



McGill

MEDICINE

FOCUS

2018/2019



**ANOTHER DIMENSION:
3D PRINTING THE BODY**

**+ SECRETS TO A LONG
AND HAPPY LIFE**



UNDETERRED

Resilience helped Dr. Luc Malemo overcome conflict and disaster in order to become a general surgeon, and it's also what keeps him determined to improve surgical care in the Democratic Republic of Congo (DRC). Starting from his days in grade school in the eastern region of the country, where he was frequently unable to pay school fees, Malemo's education is a story of stops and starts. In university, in spite of receiving an award for top student, he was unable to enter his desired program, medicine. When, four years later, he finally made it to medical school, his studies were interrupted twice, in 1996 and again in 1998, as the Rwandan civil war spilled over the border. After graduating from what is now known as the University of Goma, Malemo had to leave the DRC for South Africa and Uganda to find residency programs. He returned to Goma to work as a surgeon and eventually became the Medical Director of HEAL Africa, which operates a tertiary care hospital and develops training and community-based health care programs. In 2015, Malemo became the director of the first surgical residency program in the North Kivu accredited by the College of Surgeons of East, Central and Southern Africa.

Malemo is one of the first international surgeons selected for the McGill University Jean-Martin Laberge Fellowship in Global Pediatric Surgery, offered at the Montreal Children's Hospital in conjunction with the MUHC Centre for Global Surgery. He is working towards a PhD in Experimental Surgery at McGill. As a doctoral student, Malemo is collecting data about access to surgical care for mothers and children at hospitals across his home region of North Kivu. Congenital abnormalities like cleft lip/palate, hydrocephalus, anorectal malformation and heart disease go untreated, and lead to mortality and disability because children lack access to surgical care. "If you fix a child within the first months of life, you are changing 60 years of suffering," Malemo says. "You are transforming a child to become financially independent, to have a chance at getting an education and help develop his country. And if you fix a mother, you are transforming the whole nation." Malemo plans to survey children with unmet surgical needs in the region and to carry out pediatric surgical campaigns in hopes of lobbying government to increase access to surgical care for Congolese children. He is also advocating that the government include surgery in its strategic health plan and improve training of surgeons.

Earning a PhD, he says, will give him the credibility to do this. Until then, he weathers the hardship of being separated from his family and worrying for their well-being on their own at home in a region fraught with violence. (Michelle Pucci)





In North Kivu schools, an accountant would post the names of students who were behind in paying school fees. Malemo, along with his ten siblings, was on this list every school year. In spite of the frequent interruptions in his schooling, Malemo was always first in his class. He poured his energy into his studies and would later help his younger siblings pay for their educations.



Two weeks before Malemo was set to write his final exam in medical school, the Nyiragongo volcano—located 23 kilometres from Goma—erupted, causing an en masse evacuation to a refugee camp, where Malemo was able to work as a medic, earning the money he needed to take the exam. Malemo returned to university the following year to write his final exam, proving “everything is possible.”



The Malemo family home had no electricity. After school, children were expected to contribute to household chores, and by the time young Malemo found time for his homework, the sun would have already set. Malemo attributes his success in school to the burning candles that allowed him to study without electric or natural light.



Malemo has teaching in his blood. At 70, his father continues to teach math and is still the headmaster of a high school. Malemo’s mother was a primary school teacher. Their lifelong dedication to education influenced Malemo to pursue his studies in medicine.



In the absence of a sponsor, Malemo’s wife, Stephanie Bake, is unable to join him in Canada. She remains at home, with their four children ranging in age from four to thirteen. Amidst non-stop reports of violence from their region, Malemo worries about their safety, as well as their morale. For the children in particular, he fears trauma. His main tools for checking in are WhatsApp and voice calls, but cell and internet service is limited in Goma.



When he received his letter of acceptance, Malemo was so excited that he booked July plane tickets with only a five-year tourist visa. Without a study permit, Malemo was denied entry into Canada. The permit took months to acquire, and Malemo finally arrived in Montreal in November to begin the fellowship.



Eastern DRC continues to be besieged by daily violence. Civilians are casualties of conflicts between the Congolese army and various militia groups. Machetes are often the weapon of choice. But the knife has a double meaning for Malemo, as a crucial tool for surgeons. Malemo uses the colours red and white to symbolize this paradox.



Malemo uses a fidget spinner in his fellowship work at the Montreal Children’s Hospital to distract children during physical examinations. The toy entertains children and puts them at ease.



French is the official language in the DRC. Malemo studied the dictionary as a teenager to teach himself English. Learning the language allowed him to successfully complete residencies in Uganda and South Africa, where English is an official language. (Michelle Pucci)

With Dr. Kathryn LaRusso, Malemo is one of two inaugural recipients of the McGill University Jean-Martin Laberge Fellowship in Global Pediatric Surgery, which is now seeking applications for future cohorts.



MEDICINE FOCUS 2018-2019

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By Michelle Pucci



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FROM THE DEAN

THE ROAD TO 200, CONT'D



OWEN EGAN

In 2021, the University marks its Bicentennial.

At the Faculty of Medicine, we will have much to celebrate, thanks, in large part, to the enthusiasm and generosity of alumni and friends like you.

In the past year, we took the first steps toward the launching of the McGill School of Population and Global Health by establishing its International Advisory Board with the illustrious Victor Dzau, BSc'68, MDCM'72, DSc, as Chair. We also inaugurated our Indigenous Health Professions Program, both to attract more Indigenous students to careers in the health sciences and to better serve Indigenous communities.

Last summer, the Ingram School of Nursing moved from Wilson Hall to new, expanded headquarters on Sherbrooke St. West, where students now enjoy a state-of-the-art simulation lab. The School of Physical & Occupational Therapy will soon follow suit, with a move to modern, custom-designed facilities, while the School of Communication Sciences and Disorders is celebrating four years in its new offices and lab space.

We also took a major step forward to combat the threat of antibiotic-resistant infections and other ubiquitous diseases. Thanks to a transformational \$15-million gift from the Daggone Foundation, shared between McGill University and the McGill University Health Centre (MUHC), we launched an exciting research collaboration, the McGill Interdisciplinary Initiative in Infection and Immunity. Under the leadership of Dr. Don Sheppard, PGME'99, Professor in the Department of Microbiology and Immunology, McGill I4 brings together more than 200 researchers from McGill, the MUHC, the Jewish General and others to unlock the power of our immune systems in an unprecedented effort to discover new treatments.

This year also saw the first iteration of the McGill Clinical Innovation Competition, featuring the alumnus-sponsored Dr. Ray Hakim Family Prize for Clinical Innovation in Health Care. The competition is the springboard for winning teams to commercialize and implement novel ideas to improve health care, locally and globally.

Other steps forward include the expansion of our WELL Office to provide personal counselling and academic support to students from all our health professions programs and schools.

We also continue to strengthen inter-professional education within the Faculty. A recent external review described our Interprofessional Education Program, led by Annette Majnemer, BSc(OT)'80, MSc'85, PhD'90, Vice-Dean, Education, as “possibly the best structured of any interprofessional program in Canada.”

The Road to 200, however, is just beginning.

There is much more we can—and will—do.

At the Rosalind & Morris Goodman Cancer Research Centre (GCRC), plans are underway for a Lung Cancer Network, which will rally researchers, clinicians and patients from across Greater Montreal to fight this disease. This initiative comes at a milestone moment in the GCRC's history, the 10th anniversary of the McGill University Life Sciences Complex in which it is housed.

We are also poised to build on our leadership in computational medicine to establish McGill at the international forefront in the field. We have the infrastructure required. If we can apply the same sophisticated computational methods to the vast datasets now being collected in biomedical research and medicine, we can transform the way we think about disease.

At the same time, we face a challenge: lack of space. We need more dry labs, more wet labs, more classrooms, more study space, more interactive space—to house and grow the transformative initiatives we have under way. This is our single biggest hurdle today, and among my top priorities.

With so many large-scale projects in the works, I look forward to reporting back to you again, either at Homecoming in the fall or through other means, to let you know how we have evolved, yet again, to meet the needs of our students and faculty, and, most importantly, the patients they serve.

With thanks,

David Eidelman, MDCM'79
Vice-Principal (Health Affairs)
Dean, Faculty of Medicine

YOU TELL US



A fine point

*“7 ways to up your game in the health sciences ‘classroom’: the latest science behind the decisions we make as teachers,”
Medicine Focus 2017-2018)*

The line in question: “Competency-based education, as opposed to standardized modules of learning based on time, places emphasis on having learners demonstrate what they can do or how they apply knowledge instead of simply recalling how much knowledge they know—just one of the many ways educators around the world are reimagining this stage of training first introduced by Sir William Osler, MDCM 1872.”

By 1873, 178 hospitals in the U.S. offered 300+ training positions. At that time, residents were essentially apprentices, and the prevailing custom was to let them observe surgery being done by someone else with little participation. The idea was that to watch the masters operate or work was enough to go out and practice.

McGill had house surgeons in the 1840s at the Montreal General Hospital (MGH) like Thomas Roddick [MDCM 1868] who were chosen to work in the hospital for three to four years watching the staff MDs.

This is a pretty simple description, but makes the point that resident training, one way or another, preceded Hopkins (started about 1897) by 60 to 70 years. Hopkins was just the best resident training at that time.

