“We need to train with innovative new tools to prepare the physicians of the future. We simply do not have the resources to support our mission.”

Dr. Ivar Mendez, Fred H. Wigmore Professor and Unified Head of the Department of Surgery

PRACTICE MAKES PERFECT

Imagine yourself needing a serious surgery. You would find comfort in knowing that your surgeon practised his or her skills to perfection in a modern laboratory, before treating real patients.

Now consider that current medical students at the University of Saskatchewan (U of S) practise in the same laboratory that was used to train physicians in the 1960s; it’s remained relatively unchanged from its original construction.

Surgical skills and innovations have improved vastly in the last 50 years, yet the U of S is limited with a decades-old learning centre.

It’s time for a change.
In 2014, the U of S marked the grand opening of the Health Sciences Building, the largest capital project on campus to date. It brought together the majority of the university’s health sciences programming under one roof. This innovative facility offers additional opportunities for cross-disciplinary collaboration by promoting excellence in health research, teaching and outreach programs.

Although the project has offered our community an advanced facility in which to educate, discover and innovate in, funding to equip the Anatomy and Surgical Skills Laboratory was not included in the initial project.

The laboratory, located in the College of Medicine, is vital to our students, faculty and researchers. It is used frequently for research by undergraduate and postgraduate medicine and dentistry students.

Construction is currently underway on the completely revitalized Anatomy and Surgical Skills Laboratory.

However, the need for state-of-the-art equipment remains. Updated technology is required to teach surgical skills and new techniques to our students.
Remote presence surgery allows Dr. Ivar Mendez to mentor neurosurgical trainees. U of S students will soon be able to use new surgical technology like this in the state-of-the-art Anatomy and Surgical Skills Laboratory.
Our goal is to enhance the newly updated Anatomy and Surgical Skills Laboratory with sophisticated technology and equipment to support a wide range of teaching and research activities in the Colleges of Medicine and Dentistry.

The lab supports the full continuum of surgical education: from supporting undergraduate anatomy education, to minor procedures and suturing skills training, and finally, to lifelong surgical education with the development and implementation of new technologies and procedures.

- Undergraduate medical students use the space in years one, two and three of their degrees, at the start of each general surgical rotation.
- A suture refresher course is held each January during orientation for clinical clerks.
- Postgraduate trainees in the core surgery program develop skills working with the smaller veins during the plastic surgery rotation.
- The Anatomy and Surgical Skills Laboratory hosts a surgical boot camp for incoming surgical residency trainees.
- General surgery, neurosurgery and orthopaedic surgery residents use the lab for surgical and procedural skills training.
- Basic surgical skills are taught to postgraduate trainees in the Departments of Obstetrics and Gynecology, Ophthalmology, Family Medicine and Emergency Medicine.
- Basic surgical skills and anatomy are taught to undergraduate dentistry students on an individual basis.

Our mission is to provide a world-class laboratory at the University of Saskatchewan to train the surgeons of the future and improve patient outcomes.
A 3D printed brain was constructed in collaboration between the Colleges of Medicine and Engineering at the U of S. Printed models will help surgeons develop and practise complicated procedures.
The updated Anatomy and Skills Laboratory will be used by the whole spectrum of the medical field, inspiring innovation in our medical students, faculty, residents and industry partners.

Also, by giving students access to practise their skills in a safe, hands-on environment we can help reduce or prevent medical errors and complication rates and ultimately improve patient outcomes.

**Health-care professionals and trainees require a place to learn and practise techniques in a simulated clinical environment. This facility will offer an environment to hone their skills at anything from basic suturing to bone plating to minimally-invasive surgery.**

A diverse array of courses will be offered in the adaptable workspace, allowing health-care professionals and trainees to practise a variety of skills, including:

- Laparoscopic skills (modern, small incision techniques)
- Suturing (stitching wounds)
- Biopsy techniques (examination of tissue to discover the extent or cause of disease)
- Arthroscopy training (diagnosing and treating joint problems)
- Fracture treatment (correcting cracks or breaks in bones)
- Microsurgery (intricate surgery using miniature instruments and a microscope)

“Mastery of surgical skills requires deliberate practise which should first occur in a simulated setting. This applies as much to the medical student learning to suture as it does to the pioneer surgeon devising innovative techniques. A modern lab will ensure students, residents and surgeons have the opportunity to acquire and refine their skills long before they set foot in the operating room.”

Dr. R. Cole Beavis
Director
Surgical Skills and Simulation
ABOUT US

THE UNIVERSITY OF SASKATCHEWAN
The U of S is an environment where curiosity leads to discovery. We develop technologies and solutions that protect our health and improve quality of life. We understand and sustain the resources—minerals, energy, food and water—that are critical to our world.

COLLEGE OF MEDICINE
Our vision is to establish the College of Medicine as a world-class medical school, housing the necessary facilities to attract top-tier students and faculty. Our goal is to be a leading medical school, achieving excellence in research, innovation and surgical education.

