OPEN SKIES

Department of Surgery Newsletter

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December 2017

Dr. Anne Dzus, Orthopedic Surgery
Silver Shovel Award Recipient

UNIVERSITY OF SASKATCHEWAN

Saskatchewan Health Authority

CHAIRMAN'S MESSAGE

"As the culture of separate regions disappears and the new integrated region develops, real and perceived silos will come down and the potential of true collaboration at all levels could be established."

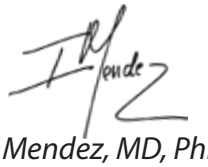
December brings a seismic shift in the health care administrative infrastructure for Saskatchewan with the establishment of the new Saskatchewan Health Authority. This single health authority amalgamates 12 health regions into an integrated mega entity of 44,000 employees.

Consolidating clinical services under one administrative roof brings significant opportunities to build Province-wide clinical programs capable of providing services at the highest standards. As the culture of separate regions disappears and the new integrated region develops, real and perceived silos will come down and the potential of true collaboration at all levels could be established.

For the Department of Surgery, the establishment of the new Health Authority opens the way for new collaboration and integration clinically and academically. It also provides us with an administrative framework to enhance current provincial surgical programs and create new ones. High priorities include the establishment of quality improvement programs in all surgical specialties such as the NSQIP initiative already started in Saskatoon, standardized M&M rounds and clinical pathways. We expect that this single provincial health authority will facilitate the introduction of innovative surgical advances to the Province and support our academic mission of research and education.

Academically, the Department will be strengthened by enhancing the integration of clinical programs and the opportunity of working together in recruitment, infrastructure and equipment requirement strategies to support surgical services throughout the Province.

Personally, I am looking forward to working with all my surgical colleagues across Saskatchewan to continue to enhance surgical services to the people of the Province.



Ivar Mendez, MD, PhD, FRCSC, FACS, FCAHS
F.H. Wigmore Professor of Surgery

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It is distributed to all surgical faculty, residents and collaborators of the Department of Surgery, as well as surgical teaching centres in Canada and abroad.

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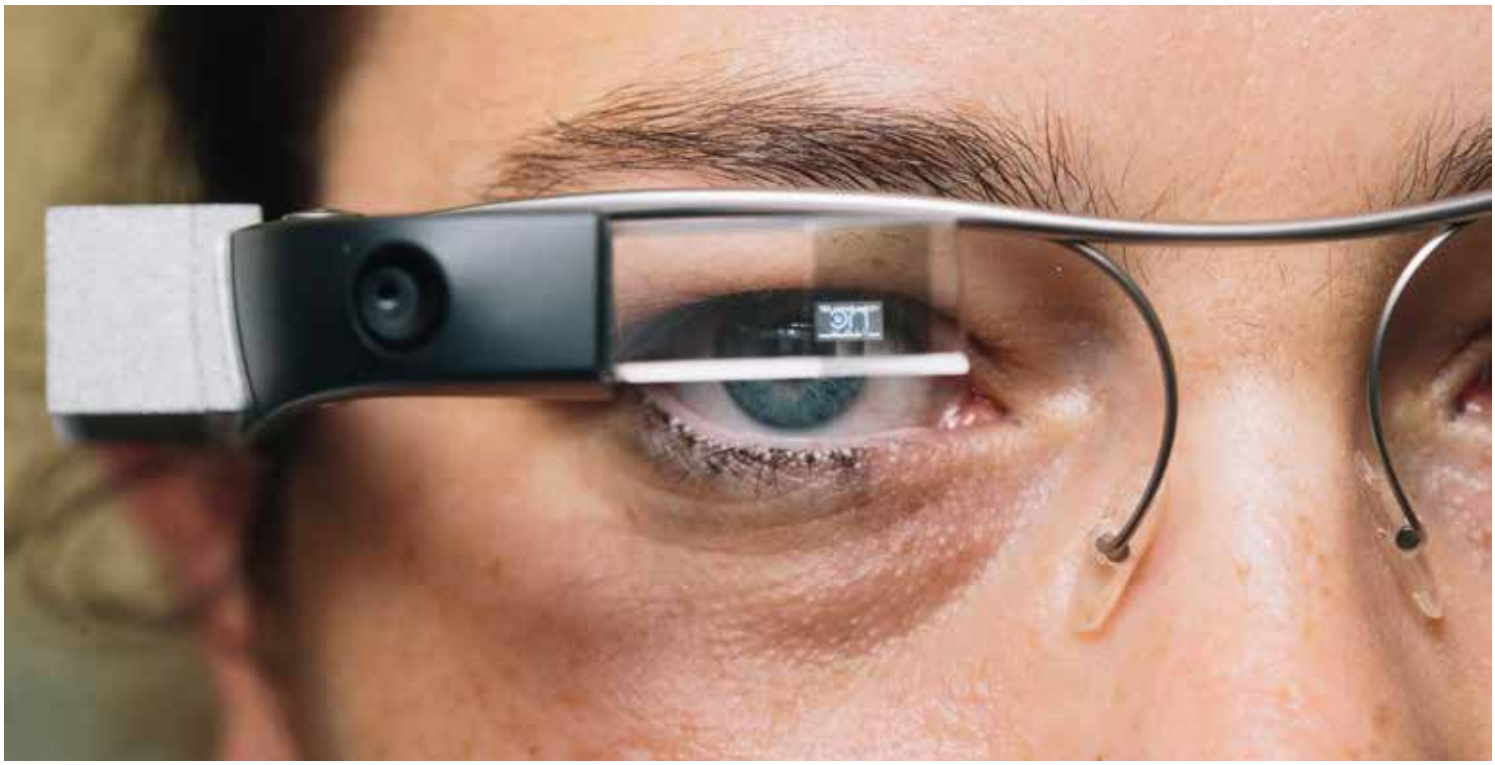
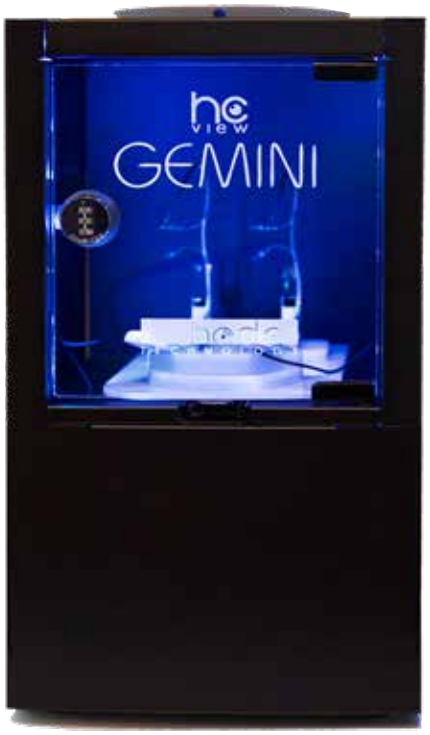