Joe Hanaway, BA'56, MDCM'60

C'est noté

“Quiz: Who is this person?” Medicine Focus 2017-2018)

With regards to your quiz on Marion Lindeburgh: It should be noted that Saskatchewan was not created until 1905. The territories comprising Saskatchewan were then the Northwest Territories.

Guillaume Leclair, MDCM'14, PGME'16, Pediatric Resident, PGY-3 University of Saskatchewan

A place for print

Hello! I am writing as both an alumnus (Med'65) and a former editor-in-chief of Manitoba Medicine (no longer active) at the University of Manitoba.

I know from direct experience how hard it is to publish this type of magazine.

Congratulations and thanks to you and your 'team' for an outstanding issue! It arrived a few weeks ago when I was away, so I have only read it recently.

I found the contents very interesting, from the first to the last page—and the presentation is fabulous! The circulation of 26,000 is about 20 times what it was for Manitoba Medicine. Very impressive!

A final note about printed versus electronic communications. I remain a very strong believer that there is still a place for print versions of this type of communication. As I noted, I have read this edition 'cover to cover.' If I had been viewing it online, there is a 0% chance that I would have looked at it so thoroughly.

Douglas Craig, BSc'61, MDCM'65, MSc'70,
GRAD DIP MEDICINE'70



William Wright, MDCM 1848, is seated second from left (beside fellow Med'48, Robert Palmer Howard). ("McGill University Faculty of Medicine at its Semicentennial, 1882," William Osler Photo Collection, Osler Library of the History of Medicine, CUS_033-011_P)

Medicine Alumni Global Awards reactions

"Ambassador for humanistic care," "Nursing CEO merges strengths," "Where in the world is Dr. Murthy?" Medicine Focus online edition)

I knew Dr. Balfour Mount—a real pioneer. Sr. Monique's wonderful work in Brazil reminds me of the "Health Houses" I established in Kenya during my 43 years of service there. God bless you, Sister.

Colin Forbes, BSc'51, MDCM'55

So proud to be a McGill nurse! Back in 1970, our 4th year class took one course with 1st year medical students. I believe this was a first attempt by the Faculty of Medicine at promoting collegial working relationships between the two health professions.

Elaine Lafave Walsh, BScN'71

Dear Srinivas Murthy [MDCM'06], I was glad to be at the same ceremony for the [Medicine Alumni Global Awards] and want to congratulate you for your work and heroism. We were going to do a mission in 2014 in Benin, but did not go because of the risk of Ebola in West Africa.

Sr. Monique Bourget, MDCM'92, Dip Epid & Bio'95, recipient of the 2017 Medicine Alumni Global Community Service Award

Aw, shucks

I was really pleased to receive your latest issue. The variety of topics was very stimulating. Thanks.

Maria Gabriela Ruiz, BScN'09, MSc(A)'12

Melville name lives on at McGill

"Honouring the Melville Legacy: Announcing the Melville Undergraduate Research Bursary in Pharmacology," Medicine Focus online edition)

I remember Dr. Melville as a strong but gentle man, soft spoken, always lecturing in a well-organized manner, and an excellent communicator.

This tribute is well deserved.

Gerald Burke, BSc'54, MDCM'58

I wanted to share that I came across the info that Melville wasn't McGill's first Black MDCM grad, nor the first Black Chair of Pharmacology and Therapeutics.

Sameer Zuberi
Diversity and Engagement Officer
Office of Social Accountability and
Community Engagement (SACE)
Faculty of Medicine, McGill University

Editor's note: According to various online sources, William Wright, MDCM 1848, who is described in one recent account, a summary of a talk by Frank Mackey in The Evangelist June 2017 newsletter, as having been "of English and Black African stock," could perhaps be considered not only the first black MDCM, but the first black medical doctor in British North America, although this may or may not have been how he identified himself. What we can say for sure is that he was Chair of the Department of Pharmacology & Therapeutics for almost thirty years. Faculty historians, how best to remember him?

Send your comments to anne.chudobiak@mcgill.ca

WE'RE NOT ADDICTED TO SMARTPHONES, WE'RE ADDICTED TO

SOCIAL INTERACTION

We all know people who are constantly texting and checking out what friends are up to on social media, seemingly incapable of living without the bright screen of their phone for more than a few minutes.

Professor Samuel Veissière, MA'05, PhD'07, a cognitive anthropologist, explains that the desire to watch and monitor others, but also to be seen and monitored by others, runs deep in our evolutionary past. Humans evolved to be a uniquely social species, and require constant input from others, seeking a guide for culturally appropriate behaviour. This is also a way for humans to find meaning, goals and a sense of identity. In a recent study, Veissière and Moriah Stendel, BA'16, MSc'18, researchers affiliated with the Department of Psychiatry, found that the



most addictive smartphone functions all shared a common theme: they tap into the human desire to connect with other people.

While smartphones harness a normal and healthy need for sociality, Veissière agrees that the pace and scale of hyper-connectivity pushes the brain's reward system to run on overdrive, which can lead to unhealthy addictions. Turning off push notifications and setting up appropriate times to check your phone can go a long way to regain control over smartphone addiction. Research suggests that workplace policies "that prohibit evening and weekend emails" are also important. "We need to start having a conversation about the appropriate way to use smartphones," said the professor in a recent interview. (McGill Newsroom)

DOES CHAGAS DISEASE PRESENT

A HEALTH RISK TO CANADIANS?



MUHC

Believe it or not, a tropical blood parasite native to Latin America could be harmful to Canadians. Infectious diseases like malaria or Zika may have dominated recent headlines but Chagas—the "Kissing Bug" disease—is claiming the spotlight following the publication of a new case study that warns that natives of specific Central and South American nations and their offspring are at risk of contracting Chagas disease—even after they have moved to Canada. The study reports on a family case of transmissions from mother to unborn children, raising questions about prevention and diagnosis of Chagas disease in Canada, where thousands of individuals may be infected with the disease.

Chagas disease is caused by a parasite called *Trypanosoma cruzi*, which is mostly found in Latin America. It spreads

through the bite of triatomine—bloodsucking insects targeting a person's face, referred to as "kissing bugs." The parasite is transmitted via the bugs' feces: The insects defecate while feeding, allowing the parasite to move on to its new host.

"Chagas disease is a real public health problem due to the transmission from mother to child up to at least three generations," says co-author Dr. Momar Ndao, a scientist from the Infectious Diseases and Immunity in Global Health Program at the Research Institute of the McGill University Health Centre and Associate Professor, Department of Medicine. "As Chagas disease is not a notifiable communicable disease in Canada, there is little data on the number of undiagnosed, untreated cases."

According to the authors, the countries known to pose the highest risk for contracting Chagas include Argentina, Bolivia, El Salvador, Guatemala, Honduras, Panama and Paraguay. "Anyone who lived in or visited those countries for an extended period of time and was bitten by a kissing bug, who received a blood transfusion in Chagas-endemic countries, or who was born to a mother diagnosed with Chagas disease should ask their health care providers to be tested for the illness," says Ndao. (McGill Newsroom)

BEING BILINGUAL

MAY HELP
AUTISTIC CHILDREN

Children with autism spectrum disorders often have a hard time switching gears from one task to another. But being bilingual may actually make it a bit easier for them to do so, according to a new study published in *Child Development*.

“This is a novel and surprising finding,” says senior author Aparna Nadig, Associate Professor, School of Communication Sciences and Disorders. “Over the past 15 years there has been a significant debate in the field about whether there is a ‘bilingual advantage’ in terms of executive functions. But no one has yet published research that clearly demonstrates that this advantage may also extend to children on the autism spectrum. It’s very exciting to find that it does.” (McGill Newsroom)



ECZEMA,

AN EARLY WARNING SIGN FOR
POTENTIAL MENTAL ILLNESS



According to Dr. Patricia P. Silveira, PGME’07, Principal Investigator, Ludmer Centre for Neuroinformatics & Mental Health, “When treating young girls for childhood cutaneous allergies such as eczema, health care professionals should be aware of the increased potential for vulnerability for mental health problems. Understanding and investigating these types of associated risks is crucial to enabling earlier diagnosis and interventions in at-risk populations.”

Several studies have shown that children with cutaneous allergies have a higher rate of mental health disorders and psychological and behavioural problems.

Recent research by Ludmer Centre researchers found that, for adolescent girls, there is a strong association between cutaneous allergies and increased externalizing behaviours, which are problem behaviours directed toward the external environment such as physical aggression, disobeying rules, cheating, stealing and destruction of property.

