OPEN SKIES

Department of Surgery Newsletter

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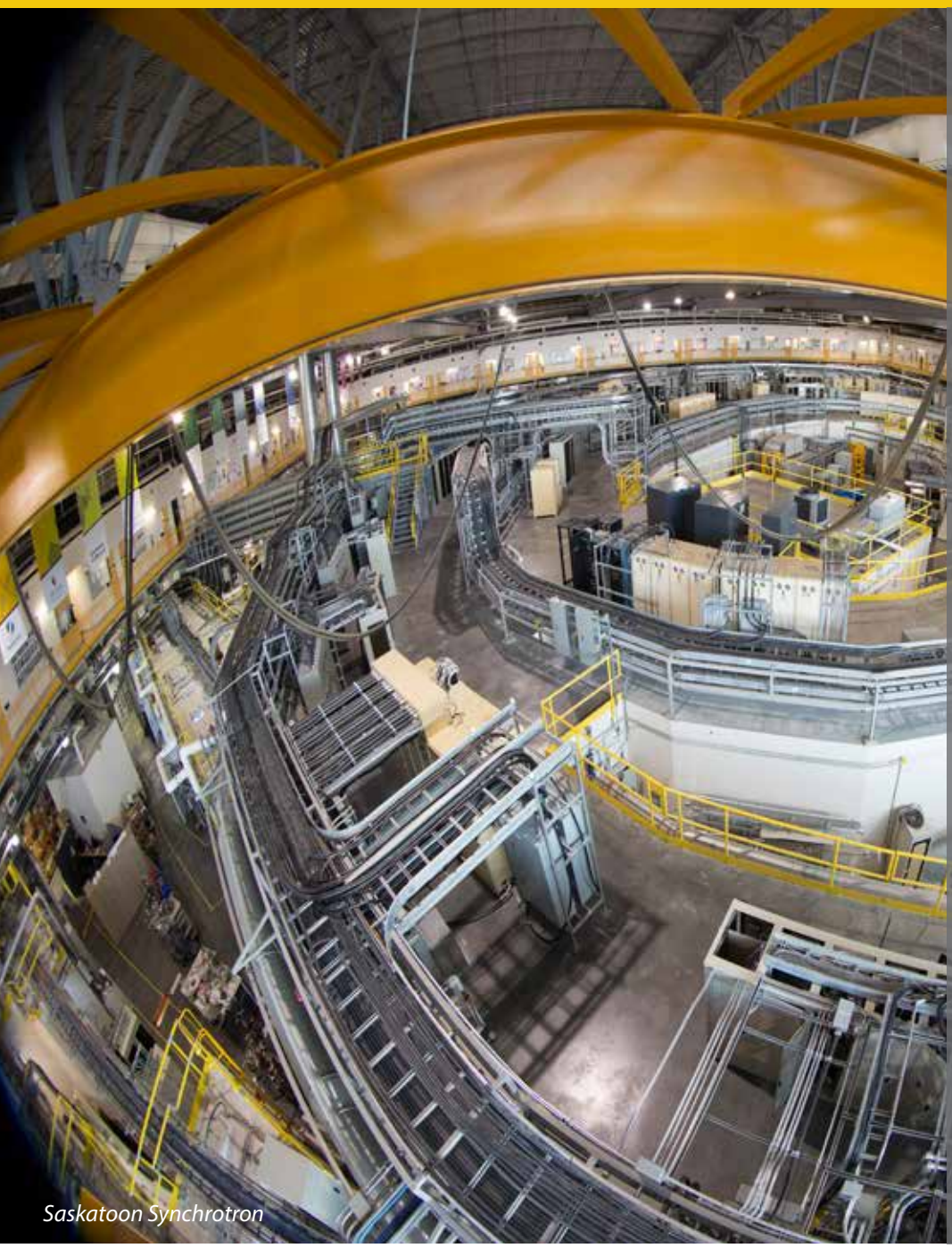
December 2014



Saskatoon Synchrotron

WHAT'S INSIDE

University of Saskatchewan
Saskatoon Health Region
Regina Qu'Appelle Health Region

CHAIRMAN'S MESSAGE

As we face the beginning of 2015, it is clear to me that the Department of Surgery has made significant progress in a number of fronts. Our numbers have increased substantially by the incorporation of 18 new surgeons over the past 24 months. We have taken crucial steps in strengthening the academic mission of the Department by the establishment of research offices for clinical research, revitalizing Grand Rounds and providing seed funding to encourage research of our new members.