Google Glass: Gemini (Image by Dave Stobbe)

The use of advanced technologies for the delivery of health care to remote communities has opened new pathways of timely access to medical care for people living in rural Saskatchewan. Department of Surgery researchers have been pioneering innovative robotic telepresence technology in several northern Saskatchewan communities with promising results. As part of this program, the Remote Medicine Team led by Dr. Ivar Mendez has partner with Google and Hodei Technology to trial a wearable telemedicine solution using the Google Glass platform.



The team has deployed the innovative Gemini tower that contains two Google Glass devices to remote northern Saskatchewan communities where remote consultations will be trialed. The advantage of a wearable telemedicine device is that the clinician expert sees and hears what the remote health care worker is experiencing in real-time. The resolution of the video transmission is clinical grade and peripheral devices such as stethoscope and portable ultrasonography facilitates the examination of the patient.

The ability of the Google Glass platform to provide feedback of the video transmission to the wearer (the wearer sees what is being transmitted in the miniature crystal screen of the glass) makes real-time surgical mentoring a potential major application of this technology.

VASCULAR SURGERY RESEARCH

Dr. David Kopriva & his Research Team

Atherosclerotic plaque at the carotid artery bifurcation is an important cause of stroke. Plaques develop over decades because of many risk factors including smoking, diabetes, high blood pressure, high cholesterol, and aging. The processes that cause plaque growth happen slowly, but a stroke is sudden, when a stable carotid plaque ruptures, discharging debris into the cerebral circulation, with thrombi that form on the now-unstable plaque.

The causes of plaque rupture have been an interest to the Vascular Surgery group in Regina. Drs. McCarville, Kopriva and Jacob have collaborated with the laboratories of Drs. Buttigieg and Chao at the University of Regina to establish a biobank of carotid artery plaques and blood specimens from patients undergoing carotid endarterectomy for stroke prevention. These include stable, asymptomatic plaques and unstable, recently symptomatic plaques. The specimens form the Canadian Carotid Plaque Repository (CCPR), with samples from nearly two hundred patients.

With support from the Saskatchewan Health Research Foundation, the team has investigated the specimens with a variety of techniques, from proteomic mass spectrometry, quantitative PCR, to synchrotron imaging of iron and sulfur in plaques at the Canadian Light Source (CLS) and Stanford Synchrotron Radiation Lightsource (SSRL). The goal is to compare similarities and differences between stable and unstable plaques, looking for clues to why plaques rupture.