Studies have found that females tend to show a greater immune response than males. The symptoms of cutaneous allergies, including eczema, involve immune activation and exposure to higher levels of pro-inflammatory cytokines, which may mediate the association between cutaneous allergies and mental health. (Ludmer Centre for Neuroinformatics & Mental Health)

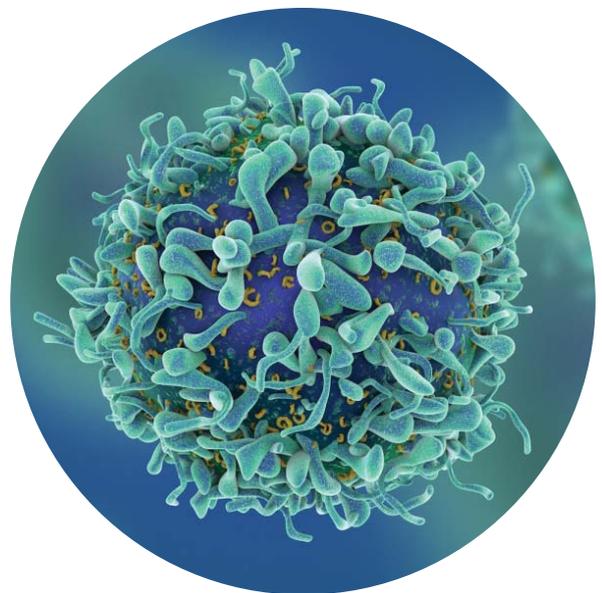
HOW VIRUSES DISARM THE IMMUNE SYSTEM

How do viruses that cause chronic infections, such as HIV or hepatitis C virus, manage to outsmart their hosts' immune systems? New research has uncovered a molecular mechanism that may be a key piece of the puzzle.

Fighting off infections depends largely on our bodies' capacity to quickly recognize infected cells and destroy them, a job carried out by a class of immune cells known as CD8+ T cells. These 'soldiers' of sorts get some of their orders from chemical mediators known as cytokines that make them more or less responsive to outside threats. In most cases, CD8+ T cells quickly recognize and destroy infected cells to prevent the infection from spreading.

"When it comes to viruses that lead to chronic infection, immune cells receive the wrong set of marching orders, which makes them less responsive," says Dr. Martin Richer, BSc'96, Assistant Professor, Department of Microbiology & Immunology, and senior author of the study, published in the journal *Immunity*.

The research, conducted in Richer's lab by Logan Smith, MSc'17, revealed that certain viruses persist by driving the production of a cytokine that leads to modification of glycoproteins on the surface of the CD8+ T cells, making the cells less functional. That maneuver buys time for the pathogen to outpace the immune response and establish a chronic infection. Notably, this pathway can be targeted to restore some functionality to the T cells and enhance the capacity to control infection. (McGill Newsroom)



GCRC

NEW BREAST CANCER STUDY

COULD LEAD TO MORE ACCURATE
PREDICTIONS OF DEVELOPMENT

How can you improve the treatment of breast cancer? By determining how it develops in the first place. Dr. Luke McCaffrey, Associate Professor, Gerald Bronfman Department of Oncology, and Principal Investigator, Rosalind & Morris Goodman Cancer Research Centre, recently published findings that show the step-by-step process and characterize the events that take place during the transition from normal tissue to tumour, thus identifying the progression cells take as they evolve and morph. "If we understand the steps normal cells undergo to become a tumour, we can use that as the foundation to understand and predict which ones are going to be more aggressive and which ones are not," explains McCaffrey. (Stephanie Malley)



UNUSUAL LUNG STRUCTURES

MAY RAISE RISK OF PULMONARY DISEASE

The internal anatomy of our lungs is surprisingly variable, and some of those variations are associated with a greater risk of chronic obstructive pulmonary disease (COPD), a new study led by researchers at McGill University and Columbia University Irving Medical Center has found. The variations occur in large airway branches in the lower lobes of the lungs and are readily detected with standard CT scans. The findings suggest that people with certain variations might need more personalized treatments in the future.

COPD is a progressive lung disease that causes airway inflammation, makes breathing more difficult, and is the fourth leading cause of death in the world. COPD usually occurs in people with a history of smoking, commonly after they have quit smoking, but is increasingly recognized in those who have never smoked.

About 16% of people possess an extra airway branch in the lung, about 6% are missing a branch, and another 4% have a combination of variants or other patterns.

People with an extra airway branch were 40% more likely to have COPD than people with standard anatomy. And people missing a specific airway branch were almost twice as likely to have COPD, but only if they smoked. Study authors include Dr. Hussein Traboulsi, a postdoctoral fellow in Respiratory Medicine, and Dr. Carolyn Baglole, Assistant Professor, Department of Medicine, Division of Experimental Medicine. (McGill Newsroom)

BIG-DATA BABY STEPS

Dr. Yasser Iturria-Medina, a postdoctoral researcher at the Ludmer Centre for Neuroinformatics & Mental Health, is applying a big-data approach to Alzheimer's disease (AD) and dementia, which is a critical step forward for personalized medicine. AD and dementia are complex interactions of age and gender, genetics and epigenetics, environment and lifestyle. There is no single cause. Today, large datasets and big-data analysis are crucial to advancing research and treatment, and developing early and effective interventions. "We're in the era of big-data analysis and we should not depend entirely on subjective opinions and hypothetical models; instead we should allow the data to speak for itself," says Medina, who trained at the Cuban Neuroscience Centre.

His big-data, multi-factorial analysis of more than 7,700 brain images from patients with late-onset AD, for example, identified a decrease in blood flow in the brain as the first physiological sign of AD, contrary to previous understanding, and established a key biomarker for early detection. This computational power will be vital to gaining a fuller, integrated understanding necessary for a personalized approach to early detection and treatment. "Personalized medicine is proposing to identify individual risks with different doses for each patient, and it tries also to predict what will be the response of each person. We're not there yet. We need more data-driven integrative studies, capable of considering all possible biological factors involved and clarifying the direct interactions among these factors in Alzheimer's disease," explains Medina. "These are essential steps toward developing effective, personalized treatments." (Mark Witten)

PERSPECTIVES



COURTESY OF ALEX MCCOMBER

Alex McComber, MEd'96, is bringing his expertise as an Indigenous health promotion scholar and community activist to a new graduate course he'll be co-teaching in the Department of Family Medicine. He's been hired as an assistant professor for a five-year period, with the course playing a key role in the part-time appointment.

McComber has spent 24 years in diabetes prevention and health promotion for children in Kahnawake, a Mohawk community outside of Montreal.

The McGill course, Indigenous Perspectives: Approaches to Health, will, among other things, look at Indigenous knowledge and the value of community input.

The 62-year-old sees teaching at McGill as a natural progression for his career, which also included nine years as Principal of the Kahnawake Survival School. A Mohawk, McComber says a positive shift is taking place at McGill in light of some recent hires of several Indigenous faculty, including Dr. Treena Wasonti:io Delormier, BSc(NutrSc)'93, MSc'96 (School of Human Nutrition), Dr. Cindy Blackstock, Professor (School of Social Work) and Dr. Allan Downey (Department of History).

"Our Indigenous Health Professions Program (IHPP) team is thrilled to welcome Alex McComber," says IHPP Program Manager, Jessica Barudin, MSc(PT)'15. "Alex brings incredible energy, enthusiasm and traditional wisdom to the projects and team dynamics. We have had the opportunity to work with him on our upcoming Eagle Spirit Science Camp; his insight of community-based health, education and two-eyed seeing has been a critical piece of our program planning. I am certain Alex's good and kind ways will inspire many learners and create ripple effects within the Faculty of Medicine and beyond." (Philip Fine)

READY OR NOT

Dr. Ervin Podgorsak would kick students out of oral exams, saying "You're not ready," remembers Professor Jan Seuntjens, Director of the Medical Physics Unit. "But he loved his students. He was concerned about their futures." To honour this legacy, the unit has created a new fellowship in Podgorsak's name.

Podgorsak, who was director of the unit from 1991 to 2008, established its graduate and clinical residency programs. An early pioneer of targeted radiation, he was among the first to team up with a

neurosurgeon and radiation oncologist to deliver it to patients. His book, *Radiation Physics for Medical Physicists*, is in its third printing.

In the early 2000s, he wrote an influential opinion piece on the building of a 'bunker' in Plattsburgh to accommodate an expected influx of Quebecers seeking radiotherapy treatment.

He stepped down from teaching in 2011. Seuntjens says Podgorsak's name is so well known in the field that its cachet has turned the fellowship into a recruitment tool. (Philip Fine)

DID YOU KNOW?



Under Canada's 2004 Assisted Human Reproduction Act (AHRA), a researcher altering an egg or sperm cell runs the risk of incurring a fine of up to \$500,000 or a 10-year prison sentence. According to lawyer Erika Kleiderman, BSc'10, Academic Associate, Centre of Genomics and Policy, this law was a product of a time marked by fears surrounding Dolly the cloned sheep and a Raëlian cloning hoax. "It was an environment fuelled by dystopian ideas. The go-to approach was to prohibit."

There has never been any question of using these modified cells for clinical fertility procedures, says Kleiderman, adding that there is a consensus among Canadian stem cell researchers on the need to further study the safety of genetic alteration.

The arrival of CRISPR, a more efficient gene editing system, has made it apparent how useful this line of research can be. In a few short years, CRISPR has already contributed to advances in our understanding of miscarriage, HIV immunity and muscular dystrophy—research that is currently prohibited in Canada.

Kleiderman would like to see genetic research overseen by a regulatory or review agency, as is the case in the United Kingdom. "Criminal law is not the most appropriate tool to regulate and oversee genetic testing and reproductive medicine." (Philip Fine)

A SITE FOR MORE EYES

When it comes to explaining an upcoming surgery to a patient, David Fleiszer, BSc'69, MDCM'73, MSc'79, typically takes out pencil and paper and starts sketching. The oncology surgeon knows visual aids make it easier to understand a procedure.