The participation in undergraduate teaching has improved dramatically as the great majority of our faculty is actively involved in teaching and the Department has contributed an additional 300 hours of undergraduate teaching for 1st year medical students this year. We are also preparing our residency programs for the accreditation survey by the Royal College scheduled this coming year.

Although, I feel we have made significant gains in service, research and education, a number of challenges remain. Two of them are particularly pressing, one being the implementation of a multidisciplinary Academic Trauma Program and two, the establishment of a surgical skills laboratory.

I have instituted a multidisciplinary task force that is working hard on the guiding principles and logistics of a Trauma Program. It is my expectation that we will have a clear roadmap and timelines to start the Trauma Program by the next academic year. In terms of the surgical skills laboratory, it is clear from our new Dean that this is a priority for the College of Medicine and I will be working diligently with Dr. Smith and his team to make the skills laboratory a reality as soon as possible.

I want to wish all of you and your love ones peace and joy during the holidays and may 2015 bring continuous health and success in all your endeavors.

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

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

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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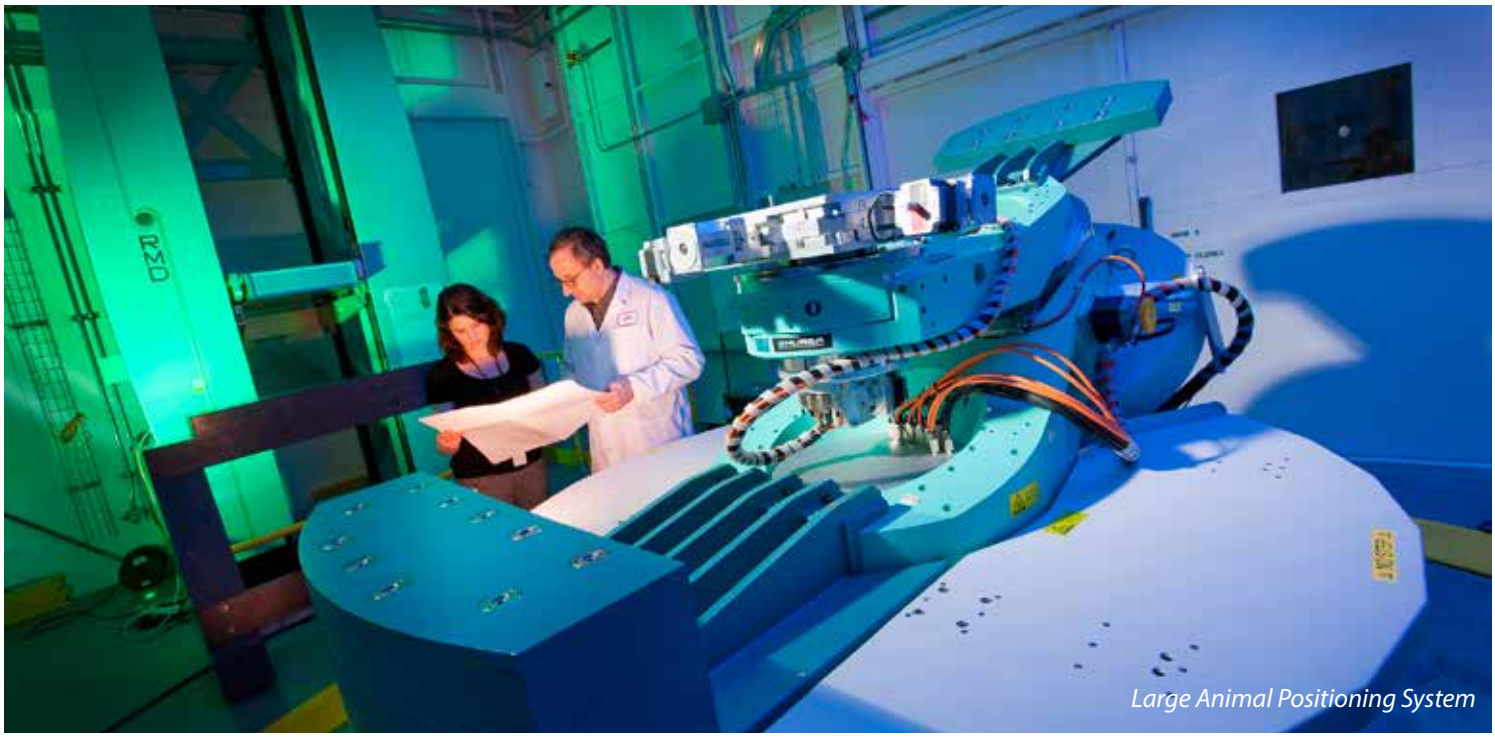
SASKATOON SYNCHROTRON