So far, the investigators have quantified 4181 unique proteins in active and shoulder regions of plaques, found a possible peripheral blood biomarker for plaque rupture, and begun clinical testing of its specificity. Synchrotron work has produced evidence that stable plaques undergo periods of asymptomatic rupture and healing. Further work with imaging of sulfur oxidation states is looking at the role of oxidative stress in plaque rupture. The work goes on.

CCPR specimens are available to other researchers interested in making use of this resource.
Please contact dkopriva@sasktel.net.

SASK SYNCHROTRON RESEARCH

Research Team (left to right): Jake Pushie, Huishu Hou, Vedashree Meher, Julia Newton, Annalise Kudryk, and Nicole Sylvain

As an endovascular neurosurgeon, Dr. Lissa Peeling's primary research interests include better understanding of clinical pathologies, and pathophysiology using synchrotron imaging techniques. She considers herself fortunate to collaborate with an amazing team that have enabled this research.

Thanks to funding support from SHRF, the Society of NeuroInterventional Surgery Foundation, and the Department of Surgery, the team has been utilizing the Canadian Light Source (CLS) to better understand the flow within cerebral aneurysms. This novel imaging technique tracks porcine red blood cells as heparinized porcine blood is circulated through a silicone aneurysm model using a pulsatile pump. This is then imaged in the beam line, producing flow maps to help validate current flow theories in aneurysms. The goals are to help predict aneurysm rupture in patients, and to help understand the healing of aneurysms after treatment.

This fall, the team was awarded a College of Medicine Research Award to embark on a new stroke project. In 2015, seven randomized control trials demonstrated overwhelming efficacy of mechanical thrombectomy in the setting of acute large vessel occlusion in a select patient population. The team was fortunate to participate in the ESCAPE trial, based out of the Calgary Stroke Program. In the new study, the team will be looking to analyze ischemicstroke blood clots using traditional staining and immunohistochemistry methods, as well as novel synchrotron imaging techniques. The goal is to better understand the relationship of clot composition to stroke etiology and the success of the thrombectomy procedures.

This research would not be possible without the support of all team members in our clinical and basic science research teams, and collaboration with the CLS and Biomedical Engineering.

2017 SURGERY AWARDS BANQUET

Dr. Marcia Clark, University of Calgary, Keynote Speaker

Dr. Preston Smith, Dean, College of Medicine (Opening Speaker)

The second annual Department of Surgery Teaching Awards Banquet, which took place on September 22, 2017 at the Top of the Inn at the Sheraton Cavalier in Saskatoon, gave us the opportunity to recognize and celebrate surgical teaching at the undergraduate and postgraduate levels over the last year. Accomplishing the educational mission of the Department takes the commitment and hard work of 182 faculty members, 50 residents and numerous educational support personnel from the College of Medicine across the entire province.

During the evening, we recognized the Department's most outstanding teachers by presenting awards to six deserving individuals. The award recipients were selected by an awards committee based on multiple criteria, including educational points earned over the year, teaching evaluations and nominations from learners.

The Gold Scalpel Awards, recognizing individuals with the most significant contribution to the different phases of surgical education in the curriculum, were awarded to Dr. Trustin Domes (pre-clerkship), Dr. Steven Pooler (clerkship) and to Dr. Kylie Kvinlaug (postgraduate).

The Bronze Shovel Award, recognizing the surgery resident with the most outstanding contribution to surgical education, was awarded to Dr. Scott Wilms.

The Silver Shovel Award, recognizing the surgery faculty member with the most outstanding contribution to surgical education, was awarded to Dr. Anne Dzus.

Additionally, Dr. Brian Clapson was recognized with a Lifetime Achievement Award for his outstanding contributions to