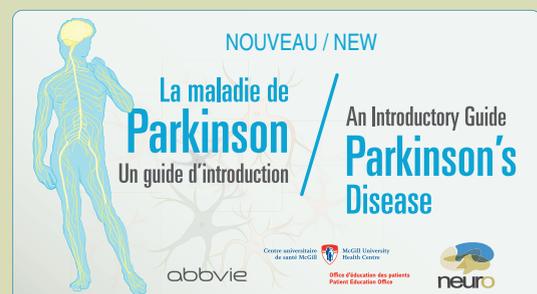
This habit inspired a website he and Nancy Posel, BA'72, MEd'95, PhD'11, launched in 2014. The MUHC Patient Education Office site describes more than 400 medical procedures and situations, from what to expect after chemotherapy to school protocols for children with diabetes.

For this project, Fleiszer and Posel brought together interprofessional teams with health care educators and artists. The result? A collection of colourfully illustrated modules written in accessible language.

"We strongly believe this doesn't replace conversation with a health professional, but it enriches dialogue," says Fleiszer, Associate Professor of Surgery at McGill.

Fleiszer says most patients are sent home shortly after surgery, which leaves little time to learn how to manage a leaking tube or tend to a wound. Now they have the site as a resource.

Available in French as well as English, the site, www.muhcpatienteducation.ca, receives visits from patients, families and clinicians around the world. (Philip Fine)



IN SHEEP'S CLOTHING



A researcher agrees to organize a symposium only to realize that it is a sham, attracting no well-respected academics beyond those whom she personally invites.

It is becoming an all too familiar tale, according to Dr. Eduardo Franco, who writes extensively on the subject of predatory publishing and vanity conferences.

Most recently, it happened to a colleague of Franco's. "The scientist fell for this," says Franco, sympathetically, explaining that organizers offer incentives such as keynote speeches to legitimate academics to gain access to their professional networks. "His registration fee was waived but the people he invited paid full fee."

As a con, it is common, says Franco, Chair, Gerald Bronfman Department of Oncology, James McGill Professor in the departments of Oncology and Epidemiology, Biostatistics and Occupational Health, and Director, Division of Cancer Epidemiology.

A revolution has taken place in academic publishing, with online open-access journals offering authors the opportunity to share their published papers online in exchange for a fee. But it has spawned predatory publishing, a growing phenomenon that is estimated to have increased exponentially from 18 publishers in 2011 to 1,155 at the beginning of last year. The vanity conference is an offshoot of that, luring academics to pay fees for low-attendance events.

While many of the companies are based in India and China, Franco has discovered multiple journal names using random U.S. residential addresses. Franco recently convinced McGill to include in its letters of offer, promotion and reappointment to professors a directive that their scholarly contributions "be published only in well-established and credible scientific journals that employ rigorous peer review."

Franco still sees an uphill battle ahead. "Right now, the predatory publishers are ahead, but by raising awareness and being more diligent, we can turn the trend around." (Philip Fine)



OVERHEARD

JUST BECAUSE YOU LIVE ON THE STREET, DOESN'T MEAN YOU SHOULD BE TREATED WITH ANY LESS RESPECT OR PROFESSIONALISM."

—Street nurse Margaux Pontoreau-Bazinet, BScN'11, quoted in the Montreal Gazette



DIANE WEIDNER

SIMULATION FOR CAREGIVERS

Last September, Alzheimer's care consultant Claire Webster shared evidence-based knowledge and lessons learned from her experience as a former caregiver to her late mother during two innovative pilot workshops held at the Steinberg Centre for Simulation and Interactive Learning (SCSIL). The pilot project was developed with the goal of educating and supporting caregivers who are looking after a family member afflicted with Alzheimer's disease or a dementia-related illness, and was the result of a collaboration between Webster and the staff at the SCSIL as well as Olivia Monton, BSc'12, BSc(AgEnvSc)'16, candidate of the Medicine Class of 2020, and Dr. Olivier Beauchet, Dr. Joseph Kaufmann Professor of Geriatric Medicine and Director of the RUIS (Réseau Universitaire Intégré de Santé) McGill Centre of Excellence on Longevity at the Jewish General Hospital.

"I wasn't given a prescription of care by the doctor for my mother or for myself after she was diagnosed in 2006. For the next six years, I got caught up in a cyclone of caregiving and eventually suffered a nervous breakdown. I developed this workshop to educate family members on the most important

things they need to know and to prepare them for the journey of caring for someone with Alzheimer's disease, including how to avoid caregiver burnout," says Webster, who plans to hold more workshops at the SCSIL in the year ahead.

One of the workshop's most compelling features is the simulated episode, written by Webster, that takes place in the simulated apartment and aims to teach family members how to keep their loved ones safe at home. During the scenario, standardized patients (individuals who are trained to portray real patients) enact common, potentially dangerous behaviours like leaving an iron unattended in the bedroom or mistaking a tube of cortisone for toothpaste. "People who attended the workshops loved the simulation of safety tips and were incredibly grateful for all the useful information they received. They were also grateful to me because I lived the journey," says Webster, who believes the first step in the caregiving journey can be greatly improved by educating all medical students to write prescriptions of care for the families of loved ones who develop dementia. (Mark Witten)



COOPERATION:

THE MOTHER OF INVENTION

Students from the School of Physical & Occupational Therapy (SPOT) and the Department of Biomedical Engineering now share a new course combining the therapist's goal of maximizing quality of life with the engineer's pursuit of functionality.

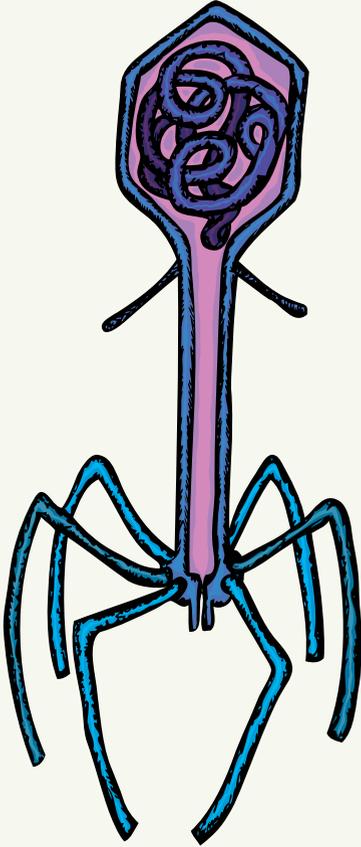
In the class, teams partner with a client who has a disability. Together, they develop a solution to an obstacle the client encounters in his or her daily activities.

One team from the first cohort helped a quadriplegic man enjoy his balcony. The 14-inch-high threshold that separated the balcony from his apartment made sitting outdoors inaccessible. Students Jasmine Tacneng, BEng'18 (Mechanical Engineering), Ela Rutkowski (Occupational Therapy) and Cheng Yueh Tsai, BSc'17 (Physiotherapy), re-tooled a chair to pull up to the barrier. The back motorized wheels remained inside, with the seated client cantilevered on the balcony outside. From there, he was able to transfer to his walker.

For another project, Parisa Alirezaee (Computer Engineering) partnered with clinical team Vanessa Seto, BSc'17, and Nadine Wilk (both in Occupational Therapy) to work with a blind man. The client was frustrated with having to rely on others to find his luggage in a carousel or to relocate his seat on a train after getting up. After consultation with the team, he now has a new strategy, whereby he tags his luggage or seat with a tracking device, using his voice-controlled smartphone to activate its sound alert.

The year-long course, Design of Assistive Technology: Principles and Praxis, is led by Dr. Stefanie Blain-Moraes, Assistant Professor, SPOT (pictured). (Philip Fine)

TRUST YOUR GUT



Dr. Corinne Maurice studies viruses that don't make you sick. These virtuous viruses are "not like the flu virus, HIV or Hep C," says the Assistant Professor, Department of Microbiology & Immunology. They're called phages, and the ones she studies are located in the gut, where they eat up bacteria. Maurice is trying to better understand their overall importance in the balance of a healthy gut. She compares the gut microbiome to the African savannah; its bacteria are antelopes and its phages are lions that attack the antelopes. She looks at how phages interact with bacteria in healthy individuals. "We have bacteria and viruses in and all over our body, but what's incredible is the amount and diversity," says the Canada Research Chair in Gut Microbial Physiology. "My particular niche is in finding out what these phages are doing." It could one day become commonplace for patients to provide a swab or sample to receive a prescription based on their unique microbiota. "Knowing your bacteria, we would know which antibiotic or which viruses to give you to make sure that the pathogens are eliminated without altering your 'good' bacteria." (Philip Fine)

CLOSING THE GENDER GAP

Dr. Lisa Münter became a mother when she was a post-doctoral fellow in Germany. When she returned to work, her research centre paid for a student to help her three days a week for a year. That meant she could complete experiments and get home at a decent hour. It also meant she could continue her career and remain competitive. Today, she is an assistant professor in the Department of Pharmacology & Therapeutics, where she helms an Alzheimer's research lab.

Münter beat the odds. While nearly half of all doctorates and postdocs are women, around one in three make it to assistant professor and one in five to full professor.

