

OPEN SKIES

Department of Surgery Newsletter

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New Surgical Skills Lab

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Saskatchewan
Health Authority

CHAIRMAN'S MESSAGE



"Our current efforts are concentrated on ramping up surgical services to deal with the COVID surgical backlog."

It has been two years this month since COVID-19 was officially declared a pandemic by the WHO. In March of 2020, the Department of Surgery and our surgical leaders across the province prepared for the possibility of an overwhelming surge of COVID-19 patients. Those were times of uncertainty, but the Department established a structure of decision making and communication that served well during these past two years. This anticipated surge eventually came to Saskatchewan during the 4th COVID Delta wave and placed a significant strain to our health care system. With the slow waning of the 5th Omicron wave, we can see a light at the end of the tunnel.

Our current efforts are concentrated on ramping up surgical services to deal with the COVID surgical backlog, limited inpatient capacity, and fatigue of our surgical teams. Despite those challenges, the Department and its members are fully engaged in providing the full range of surgical services to the people of Saskatchewan.

Exciting new initiatives featured in this issue of OPEN SKIES are the construction of the Surgical Skills Laboratory. This state-of-the-art facility will be a provincial resource and a key infrastructure for surgical skills training at the undergraduate, residency and fellowship levels but also to maintain and enhance skills of practicing surgeons across Saskatchewan.

Establishing new provincial programs, such as newborn screening for Cytomegalovirus to prevent hearing loss and the Saskatchewan Skull Base Surgery Program, enhance the quality of surgical services across the province.

The support and expansion of regional surgical programs, such as the one at the Dr. F. H. Wigmore Hospital in Moose Jaw and innovative initiatives, such as same day arthroplasty pioneered in Saskatchewan by the Regina orthopedic group under the leadership of Dr. James Ardell, are crucial in dealing with the burden of the surgical COVID backlog.

As I reflect on the second anniversary of the pandemic, I want to take this opportunity to again, thank all the members of the Department for their resilience, hard work and compassion these past two years.

Sincerely,

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

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ADVANCEMENTS IN NEWBORN SCREENING

03



Saskatchewan Introduces Newborn Cytomegalovirus Screening Program to Prevent Hearing Loss

On February 23, 2022, the Saskatchewan Ministry of Health announced that it is expanding the newborn screening program to include four additional conditions: spinal muscular atrophy, hemoglobinopathies, severe combined immunodeficiency, and congenital cytomegalovirus (cCMV). Advocacy for developing a new cCMV screening program was led by Dr. Paul Mick (Division of Otolaryngology-Head and Neck Surgery), Dr. Nick Antonishyn (Roy Romanow Provincial Laboratory), pediatric infectious disease physicians, and Saskatchewan Health Authority audiologists.

Cytomegalovirus infection is benign in immunocompetent individuals, but it is a significant public health concern because of its high prevalence and potential for serious sequelae when contracted in utero. The prevalence of cCMV infection is 0.6-0.7% (100-110 babies/year in SK), and although many babies with cCMV will not develop any symptoms, it is still the leading cause of non-genetic congenital hearing loss.

