatoon Urology Associates. He is currently a Clinical Assistant Professor of Surgery at the University of Saskatchewan. His clinical areas of expertise are minimally invasive surgery and surgical oncology. Over the last 4 years he has been committed to starting Saskatchewan’s first surgical robotics program.