This past year, Münter and Bobbi Bidochka, a research officer in the same department, launched Win4Science to help close the gender gap across the Life Sciences programs at McGill.

Münter points out how the most competitive age in academia is the late 30s. That's the age many women drop out to start families. "People think these women had a choice, but they had no choice. They did not have the support."

Inspired by the Women in Physics initiative at McGill, Win4Science has held seminars on impostor syndrome and unconscious gender bias, and will soon launch a mentorship program to show young women what a successful female career in academia can look like.

They also hope to raise funds to provide trainees who are new mothers with some assistance in the lab, help with domestic duties or child care at a conference, so that they will be more likely to continue with a scientific research career. (Philip Fine)

W**n**
4SCIENCE

HACKING THE GENDER GAP



GENDER LOVING CARE

“As the cultural conversation around gender and sexuality changes, how do alumni incorporate it into their work?” asks Medicine Focus.



In 1999, psychiatrists Karine Igartua, MDCM’94, Dip Psych’99, PGME’00, and Richard Montoro, MDCM’91, PGME’97, MSc’01, founded the McGill University Sexual Identity Centre (MUSIC) as a safe space for people to open up about gender and sexuality. Two decades later, it still fulfills that same role but the conversation has shifted.

The psychotherapy clinic began serving the LGBTQ+ community by treating clients with sexual orientation issues. “We used to see a lot of people with internalized homophobia, who had trouble coming out, either to their families or to themselves,” says Igartua. While the two associate professors in the Department of Psychiatry still witness such difficulties—particularly in ethnic communities, as well as in many of their elderly clients, lately the people who are referred to the clinic are more likely to be transitioning or questioning their gender. Montoro notes that the majority of their gender identity referrals are under the age of 25. “We’re seeing a lot of adolescents trying to figure out their gender.”

Igartua, like Montoro, stresses that gender identity covers a wide spectrum. “A lot of people feel like they don’t fit in the box that they were assigned, and so they feel the need to jump to another box. But sometimes we just need to expand what it means to be female, what it means to be male. And people will find different ways of feeling comfortable with themselves.”

Montoro adds, “What we try and do is meet people where they’re at and accompany them in the process.”



“Gender has an impact on everyone, regardless of orientation or identity,” says general internist and cardiovascular epidemiologist Louise Pilote, MDCM’85, PGME’88. According to her research, gender can even help predict health outcomes.

She runs Genesis, a group of 50 investigators that looks at sex and gender as determinants of cardiovascular diseases. Their work makes a clear distinction between sex, namely the biology that makes men and women different, and gender, which takes in gender identity, roles and relations, as well as how individuals are perceived and present themselves.

Genesis developed a questionnaire ranking people of both sexes on a gender continuum, based on factors traditionally ascribed to men and women in our society. The questions cover a range of topics from roles (such as caring for and disciplining children) to personality traits (such as sensitivity to risk-taking).

The team looked at 1,500 people who had suffered heart attacks. “In terms of outcomes, whether you’re a man or woman, if you’re more traditionally female gender, you’re more likely to have a second heart attack after having a first one.”

The results could have vast implications for researchers, who tend to study subjects only on the basis of their biological differences. Pilote emphasizes that men and women are not exclusively male or female and that they are distinct from their biology.

She says the LGBTQ+ community has brought awareness of gender to the fore, and that we should now extrapolate that work to health determinants.



Georges Sylvestre, MDCM’92, PGME’97, an obstetrician and gynecologist at Mount Sinai Hospital in New York City, teaches medical students and residents to avoid heteronormalization. “Don’t assume your patients are straight,” he says. “Coming into a room, asking a woman, ‘Where’s your husband?’ when the woman next to her is her wife. Or pushing a patient into discussing birth control. Good in most contexts, but, if the patient is a lesbian and had a sperm donor, it’s safe to assume she will not need birth control.”

Sylvestre and husband David Margolis are the fathers of two boys born by surrogate. He helps other gay men who seek to become biological parents via the group Men Having Babies.

He tells prospective parents not to stress over such things as choosing an egg donor with the best family health history or the greatest musical talent. “The truth is, all of us have junk in our DNA.”

More important, he explains, are surrogacy costs, which he estimates at 100,000 to 150,000 USD. He also cites the patchwork of state laws. His group offers financial aid and legal advice to prospective parents. (Philip Fine)



DODMAN
ATRIUM



OWEN EGAN/JONI DUFOUR

WHAT BRINGS YOU HERE?

Three recent recruits to McGill's Rosalind & Morris Goodman Cancer Research Centre (GCRC) tell us what drew them there.

For Dr. Ian Watson, who joined in 2015, it was the opportunity to work with melanoma experts across the city's hospital networks, as well as to interact with cancer researchers from a multitude of disciplines.

Watson specializes in melanoma genomics, using computational biology and in vivo studies to look at how genetic mutations cause the disease and affect treatment outcomes. His research has already led to new insights, identifying new somatic strains in the genome linked to UV exposure.

Before coming to McGill, Watson was a postdoctoral fellow at the Dana-Farber Cancer Institute in Boston and the Department of Genomic Medicine at MD Anderson Cancer Center in Houston.

Up until 2011, there was no effective therapy to treat metastatic melanoma. The median survival was six to nine months for late-stage patients. Now, less than a decade later, three-year survival data shows survival rates as high as 55% for patients treated with immune therapy. Still, Watson believes the prognosis can be better. "We've come so far," he says. "The melanoma research community has made a major impact on patient outcomes, and melanoma has become a model disease for how to treat other cancers." He aims to study therapies that can be used in combination with immunotherapy.

In August 2017, husband and wife Dr. Logan Walsh and Dr. Daniela Quail made the move from Memorial Sloan Kettering Cancer Center in New York City to the GCRC because they were attracted by its collegial spirit.

Walsh, who spent his early years in Montreal, is working closely with other scientists and clinicians to build a Lung Cancer Network. The brainchild of GCRC Director Dr. Morag Park, the Network will bridge gaps in lung cancer expertise by encouraging hospitals and research centres across Montreal to join forces in a process that will also involve patients.

Montreal has one of the highest numbers of lung cancer patients. "The GCRC does provide this unique opportunity to study this disease because you have a lot of patients to study, but also it's somewhat of a moral responsibility," says Walsh.

Walsh uses a wet lab and computational lab to sequence human tissue samples to study targeted therapies and biomarkers. He focuses on identifying the genomic mutations that promote tumours and metastasis in lung cancer patients. As he explains, lung cancer is responsible for nearly one third of cancer-related deaths, but lung cancer research remains underfunded. Survivorship is low, Walsh says, and the social factors of the disease, such as smoking, are stigmatized as personal failings.

As it is for many cancer researchers, the fight against cancer is personal for Quail. She is inspired by several family members and close friends who have struggled with the disease.

She looks at how therapies can target the cells surrounding tumours, which make up the "microenvironment." By finding out what keeps tumours alive, she hopes to redesign microenvironments to be inhospitable to tumour growth. Chemotherapy targets tumours directly, but it can also attack normal cells that divide rapidly such as in the stomach lining, which leads to side effects like nausea. "If we can change the behaviour or composition of the microenvironment, we may be able to avoid these harsh side effects." (Michelle Pucci)

Pictured: Walsh, Watson and Quail at the GCRC.

ANOTHER DIMENSION

THE ART AND SCIENCE
OF 3D PRINTING BODY PARTS

/ by MICHELLE PUCCI /



“IN 1875 I RETURNED FROM ABROAD HAVING BEEN APPOINTED DEMONSTRATOR OF ANATOMY WHILST IN VIENNA,” WRITES FRANCIS J. SHEPHERD, MDCM 1873. “I ALSO STIRRED THINGS UP.”

Shepherd revolutionized the teaching of anatomy at McGill by moving the focus from the lecture hall to the dissection room.

Today, the tradition of “stirring things up” and “learning by doing” continues at the Faculty via a new generation of trailblazers who have embraced the possibilities presented by technologies such as 3D printing.

Dr. Geoffroy Noël is a prime example.

Like his predecessor, Shepherd, Noël picked up his anatomical skills in Europe, in his case, at Normale Supérieure in his native France. His initial experience, dissecting a brain with a fellow medical student, sparked an interest in neuroanatomy, a topic he went on to teach as a graduate student at the University of British Columbia.

Since settling in Montreal in 2014 to become director of the Faculty’s new Division of Anatomical Sciences, he’s made it his mission to bring more students into the anatomy laboratory. “When I took on the Division, only Medicine and Dentistry were involved in the lab on a regular basis,” he says. He has since opened up the facilities to students from the School of Physical & Occupational Therapy (SPOT) and the Ingram School of Nursing (ISoN). Under this silo-breaking approach, SPOT students teach medical students who, in turn, reinforce what they have learned by teaching it to their peers in Nursing.

“Health care professions that have a patient in hand should really know the anatomy in order to safely treat a patient,” he says. “The downfall of this is that not all the students have enough time to do all of it. That’s why you need to have complementary tools.”

By complementary tools, Noël means 3D-printed models or haptic simulations, virtual models that can be modified, stretched and rotated on a computer, and are responsive to such cues as a hard or soft click of a mouse.