Large Animal Positioning System

The Canadian Light Source (CLS) is a world-class, state-of-the-art facility that house's Canada's only synchrotron and is one of the largest science projects in Canadian history. It was opened in 2004 and built in 3 phases with a total investment of approximately 300 million dollars. Two particularly exciting developments are: 1) The BioMedical Imaging and Therapy (BMIT) beamline designed for the purpose of imaging biological tissue and conducting radiation therapy research; and 2) The Medical Isotope Project (MIP) facility, the first of its kind in the world, relying on powerful X-rays to produce the isotopes, unlike traditional nuclear reactor-based methods. The CLS announced this past November the first shipment of medical isotopes produced in its dedicated linear accelerator.

Members of the Department of Surgery have been collaborating with CLS scientists since the opening of the synchrotron. Numerous projects have been conducted by our researchers over the years, ranging from the study of biomarkers inside cells associated with Barrett's esophagus, identifying molecular signatures of brain tumors to visualizing trabecular bone to assess bone quality and understanding the earliest stages of cartilage breakdown using Diffraction Enhanced Imaging.

Use of the BioMedical Imaging and Therapy beamline is currently a key component of two innovative projects aimed at brain repair using stem cell therapies. Drs. Michael Kelly (stroke) and Ivar Mendez (Parkinson's disease) are investigating cellular and molecular imaging of stem cells implanted in rodent models of Stroke and Parkinson's disease. Novel labelling compounds are being researched in these experiments that will allow tracking of migration of stem cells after implantation.

The CLS is a unique and superb resource for surgical research from molecular and cellular imaging to novel light source therapies. The recent addition of the Large Animal Positioning System (LAPS) featured in this page, brings the research opportunities to a whole new level.

LASER SIALENDOSCOPY COMES TO SASKATCHEWAN - Dr. Anil Sharma

Sialolithiasis (salivary stone) is the most common disease affecting the salivary glands. Traditional open surgical options for persistent salivary gland stones include marsupialization of the duct and/or total removal of the gland.

Sialendoscopy is a minimally invasive technique that involves the use miniature endoscopes for the purpose of diagnostics, dilation of ductal strictures and/or the removal of salivary stones. This recent technology has allowed otolaryngologists to offer an alternative to traditional salivary gland surgery and reduce the rate of potential complications such as facial scarring and nerve damage. The Holmium-YAG laser is well known and has proven efficacy in the treatment of urolithiasis (urinary stone). More recently, the Holmium-YAG laser has also been used as an effective adjunct to sialendoscopy in the fragmentation of larger salivary stones.

Dr. Anil Sharma, a member of the Division of Otolaryngology (Head & Neck Surgery) in the Department of Surgery has performed the first successful minimally invasive Holmium-YAG laser sialendoscopy salivary stone removal in Saskatchewan at St. Paul's Hospital.

Dr. Sharma would like to thank the mentorship received from his colleagues (Dr. Peter Spafford, Dr. Rick Gore-Hickman and Dr. Gordon Franke), the outstanding nursing staff at SPH, as well as, Dr. I. Mendez, F.H. Wigmore Professor and Unified Head of the Department of Surgery and the Saskatoon Health Region for their support in providing the sialendoscopy equipment for the province of Saskatchewan.