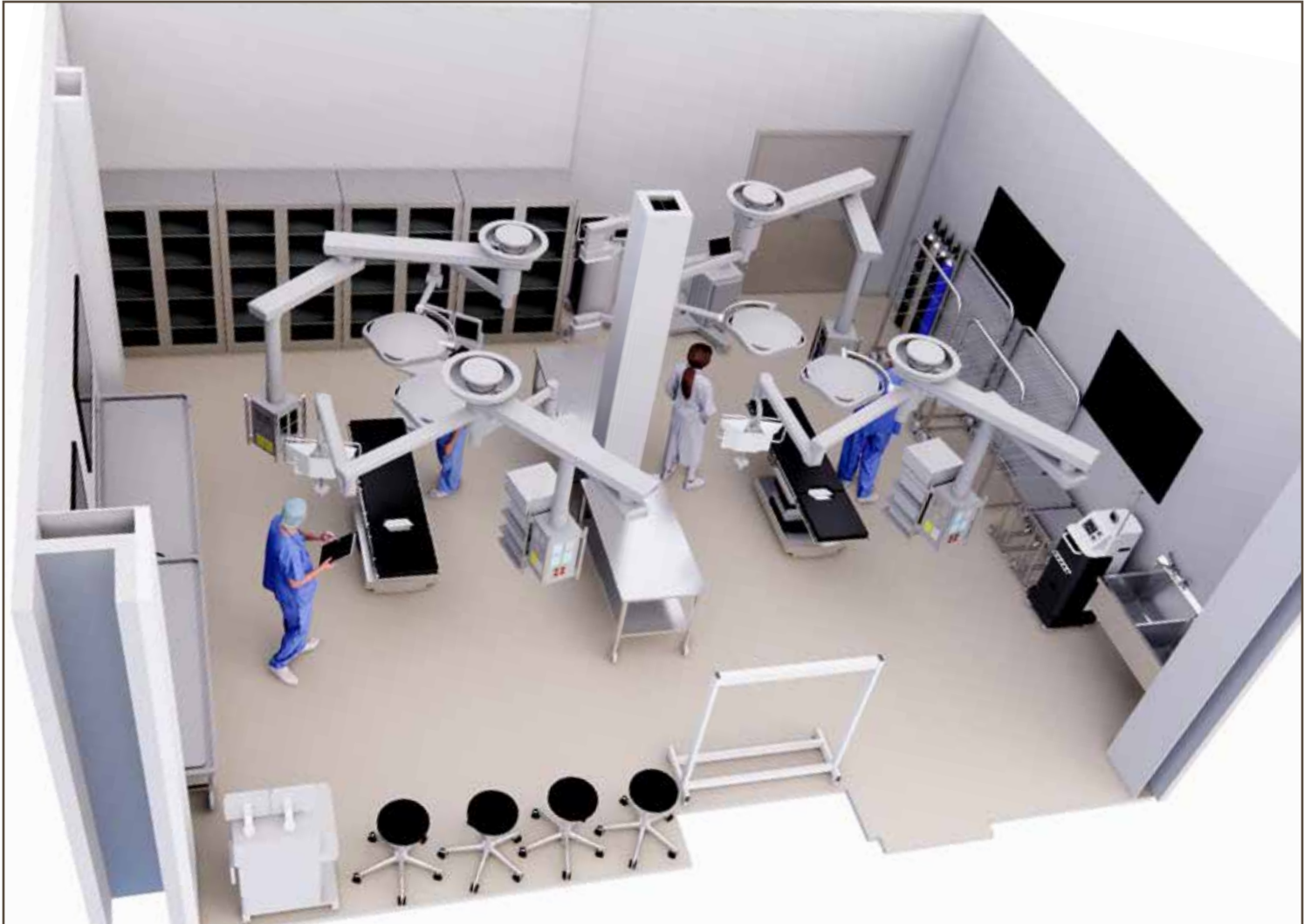
Universal newborn hearing screening was implemented province-wide in 2019, but hearing loss caused by cCMV may be missed by the program because it often develops after the neonatal period. The new cCMV screening program will identify babies born with cCMV infection by testing a blood sample for viral DNA. Babies with a confirmed CMV infection will be eligible for early antiviral therapy, which, if started before a month of age, reduces the likelihood of developing hearing loss or the severity of the impairment.

Early diagnosis and treatment of hearing loss and other neurodevelopmental sequelae of the infection will be facilitated by referral and follow up by otolaryngology, audiology and pediatric infectious diseases. Families will be informed about ways to reduce transmission between infected newborns and women of childbearing age.

The program has been made possible by advances in new cost-effective screening technologies, and may eventually be replaced by a CMV vaccination program, if an effective vaccine is ever developed. Ontario is the only other province currently offering universal cCMV screening to its population, and hopefully the Saskatchewan program will encourage other provinces to follow suit.

The Ministry of Health press release can be found at: <https://www.saskatchewan.ca/government/news-and-media/2022/february/23/saskatchewan-expanding-newborn-screening-program>





Rendering of the new Surgical Skills Lab, scheduled for completion Fall 2022

A new state-of-the-art Surgical Skills laboratory is in the final phases of design and will be built, pending final approval by USask Board of Governors, in a space that had been specifically assigned for this new facility during the recent renovations of the College of Medicine. The Surgical Skills Laboratory will be located adjacent to the newly renovated Anatomy Laboratory on the third floor of the B wing. The Surgical Skills Laboratory has been funded by the Ministry of Health who provided 1.5 million dollars for its construction and will also be supported by industry and philanthropic donations.