Noël’s first forays into 3D printing included brain stems and ventricles. He also created sinus models for the Department of Otolaryngology to use to teach bone drilling, and heart models on which students could practice their ultrasound skills.

His current goal is to have 3D-printed models available for every student to take home. His division is in the process of acquiring a new printer, the Ultimaker 3, which will add to the growing number of printers already available across campus. It is his hope that students will be able to make low-cost models to rent or sell to one another.

At the same time, Noël is overseeing renovations of the anatomy laboratories in the Strathcona Anatomy Building, a project that will update equipment, open up work spaces and re-invite natural light through the mullioned windows.

His efforts have earned the notice of students. The Medicine Class of 2015 awarded him the Osler Outstanding Teacher Award, intended for the teacher with the greatest influence on their future careers.

HAVE BRAIN, COULD TRAVEL, BUT...

A ten-minute walk away from the Strathcona lies the Steinberg Centre for Simulation and Interactive Learning (SCSIL). It was at the Centre, which occupies 31,000 sq. ft. of space on the lower level of the Galeries du Parc mall, that Dr. Ricardo Faingold, Assistant Professor of Diagnostic Radiology and Program Director of Pediatric Radiology at the Montreal Children's Hospital of the MUHC, first unveiled his creation, a relatively easy-to-make, low-cost baby brain phantom.

A phantom is similar to a 3D-printed model, only made of a softer, transparent gel-like material. In pediatric and radiology training settings, baby brain phantoms are an inexpensive tool used to teach head ultrasound techniques. Head ultrasounds are only possible for infants up to twelve months old. As long as the soft spot, or fontanelle, has not yet closed, ultrasound waves can still pass through.

According to Faingold's research, when residents practise performing ultrasound scans on brain phantoms, the quality of the images on their actual scans then improves.

To create one of his brain phantoms, Faingold begins with the MRI of an infant segmented and sliced into images. Based on that, he 3D prints brightly coloured plastic brain models. These models are used to create a silicone mold that is flexible and filled with a polyvinyl alcohol cryogel solution. When the mold is removed, the result is a spongy phantom brain. Kept in a cylindrical plastic container filled with water, the phantom is portable and keeps well in the fridge. The brain is so detailed that ultrasound images capture features of the brain's cerebral hemispheres and ventricular system.

Faingold has donated a few of the phantoms that he has created to colleagues in Toronto, Boston and Florida. His main focus now is on using the model for teaching at McGill.

When asked whether he can envision an application for his phantoms in the developing world, Faingold explains that although there is a need for this kind of affordable, accessible tool, there are also many barriers.

As an example, he cites his own experiences at Maputo Central Hospital in Mozambique, teaching staff and residents to perform ultrasounds and other radiology exams. There, he found donated ultrasound equipment left in unopened boxes for lack of assembly know-how—all the more disappointing because ultrasounds are inexpensive, making them more useful for diagnostics in places with fewer resources. Faingold taught staff in the hospital's Neonatal Intensive Care Unit to use ultrasounds to identify life-threatening conditions. "With the premature babies, we have to do these ultrasounds next to them at their bedside," Faingold says. "It's very important to train residents well before they go and perform these exams on sick newborn babies."

Although the brain phantom could contribute to training in places like Mozambique, and is easy to make and store, Faingold now hesitates to travel abroad with it. "It's okay when you are transporting the phantom by car or by plane domestically," he says. "But when you start crossing borders, it gets more complicated." The materials—what looks like a refrigerated baby brain floating in water—can arouse suspicion. So, Faingold is developing a digital "phantom brain," which can be used to teach, without causing a stir about potential biohazards at customs, or raising questions about why a foreigner might have a brain in his luggage. >

MORE BRAINS

The legacy of a 65-year-old brain donor has given neuroscientists the BigBrain, the most comprehensive digital map of a human brain, and it's still getting better. BigBrain is "the largest three-dimensional brain atlas that has been created so far," says Dr. Alan Evans, a James McGill Professor of Neurology and Neurosurgery, Psychiatry and Biomedical Engineering at McGill University. The atlas provides mapping on a cellular level. A single voxel, which is like a pixel that occupies space in three dimensions, is 20 microns by 20 microns by 20 microns. Compared to an MRI, which generates images with pixels 1,000 microns wide and long, the BigBrain contains exponentially more information.

"The BigBrain was, in many respects, a labour of love. It wasn't something that was central to what my lab was doing," says Evans, who is a co-director of the Ludmer Centre for Neuroinformatics & Mental Health. The BigBrain is the product of ongoing collaboration between the McGill Centre

for Integrative Neuroscience and Germany's Jülich Research Centre. The brain, donated from a man who died of non-neurological causes, was "deli-sliced" in Jülich, Germany, into 7,404 slices. These slices were scanned and sent to researchers at McGill, who digitally reconstructed the brain into an open-access program. The BigBrain dataset was published in 2013, but by that time the program was already a decade in the making. Over 25,000 groups have downloaded the dataset, and researchers have access to CBRAIN and LORIS, two open-source high-performance computing software programs used for analyzing the BigBrain's dataset.

The atlas is the modern reference for neuroscientists and a resource for training and ensuring surgical precision. For example, before implanting a deep stimulation device to reduce tremors in a patient with Parkinson's, a neurosurgeon can superimpose the patient's MRIs on the BigBrain to increase precision. (Michelle Pucci)

ANOTHER KIND OF BODYBUILDING

For centuries we've learned about the body by opening it up and studying its parts, but new technology also allows us to understand systems better by rebuilding them. In his lab, Dr. Christopher Moraes is trying to create miniature lungs to eventually test new drug technologies. Tricking cells into responding as though they are in an actual lung means having an environment that mimics the organ, for example, by contracting and expanding the way lungs do when breathing.

"I'm interested in thinking about cells not just as being little sacks that sit around and passively do the things they're supposed to do," says Moraes, who is the Canada Research Chair in Advanced Cellular Microenvironments, Assistant Professor in the Department of Chemical Engineering, and Associate Member of the Department of Biomedical Engineering and the Rosalind & Morris Goodman Cancer Research Centre. "Instead, a cell is this wonderfully dynamic structure, which figures out what's going on around it, rebuilds its surroundings and adapts in order to keep systems functioning."

Moraes is developing hydrogels using synthetic and semi-synthetic materials to match the fibrous surroundings of the cells. He uses tools from the semiconductor industry to study cells by creating the necessary supporting microstructures.

"If we're able to build these tissues in the lab and watch them undergo disease processes, we can watch disease happen at the cellular level," Moraes says. "And if you can watch disease happen, you can figure out new ways of addressing it."

Tissues are built on a device half a centimetre wide and long, sitting on a glass slide smaller than a credit card. It doesn't look like a lung, but the idea is to simulate an environment that makes a lung cell feel at home, says Moraes, who works with Physiology Professor, Dr. John Hanrahan, Director of the Cystic Fibrosis Translational Research Centre at McGill. If done right, the lung-on-a-chip can be scaled up to carry out drug screens with thousands of simultaneous experiments. "The screening process is quite challenging, and it takes more and more money to produce fewer and fewer truly novel drugs," Moraes says. "This could make screening more efficient, and shorten the drug discovery pipeline." (Michelle Pucci)



MED E-NEWS

“My goal is to, maybe within six months or a year, create a new sort of technology, what I’m calling the virtual brain experience,” Faingold says, adding that software is sometimes an easier sell than a physical model when it comes to this kind of training. “It’s easier to be accepted as opposed to a product that you buy and sometimes have to maintain.”

THE SIZE AND FEEL OF AN ARTERY

Increasingly, major steps forward in medicine require collaboration with other disciplines. In 2016, a multidisciplinary team of McGill researchers led by Dr. Jake Barralet, now Director of Innovation, SCSIL, received \$1.6 million from the Natural Sciences and Engineering Research Council of Canada to develop surgical devices and foster “innovation-oriented” graduate students. The program, Collaborative Research and Training Experience (CREATE), brings together students of surgery, business and engineering to develop technology for health care and industry.

Justine Garcia, a PhD candidate in the Department of Mechanical Engineering, is one of those graduate students. Using an Objet500 Connex3 (Stratasys) printer, Garcia and collaborators seek to 3D print aortic tissue with patient-specific properties.

“At first we chose to use 3D printing because you can create any shape you want. That is quite important because the model that we want to create needs to have the right geometry of our patients,” Garcia says. Surgeons can train for surgery using models created with patient organ dimensions, or using models that mimic bulges caused by aneurysms and calcium deposits along the aortic wall.

“Compared to other methods, it’s very easy to do, but when we use 3D printing we are very limited in terms of material,” Garcia says.

No single material available for 3D printing can mimic the tissue of an aorta. Models of the vascular system available for training purposes are unrealistic. They are often made from hard plastics, are oversized, and don’t represent different properties of diseased tissue. Cadavers donated for medical training are expensive to maintain and limited in availability.

In order to print an object that resembles the size and feel of an artery, Garcia developed a new material with her supervisors, Associate Professor of Surgery Kevin Lachapelle, MDCM’88, PGME’95, Associate Professor Rosaire Mongrain in the Department of Mechanical Engineering and Professor Richard Leask in the Department of Chemical Engineering. The new material is composed of the following three parts: rigid fibres, a flexible structure and brittle support.