SINGLE INCISION LAPARASCOPIC SURGERY - Dr. Ali Cadili

New Moose Jaw Hospital to be open in December 2014

It is well known that laparoscopic surgery provides significant advantages over traditional open surgery with regards to recovery time, postoperative pain, cosmesis, wound infections, and future hernia formation. Single Incision Laparoscopic Surgery (SILS) takes these advantages to an even higher level. Replacing the multiple small incisions required for laparoscopic surgery with one small incision, SILS could be realistically viewed as the next major step in the evolution of minimally invasive surgery.

SILS techniques have been implemented in Moose Jaw since June 2013. Appendectomy, cholecystectomy, as well as colon resection surgeries have thus far been done with SILS techniques. The appendectomy and colon resection surgeries have been performed in Moose Jaw with a pure SILS technique, strictly utilizing only one small incision. The cholecystectomy procedures, on the other hand, have been performed with a modified SILS technique using needlescopic equipment. The needlescopic-assisted SILS cholecystectomy procedure requires the addition of two 2 mm incisions, in addition to the 1 cm umbilical incision normally required for SILS, in order to allow the deployment of specialized needlesopic graspers. Thus far, 46 cholecystectomies, 17 appendectomies, and 2 colon resections have been performed with these advanced minimally invasive techniques with excellent results.

A formal analysis of the appendectomy and cholecystectomy results in separate studies, comparing them with regular laparoscopic as well as open cases, is in its final stages. These analyses, performed under the auspices of the Department of Surgery at the University of Saskatchewan, include a quantification of the cosmetic outcomes resulting from the three types of procedures in addition to all of the other outcomes being assessed. The result is an almost scarless abdomen compared to regular laparoscopic surgery.

Dr. Ali Cadili

PEDIATRIC SURGERY RESEARCH GRANT MILLER, MD, FRCSC

Elucidating the Mechanisms of Parenteral Nutrition Associated Liver Injury in Premature Infants

Intravenous nutrition or parental nutrition (PN), is a life sustaining therapy for critically ill premature infants but carries with it a risk of liver damage that can be fatal. Along with my research partners in the College of Pharmacy & Nutrition, Professor G. Zello and Clinical Asst. Professor C. Arnold, we are studying the mechanisms by which PN injures the liver in these vulnerable patients. Our goal is to improve the safety profile of this vital therapy.

We have determined that 25% of newborns dependent on PN develop liver damage within 3 weeks. The greatest risk occurs in prolonged PN therapy in premature infants. Aluminum, a contaminant of PN solutions, has toxic effects in brain, kidney, bone and liver tissues. Our research has shown that standard infant PN formulations expose infants to as much as 36 µg of aluminum/kg/d, 18 times the recommended safe limit. Most of this aluminum, 80%, is found in the calcium gluconate component of PN. Rapidly growing premature infants have a much higher demand for calcium then do adults and this might explain, at least in part, why PN associated liver disease is less of a problem in adults.

Within the liver the microvilli forming the walls of bile channels (canaliculi) contain proteins that are vital for transporting hepatoxic bile acids into bile. Collaborating with Professors R. Bertolo and J. Brunton of Memorial University we found, in a newborn Yucatan miniature piglet PN model, a direct correlation between aluminum exposure and bile canalicular microvilli damage and elevated serum bile acids.

Our future research will delve deeper into the mechanisms by which aluminum causes microvilli damage. In addition we are evaluating the effect of the omega 6 fatty acid component of PN on the bile canaliculi microvilli and the bile acid transport proteins to further understand its role as a potential hepatotoxin.

AWARDS & RECOGNITIONS

25 Years of Service University of Saskatchewan

Dr. William Dust, Professor at the University of Saskatchewan, Division of Orthopedic Surgery has served in various positions at the University including Acting Department Head. His commitment and experience to the Department of Surgery has been invaluable.

Fellowship in the Canadian Academy of Health Sciences (CAHS)

Dr. Ivar Mendez has been inducted to the CAHS. Fellows elected into the Academy are recognized by their peers nationally and internationally for their contribution to the promotion of health science they also have demonstrated leadership, creativity, distinctive competencies and a commitment to advance academic health science. Dr. Mendez is the first CAHS fellow in the history of the Department of Surgery.