Although the Laboratory will be located at the College of Medicine it has a provincial, interdepartmental, and multidisciplinary scope. This facility will be used by all surgical specialties within Surgery, Anesthesia, Obstetrics/Gynecology, and Ophthalmology as well as other clinical departments. The laboratory will also be available to other University of Saskatchewan Colleges such as Dentistry and Nursing.

Teaching surgical skills is crucial at the undergraduate, residency and fellowship levels but also to maintain and enhance skills of practicing surgeons across the province. An important mission of the Surgical Skills Laboratory is the onboarding of new surgical procedures to clinical practice. Advances in technology make possible the developing of new surgical techniques and minimally invasive procedures. Innovations in intraoperative imaging, surgical navigation and robotics are rapidly changing the practice in all the fields of surgery. The Laboratory will



be an essential component in bringing those innovations to Saskatchewan.

The Surgical Skills Laboratory is closely linked to our mission to train competent clinicians and surgeons and maintain the skills of practicing surgeons. We will be implementing an educational surgical skills curriculum that is tailor-made to the needs of our undergraduate and postgraduate surgical programs and the maintenance of competence of practicing surgeons across Saskatchewan. The implementation of educational surgical skills in controlled and simulated environments has shown to promote improvement on surgical outcomes and patient safety. The establishing of a surgical skills laboratory is also a requirement for the accreditation of our surgical residency programs by the Royal College of Surgeons of Canada.

The advent of disruptive technologies such as artificial intelligence (AI) will have a significant impact in the practice of surgery in the future. The use of AI and digital surgical simulators will be an integral component of the surgical skills curriculum of the laboratory. A major emphasis of the laboratory will be the transference of technical skills from virtual to real environments. The simulated surgical skills learned at the laboratory must complement surgical training in real settings and the goal is for learners to be competent in certain skills before working with patients.

SURGICAL SERVICES IN MOOSE JAW

The Department of Surgery at the Dr. F. H. Wigmore Hospital in Moose Jaw, is comprised of nine surgeons and three gynecologists.

- (3) General surgeons: Drs. Nishaan Cheddie, Evan Neuls and Alicia Chow
- (3) Orthopedic surgeons: Drs. Nico De Jager, Maen Abou-Ghaida and Kristen Pugh
- (2) Ophthalmologists: Drs. Matt Regan and Cor De Jager
- (1) Urologist: Dr. Chun Huang
- (3) Gynecologists: Drs. Johan Kruger, Taiwo Yusuf and Adeloye Soyege

Our surgical program has expanded tremendously in the last decade, with an increase in the number and complexity of minimally invasive procedures and open procedures performed. This includes minimally invasive inguinal and ventral hernia repairs, colon and rectal surgery, gynecology procedures and open abdominal wall reconstruction. Dr. Kruger (Gynae) successfully completed the first vNOTES hysterectomy here, about 2 months ago.

Recently, we have added head and neck surgery and advanced urology oncology to the list. Our newest members include Dr. Alicia Chow and Dr. Chun Huang.

Dr. Chow is our first (full-time) female general surgeon, and brings with her experience in head and neck oncology, with a fellowship from the University of Manitoba. She has successfully managed to start up a busy head and neck surgery practice, and has recently introduced intraoperative nerve monitoring and PTH monitoring to provide better care to our patients.

Dr. Huang is also a new recruit to the department. Solely, he provides urology services to Moose Jaw and surrounding areas. His expertise in urology oncology (with a uro-oncology fellowship from Memorial Sloan Kettering, NY) has been the biggest change in our operating room complex, as this was never part of our usual surgical services. He aspires to, one day, be able to provide robotic urology services in Moose Jaw, considering his extensive training in this technique.

The Operating Room area consists of four functional and equipped operating theatres, which are in use every day. There is also an endoscopy suite and ophthalmology suite which provide an additional two theatres. We usually complete approximately 4900 procedures, excluding endoscopy, annually. With endoscopy, the total procedures performed is approximately 9200/yr.

Over the years, we have worked together to create a wonderful, collegial department of responsible and mature surgeons, who strive tirelessly to provide exceptional care to the people of Saskatchewan.



Operating Theatre (1 of 4)



Endoscopy Suite



Operating Room Complex

SKULL BASE SURGERY IN SK

07



(left to right) Drs. Shabir Mia, Nico Moolman, Paul Mick & Luke Hnenny

The Saskatchewan Skull Base Surgery Program was established in 2018. Its purpose is to provide excellent multidisciplinary care for patients in Saskatchewan with conditions involving the skull base. Many of these conditions are neoplastic (meningioma, pituitary adenoma, schwannoma, chordoma, chondrosarcoma, sinonasal carcinoma). Other conditions include CSF leak and encephalocele.