“It’s a tool to reduce the use of cadavers,” Garcia says. “But also it’s a tool that gives students a chance to train well before going into a real surgery.”

“You could take a patient’s specific anatomy and pathology, print it out, and actually do the procedure beforehand,” says Lachapelle, Interim Director of the SCSIL, where he was also the founding director. “For trainees, you could create hundreds of these kinds of encounters. From a surgical perspective, that normally would take years for you to encounter if you are just waiting for those kinds of things to happen on your clinical rotations.”

Garcia’s PhD involves mechanical testing on aortic tissue and the composite material for 3D printing, and the similarities are promising. Surgeons are now testing the models and offering feedback. Next, researchers will work towards introducing a blood flow to the models, to better simulate the cardiovascular system. Eventually, residents could practise their cutting and suturing on aortic tissue connected to a heart that is pumping blood and enveloped by a ribcage and model chest.

COMPLEMENTARY APPROACHES

McGillians have used 3D printers to build an ice sculpture of our University’s founder, as well as parts for the Mars Rover. “Printing is nothing,” Noël says. “It can take between two to six hours.” It is the prep work beforehand that is more demanding. Working with Robert Funnell, BEng’69, MEng’72, PhD’75, Associate Professor, Department of Biomedical Engineering and Otolaryngology, Noël has created a collection of medical images for 3D printing.

Selecting the right printer for the project is important, he says. Different printers use different types of materials and can achieve different levels of detail. And when it comes to producing body parts with realistic properties, there are fewer materials from which to choose. Noël uses thermoplastic urethane, for flexibility, or polylactic acid, for the cheapest option.

Can 3D printing and virtual simulations replace the experience of being in an anatomy lab? Not according to Noël, for whom dissection remains an essential. In the lab, he points out, students are learning many other valuable skills such as professionalism, ability to work in teams, and a respectful approach to death: “There is a lot of psychosocial development that is happening with cadaveric material that would not be the case with 3D-printed material.”

On a technical level, 3D printers can’t replace planes of fascia, the connective tissue that is integral to the relationships between structure.

And no model can replicate the way pathologies, variances and donor history impact the anatomy, Noël says.

STIRRING THINGS UP, MIXING WORLDS

Simulation technology like Garcia’s 3D-printed aorta is intended to prepare surgeons before they set foot in an operating room, but the research has its roots in real-life situations. For Garcia, embarking on this project meant embracing a world of medical technology, and also entering an operating room for the first time.

She remembers the sounds of cutting bone, but also the cooperation between surgeons and technologists. “It’s beautiful like choreography. When you see all those people, they know what to do, and they do it together.” 🦋

COMPLEX GEOMETRIES



COURTESY OF KATHRYN CLANCY

Kathryn Clancy, MEng'16, first delved into the world of 3D printing as a Biomedical Engineering graduate student at McGill.

"I was interested in how biological materials interact with 3D-printed material," Clancy says. "Looking at the biocompatibility of medical devices, I wanted to know, what are the hurdles of 3D printing for health care?"

Now a project manager at 3DHEALS, a company that promotes the medical applications of 3D printing, Clancy says that although the technology has been around for over thirty years, many of the applications have only emerged in the past decade. For years, producers of hearing aids and dental aligners have used 3D printing to achieve a custom fit. In medical settings, printing now regularly extends to prosthetics, wearable technologies, implants, simulation tools and bioprinting, that is the printing of body tissue.

The Victoria Hand Project based in British Columbia designs and prints prostheses for amputees in developing countries. Surgeons successfully implant patients with 3D-printed titanium jaws. McGill and other universities print organs and other body parts for training purposes. Companies such as Organovo bioprint liver and kidney tissue for drug testing.

What is the appeal of 3D printing? According to Clancy, the answer is three-fold. This technology can manufacture products that are specific to the patient, complex enough to serve new functions and can be printed from anywhere in the world. "You can create these very complex geometries that would not be possible or would be very difficult with traditional manufacturing. These different lattice-bearing structures or this small detailed structure that can enable more cells to move throughout the implants are not as possible with traditional manufacturing," Clancy says. In places without access to quality surgical tools, NGOs can 3D print casts, surgical instruments and prosthetic limbs.

In Canada and the United States, 3D printing is gaining ground in medical settings, but developing new health care products means overcoming regulatory hurdles and maintaining a standard of quality control for a burgeoning industry, Clancy cautions. (Michelle Pucci)

NEW HOME FOR HANDS-ON LEARNING IN NURSING

Clinical education offered by the Ingram School of Nursing (ISoN) just got a big boost. With their move into new expanded quarters in August 2017, the ISoN is now home to state-of-the-art learning laboratory spaces. Among them are: acute care wards for skills acquisition and health and physical assessment; a critical care ward focusing on complex and emergency physical care needs; and a one-bedroom apartment for simulation of home visits in the community. All areas are fully equipped with interactive technology and simulated teaching aids.

The new spaces and equipment are brought to life for students thanks to the newly hired ISoN laboratory technicians, educators and standardized patients. The decision to expand lab spaces and clinical education for nursing came as a result of revisions to the ISoN's curricula, following a comprehensive examination of best practices in education, and identification of crucial nursing competencies required in today's health care environments, with a focus on heightened clinical skills.

With these new amenities, the ISoN hopes to continue creating environments for students to excel, to innovate, and to be proud ambassadors of the nursing profession as they prepare for their careers on the front lines of public and global health. (Christina Kozakiewicz)

Pictured: BScN students Victoria Greco, BSc'16, and Samantha Champagne, BSc'17, with Hugo Marchand, BN'13, Academic Director—Learning Laboratories, Ingram School of Nursing.







SECRETS TO A LONG AND HAPPY LIFE

/ by MARK WITTEN /



COURTESY OF JOYCE STEIN

THE FAMILY OF EDITH LEVY, MDCM'42, WAS PLANNING FOR HER 100TH IN JUNE WHEN SHE PASSED AWAY ON MARCH 24, 2018. WAS SHE THE OLDEST LIVING MDCM, THEY WONDER. AND TO WHAT MIGHT SHE HAVE OWED HER LONGEVITY, WE ASK.

“Athletics and social skills,” says daughter, audiologist Joyce Stein, BSc’65, MSc(A)’67. “My mother was a social animal and she kept herself very active. She had a million friends and took care of them all.”

Hailing from New Orleans, Levy started her medical training at Louisiana State University, where she was one of two women in the class. When she transferred to McGill, it was to the Medicine class with the largest female cohort in the history of the Faculty. The ten coeds formed a close bond. “In the summer, they all did a rotation together at the Montreal Maternity,” says Stein.

At graduation, Levy took the Campbell Howard Prize in Clinical Medicine, ranking in the top ten of her class. She did not go into medical practice, one of her life’s few regrets—and, points out VP-Dean David Eidelman, MDCM’79, a reflection of the challenges faced by Levy’s generation of women physicians. “Someone like her who graduated at the top of her class could have run her own laboratory,” he says, “rather than simply being a team member.” As it was, she worked in the blood lab of fellow Southerner Dr. Louis Lowenstein, studied heart sounds with Harold Nathan Segall, MDCM’20, DSc, and conducted pioneering Alzheimer’s research at the Jewish Hospital of Hope with former classmate, Bob Levine, BSc’40, MDCM’42, DIP SURGERY’51.

Levy, who was married at 21 and expecting by convocation, leaves behind ten grandchildren and 19 great-grandchildren. Two of her grandkids are McGill-trained doctors, Robert Stein, BSc’93, MDCM’97, PGME’00, and Alison Stein, MDCM’98, as is her son-in-law, Lawrence Stein, BSc’64, MDCM’68. Her son

David Levy, DSc, is a famous astronomer who has discovered many comets and asteroids, including Asteroid Edithlevy, named in her honour.

Joyce explains that her mother lived the good life for virtually ten decades by being physically, mentally and socially active at each stage. Levy sailed and played lots of golf, still hitting the greens well into her 90s. She enjoyed her family and was always surrounded by people, whether at the club or with her bridge group.

She also continued to educate herself. “She took courses at McGill later in life to go back to work at the Montreal Children’s Hospital in genetics.” There, she worked alongside one of the creators of the field, F. Clarke Fraser, MSc’41, PhD’45, MDCM’50, DSc.

Of her colleagues, Segall would live to 101, Levine, to eight days shy of 99, and Fraser, to 94.

Although a stroke a few years ago had slowed Levy down considerably, she still went, this winter, to the gym in her building twice a week with physiotherapist Mina Tehila Schacter, BSc(PT)’99, to put in her twenty minutes on the stationary bike.

Levy gave this advice to her grandchildren at age 86: “There are some lessons learned from a long life and wisdom that comes from age. Appreciate the importance of family and keep the family ties strong. Be there for all the special occasions and the not-so-special occasions.” A life well lived will pay dividends through the generations. “Don’t be afraid to give your children guidance. Set an example in how you choose to live. Try to be someone of whom they can be proud,” she said.



CHRONIC STRESS DAMAGES THE BRAIN'S MEMORY SYSTEM, ACCELERATES AGING AND CONTRIBUTES TO THE DEVELOPMENT OF ALZHEIMER'S DISEASE."

And the science says...