DEPARTMENT OF SURGERY
Our commitment is to provide first-rate care to our patients through the creation of clinical excellence and an educational environment of innovation and collaborative research; we strive to be one of the leading surgical departments worldwide.
Dr. Preston Smith,
Dean of Medicine

A highly regarded medical educator and administrator, Dr. Preston Smith took over as dean of the College of Medicine in July 2014. Previously, he was a senior associate dean at Dalhousie University's Faculty of Medicine. He completed both his undergraduate and postgraduate medical education at Dalhousie University, and is a fellow of the College of Family Physicians of Canada. In 2010, he completed a master of education in curricular studies, with a focus on medical education.

Dr. Ivar Mendez,
Fred H. Wigmore Professor and Unified Head of the Department of Surgery

Dr. Ivar Mendez is a fellow of the Royal College of Physicians and Surgeons of Canada and the American College of Surgeons. As a clinician/scientist, Dr. Mendez’s research focus is in functional neurosurgery, brain repair, stem cells, robotic neurosurgery and computerized systems in neurosurgical applications. He is recognized internationally as an expert in his field, having given over 200 international and national presentations as well as contributing to over 200 scientific publications.

Dr. Adel Mohamed,
Department Head, Anatomy and Cell Biology

Dr. Adel Mohamed completed his residency training in anatomical and clinical pathology, and a fellowship in cytopathology, at the University of British Columbia followed by a fellowship in anatomy from the U of S. He has been a faculty member for 20 years, and was named one of ten most popular professors in Canada by Maclean’s magazine. Dr. Mohamed has published extensively, including two anatomy textbooks and over forty peer-reviewed publications. He has a strong research focus in multiple sclerosis and its animal model.
When Robert Toovey woke up after shoulder replacement surgery, he felt constant, intense pain in his right hand, like electricity shooting into his fingers.

The July 2014 operation had damaged his ulnar nerve; pencil-thick, it runs from the spinal cord to the hand and receives sensation from the middle, ring and pinky fingers, and oversees motor control. Robert’s hand was so sensitive he couldn’t wear gloves. Even the gentle sensation of a bed sheet or a breeze was unbearable.

Specialists told Robert and his wife Sheryl that nothing could be done and Robert would forever live with the pain and drugs. The couple decided that wasn’t an option.

Sheryl asked their family doctor for a referral to Dr. Ivar Mendez, after learning about him from media stories. In December 2015, his office called and asked if Robert could come in the next day. It was their last hope, and turned out to be a well-placed one.

“As soon as he checked me out, he knew what was wrong,” Robert said.

Robert had what is called complex regional pain syndrome, which can be caused by surgery or injury, said Mendez, the unified head of the Department of Surgery at the University of Saskatchewan and Saskatoon Health Region.

The pain can’t be truly treated with painkillers because the damaged nerve is constantly sending signals directly into the brain; even amputating a person’s hand wouldn’t stop it, as the brain would still have a representation of it — what’s known as phantom limb pain. The pain is so severe that some people choose to end their lives, Mendez said. It also affects their families.

“You can imagine loved ones knowing the person is in constant pain,” he said. “So the whole dynamic of the family changes.”

Mendez decided Robert would be the perfect candidate for a ground-breaking new BURST electrode treatment. On May 3, Robert became the first patient in North America to receive the new treatment for a major nerve. It was a difficult operation due to scar tissue where the nerve curves around the elbow, and Mendez had to use a stimulator to find the nerve, like a metal detector on a beach.

“It was pretty hard to find the nerve and if you damage the nerve more you will compound the problem, and if you actually damage the motor fibres of the nerve, the person may not be able to move their hand,” he said.

The team fashioned a small cuff that went around the nerve to secure the lead in the elbow. Then they threaded the lead to a matchbook-sized computer inserted just below Toovey’s collarbone. The device was turned on
We invite you to be a part of this ground-breaking opportunity by equipping the Anatomy and Surgical Skills Laboratory with world-class tools.

By supporting the only training facility of its kind in Saskatchewan, you can help us provide the latest in surgical equipment, instrumentation and simulation experience to the College of Medicine community.

Resources are now in place for the infrastructure, but not the tools and training instruments to outfit the laboratory. Funding will also allow us to offer training courses that expertly combine academic theory and medical practice to improve patient health.

With your support, we can educate the next generation of surgeons in Saskatchewan in a safe environment, and give them the confidence to master difficult procedures and develop new surgical techniques.

There are endless possibilities to the positive outcomes of the Anatomy and Surgical Skills Laboratory. With your support, we can promote excellence in clinical care and patient welfare in a world-class facility.

the day after surgery and the pain disappeared.

“When I went to the recovery room just after the operation I actually could touch his hand, where before that hand was untouchable because of the severe pain that even soft touch would elicit. So I knew in the recovery room this had a pretty good chance of success,” Mendez said.

Sheryl thought it was almost too good to be true.

“It still is,” Robert said. “Almost a month now and no pain. It’s unbelievable.”

The procedure saved his life, he said. He’s back to work, he’s driving and he can shake someone’s hand.

“I want to live again,” he said. “Before, I didn’t.”

(Edited for space from original publication)
For more information, or to discuss this opportunity, please contact:

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