Skull base lesions are often situated at the anatomic boundaries between neurosurgery and otolaryngology. Anterior fossa, sellar, suprasellar, and clival masses arise adjacent to the paranasal sinuses, and are often approached transnasally. Lateral skull base masses such as vestibular schwannomas are often best approached via the petrous temporal bone/inner ear. Thus the surgical team consists of a neurosurgeon and an otolaryngologist. From the neurosurgery side, the majority of cases are performed by Dr. Luke Hnenny. From the otolaryngology side, the transnasal cases are performed by Drs. Shabir Mia and Nico Moolman, and the lateral skull base cases by Dr. Paul Mick. Beginning in October of this year, we will add Dr. Neil Arnstead, who will have just completed his fellowship training in Rhinology, Skull Base Surgery and Head & Neck Surgery at the University of Toronto.

Numerous neurologic and vascular structures (cranial nerves, brainstem, critical arteries) are at risk in the OR due to the sensitive location of the operated lesions. Thus our electrophysiologists, Drs. Jonathan Norton and Layla Gould, are an indispensable part of the surgical team.

We also rely on the expertise of our OR resource nurses, who ensure that specialized equipment is properly set up and in working order, and that the OR runs as smoothly.

In addition to the OR team, there are other clinicians whose expertise is essential to the successful management of these complex patients. Endocrinologic assessment and subsequent management, both on an outpatient and post-operative inpatient basis, is critical. The team relies on the expertise of Drs. Gudrun Caspar-Bell and Devon Houdek in this regard. In addition, the program includes a core group of ophthalmologists, oncologists, and audiologists, whose contributions to patient care are invaluable.

Future goals of the program include hiring of a nurse navigator to optimize the patient experience, registry work for the tracking of outcomes, and advocacy for a stereotactic radiosurgery program.

*Pre-operative Image**Post-operative Image*

All in a Day's Work: A Team Approach to Implementing Day Surgery Protocols for Hip and Knee Arthroplasty

In December of 2021, our team was able to perform a total hip replacement as a day surgery whereby the patient was able to return home within hours following surgery. This is the first same-day arthroplasty performed in Saskatchewan. Since that initial surgery, we have been able to successfully replicate and discharge patients home on the same day following joint replacement at both the Regina General and Pasqua Hospitals.

Outpatient Arthroplasty programs are utilized in many centers across Canada and the United States. The Ottawa Hospital has pioneered many of the protocols and published extensively on outpatient arthroplasty. At this institution, approximately 75% of the primary total hip and knee arthroplasties are performed as day surgery. As such, they have been largely able to continue operating throughout the COVID-19 OR slowdowns and have not experienced surgical backlogs to the extent that we have here in Saskatchewan. This approach could be of great benefit to our patients without further burdening our healthcare system.

Successful outpatient arthroplasty surgery is dependent upon the collaborative efforts of key healthcare professionals. Patient safety is paramount throughout the process. It begins in the clinic with appropriate patient selection as well as counselling and education. This process continues on the day of surgery where we utilize surgical advances including multimodal analgesia and minimally invasive surgical technique. Once the effects of the anesthetic has waned, patients receive post-op imaging and attend physiotherapy. Outpatient therapy is organized for the weeks following and patients are then discharged with medications for DVT prophylaxis, multimodal analgesia including cryotherapy and instruction regarding post-op exercises and restrictions.

From our early experience thus far, we have found that barriers to same-day discharge include hypotension, nausea and systematic issues such as the availability of physiotherapy and medical imaging past 4 pm. Successful discharge after day surgery has been limited thus far to the first or second cases performed in the morning. If a patient is not able to be discharged on the day of surgery, they are admitted overnight and discharged the following morning.

Collaboration is essential in developing and adapting arthroplasty day surgery protocols to work within specific health regions and hospitals. In Regina, the Department of Anesthesiology as well as the Section of Orthopaedics have organized Grand Rounds with invitation to our colleagues in nursing, physiotherapy, internal medicine and hospital administration which is planned for later this month. While there is still much work to be done, this early success is encouraging and exemplifies that our hospitals and staff are capable of delivering this level of care.