Dr. Trustin Domes, Pre-clerkship Golden Scalpel Award Recipient

Dr. Kylie Kvinlaug, Postgrad Golden Scalpel Award Recipient

Dr. Scott Willms, Bronze Shovel Award Recipient

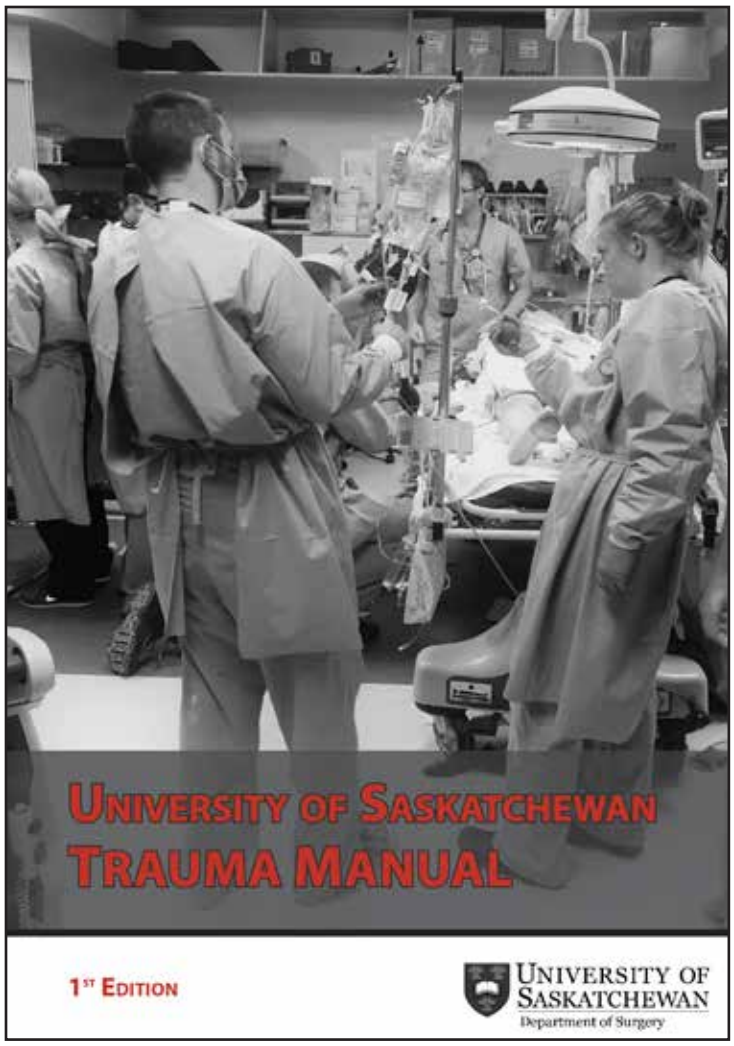
Dr. Brian Clapson, Lifetime Achievement Award Recipient

surgical education over his career. His acceptance of the award was very touching and he walked off the stage to a standing ovation.

The evening concluded with an address from our keynote speaker, Dr. Marcia Clark, who is an orthopedic surgeon, surgical education guru and the Medical Director of the Advanced Technical Skills and Simulation Laboratory at the University of Calgary. Her thought-provoking presentation, titled "Simulation in Surgical Education: How might it impact us, our teams and patient care?" focused on the philosophies and roles of simulation and she had us reflect on the different ways simulation can impact our daily lives as surgeons and educators. We would like to thank Dr. Clark for her time and effort in helping to make our Teaching Awards Banquet a memorable evening.

Thank-you to everyone who attended the Department of Surgery Teaching Awards Banquet this year and congratulations to all of the award winners!

USASK TRAUMA MANUAL



As the Trauma Program here at the University of Saskatchewan evolves and expands, we strive to develop a better teaching curriculum for our trainees. As part of our mandate to improve education, the U of S Trauma Manual was published.

This was a project that started in my fellowship at Western University and over the last few years, we have been lucky enough to have contributions from both provincial and national specialists. This manual is designed as a teaching tool for those that are involved with the resuscitation and initial treatment of trauma patients in both rural and urban centres. We have strived to make this an evidence based resource that can be used for the teaching of trainees in all ER and surgical specialties.

Subsequent editions will include more pre-hospital, ICU and Orthopedic trauma care. A PDF version as well as an App is currently being developed. For more information, copies or interest in contributing, please contact me at trauma.program@usask.ca.

Thank you to all our contributors for dedicating their time and knowledge to this project.

Niroshan S. Sothilingam MD, FRCSC, FACS
Medical Director, Trauma Program
Division of General Surgery, University of Saskatchewan

International Royal College Experience

Dr. Peter Spafford has been appointed Co-Chair for the Royal College International to conduct the fellowship exams for the Kuwait Otolaryngology - Head and Neck Surgery Program. He has been working with the program for three years previous to this appointment as an examiner.

Involvement with the Royal College International has been critical in enhancing ongoing high levels of academia in the Saskatoon Otolaryngology Division.

The experience of collaboration inside a Middle Eastern country is unique, as the exam's are conducted it is difficult to believe war and fighting is occurring just over 100 km away in Iraq. Kuwait is a unique and friendly Arab country, it's customs and religion very different than the western world. The Kuwaiti examiners have been very hospitable.

Dr. Peter Spafford & Kuwait Examiner