College of Medicine Sydney Inskip Service Award

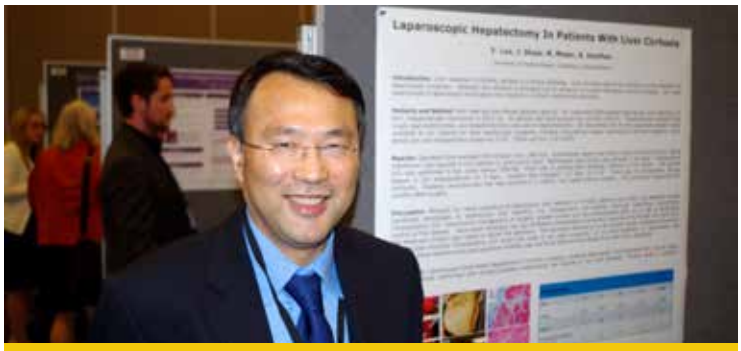
Congratulations to Marilyn Baniak, Undergraduate Surgery Education Coordinator. The Sydney Inskip Service Award is given annually by the College to recognize a staff member who has enhanced the College by providing extraordinary service, who has inspired, supported and respected the endeavours of others, and has achieved this distinction through dedication and commitment.

Dr. Andrew Urmson is the recipient of the ***PAIRS Excellence in Teaching Award***, an award given by residents to an individual who they feel has exhibited outstanding attributes in teaching.

Dr. Elliot Pally is the recipient of the ***FRCPC Emergency Medicine Off-Service Teacher of the Year Award (Junior)***, an award given for an educator who has gone above and beyond.

NEWS FROM THE DIVISION OF GENERAL SURGERY

CANADIAN SURGERY FORUM 2014
ACCEPTED & PRESENTED POSTER PRESENTATIONS

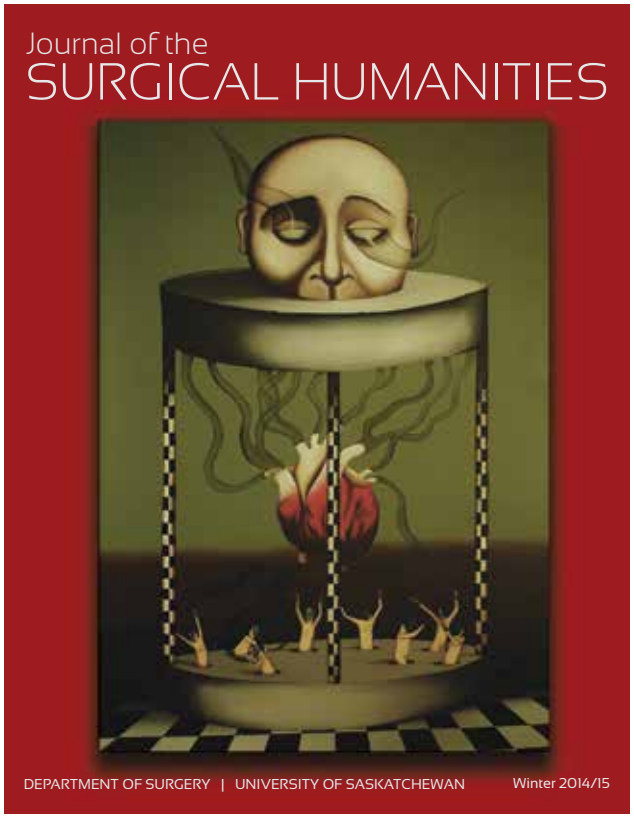


Dr. Yigang Lou, Dr. John Shaw, Dr. Mike Moser, Dr. Kanthan
Division of General Surgery

Laparoscopic Hepatectomy in Patients with Liver Cirrhosis

Dr. Angela Schellenberg, Dr. Francis Christian
Division of General Surgery

Time to Recurrence as Marker for Tumor Aggressiveness in Colorectal Cancer



COMING SOON ...

NEW ISSUE OF THE JOURNAL OF THE SURGICAL HUMANITIES

Happy Holidays

from the

Department of Surgery