For those of us who are inspired by Levy and others of her ilk, what factors are scientifically known to contribute to longer, happier and healthier lives? To find out, Medicine Focus invited a panel of clinicians and researchers to weigh in with some evidence-based advice.

Boost brain health

1. What's good for your heart is good for your brain.

It turns out that the lifestyle prescriptions that keep your heart healthy are just as important for boosting your brain health, and in helping to prevent or delay the onset of Alzheimer's disease (AD). According to Dr. Serge Gauthier—Director of the Alzheimer's Disease Research Unit at the McGill University Research Centre for Studies in Aging, Douglas Mental Health University Institute—and Dr. Pedro Rosa-Neto—a clinician scientist at the Douglas and Acting Director of the Centre—research shows that ongoing physical, mental and social activities have protective cognitive benefits. Being active in these ways were hallmarks of Edith Levy's life from her youth through middle age and into her 90s.

"Physical exercise is the best for prevention. But education and keeping your mind active throughout life, especially after retirement, and social interaction are also important, especially in strengthening brain resilience or brain reserve," says

Gauthier. Some recent studies have even shown that aerobic exercise may reduce the levels of tau and amyloid proteins, which accumulate in the brain and damage it to cause AD, says Rosa-Neto.

Gauthier sees special advantages in doubled-barrelled activities, like belonging to a book club, compared with just reading on your own. "You get the mental stimulation and the social interaction in a book club, which is as important as what you read," he explains. Avoiding chronic stress has preventive benefits too. "Chronic stress damages the brain's memory system, accelerates aging and contributes to the development of AD," explains Rosa-Neto.

A key research goal of the Centre for Studies in Aging is to focus more intensively on personalized interventions to prevent or treat people in the pre-clinical phase of AD, where the person has harmful tau or amyloid proteins accumulating in the brain, or vascular changes, but no symptoms.

"Lifestyle interventions are important for everyone," says Gauthier. "However, since the relative weight of various pathophysiological components of AD will be different over time and will even change over time for each individual, a 'one drug fit for all' approach is no longer defensible. Precision medicine using biomarkers in the diagnosis and treatment of AD is the new strategy. We'll do smaller clinical trials that target high-risk patients before they have symptoms and we'll know within two years whether the drug works," he says.



2. What's good for your mind is good for your brain.

Studies show that education in childhood can impact levels of cognition decades later. Neuroscientist Lesley Fellows, BSc'90, MCDM'96, PGME'01, suggests there is a strong social justice argument for investing in childhood education to prevent brain health issues later. "What's good for your mind is good for your brain. High educational attainment may be good for your brain, in that it is associated with a lower risk of cognitive decline in later life," says Fellows, Assistant Dean, Academic Affairs, and Professor in the Department of Neurology & Neurosurgery, adding that, from a policy perspective, it makes sense to start planning for healthy aging from early childhood on.

Your brain also thrives on meaningful interactions and connections with a huge hive of family, friends and community. "The bigger your social network, the more you use your social brain." Social support and social relationships, the more of these you have, the better off you are, says Fellows.



THE BIGGER YOUR SOCIAL NETWORK, THE MORE YOU USE YOUR SOCIAL BRAIN."

Care for your aging voice

3. Keep your voice in optimal condition by drinking lots of water and resting it when you're sick.

"Don't take your voice for granted," says Tara Casorso, MSc(A)'16, noting people often don't pay attention to their voice until they develop a problem. "For humans, our voice is one of our main avenues for communication and social connection, so taking care of it is very important to our well-being," says Casorso, who works as a Speech-Language Pathologist with Island Health in Victoria, British Columbia.

Research shows some voice problems can be caused by changes due to aging, such as shrinking of the muscles, stiffening of the ligaments, or changes in respiratory function. But Casorso offers a few practical, preventive tips to help keep your voice in optimal condition: "Warm up your voice in the morning with simple exercises that include humming, gliding from a high pitch to a low pitch and vice-versa, and lip/tongue trills. Cool-down exercises that you can do in the evening relax the vocal muscles and include yawning, humming and sighing. Also, get lots of sleep. Our vocal muscles and tissues are rested and repaired during sleep," says Casorso.

Wise nutritional choices help prevent metabolic disorders

4. As calorie requirements fall with age, especially after 50, and nutrient needs stay the same, eat a more nutrient-dense diet and fewer “free calories” that accumulate as fat.

Healthy eating, along with regular physical activity, is key to maintaining a healthy weight and reducing the risk of metabolic syndrome, advises José Morais, PGME’94, Director of the Division of Geriatric Medicine, School of Dietetics and Human Nutrition, Department of Experimental Medicine, and Associate Director, Quebec Network for Research on Aging. “The characteristic features of metabolic syndrome—large waist, hypertension, abnormal cholesterol profile and elevated blood glucose below the threshold for diabetes—are a well-recognized risk factor for heart disease and the development of diabetes. Metabolic syndrome also affects mobility when body mass is above 27 kg/m². One simply cannot maintain a healthy weight without controlling dietary intake,” says Morais.

Wise dietary choices evolve as we age, however: “In middle age, one needs to reduce caloric intake to prevent obesity. At an advanced age, one needs to maintain intake to prevent weight loss, a condition contributing to frailty.”

The wide-ranging benefits of eating a healthier diet and being more physically active were demonstrated in research by Morais and collaborators in the Quebec Longitudinal Study on Nutrition and Successful Aging, aka the NuAge Study. “Those participants who were more physically active and eating a healthier diet were less likely to lose muscle mass over three years. They were also more likely to maintain better physical performance in tests such as gait speed and chair rising capacity, perform better in cognitive tests and have better mood,” he says.

Recent advances in cancer metabolism research also suggest that too much insulin in the blood, common in obesity, can promote tumour growth. Eating too much sugar can lead to high insulin levels. Metabolism researcher Michael Pollak, MDCM’77, advises the best approach to sugar is to think of it like spice. “Sprinkle sugar occasionally on foods, as opposed to having it as an ingredient in nearly every meal and too many drinks,” says Pollak, Director, Division of Cancer Prevention, Gerald Bronfman Department of Oncology, and Alexander Goldfarb Research Chair in Medical Oncology.

“IN MIDDLE AGE, ONE NEEDS TO REDUCE CALORIC INTAKE TO PREVENT OBESITY. AT AN ADVANCED AGE, ONE NEEDS TO MAINTAIN INTAKE TO PREVENT WEIGHT LOSS, A CONDITION CONTRIBUTING TO FRAILITY.”

Social connectedness as preventive medicine

5. Maintaining strong social connections with your family, friends and primary care physician is good for your physical health and emotional and mental well-being as you age.

Dr. Shamiel Alexis McFarlane, an MSc candidate in Family Medicine, examined the role and attitudes of primary care physicians in improving access to care and the health outcomes among the socially isolated elderly in rural Jamaica for her thesis project.

“I want to implement a pilot project to create an accredited community outreach program that would take physicians to isolated older people in the community and the physicians would earn the credits needed to renew their license,” says McFarlane, who plans to specialize in geriatric medicine.

While practising as a family physician in Jamaica for eight years before coming to McGill, McFarlane saw firsthand the strong links between social connectedness and physical health. “The longer I was in practice, the more I saw that social issues had just as much impact on my patients’ physical and mental well-being as physical issues. If you’re interested in healthy aging and not being isolated, expand your social network early in life. You’ll benefit when you’re 75 and your kids and grandchildren live three provinces away,” she says.

Managing illness to maintain quality of life

6. Draw on the support of family, friends and nurses to help navigate the health care system while managing chronic or multiple illnesses.

In her dissertation, Fay Strohschein, MSc(A)’05, is exploring treatment decision-making from the perspective of older adults with colorectal cancer. Her study findings highlight the ongoing importance of trust in the health care system for patients as they entered and moved toward treatment. “The trust was shaped both by their interactions with health care providers and their experiences of the health care system. Those experiences, along with the help they often received from family and friends, determined whether or not they chose to trust and received, or continued receiving, treatment,” says Strohschein, a PhD candidate at the Ingram School of Nursing and nurse navigator for senior oncology patients at the Jewish General Hospital.

Nurses play a critical role in supporting the quality of life of older adults in coping with chronic illness. “The rhythms that our health care system imposes on people can be as disruptive as the illness itself, particularly for people managing multiple chronic illnesses. Nurses are often uniquely positioned to address concerns across multiple domains (physical, psychological, social) that can impact well-being. We play an important role in helping patients and families negotiate the health care system, coordinating and integrating care among interprofessional team members,” says Strohschein.



7. Learn the skills to manage a chronic illness over the long run.

Sara Ahmed, BSc(PT)'96, MSc'98, PhD'04, conducts research aimed at improving health outcomes for people with chronic disease. "Chronic illness, as opposed to a short-term acute condition, requires individuals to learn the skills needed to manage their health over the long run. Studies show individuals who learn these skills are likely to be more confident to do the things they need to do to better manage their health, like taking medications as prescribed, staying physically active and seeking help when they need it," says Ahmed, Associate Professor, School of Physical & Occupational Therapy (SPOT).

Her research studies on self-management interventions for asthma, chronic obstructive pulmonary disease (COPD), acquired brain injury and chronic pain have shown the importance of tailoring interventions to individuals' specific needs and the benefits of e-health tools. "E-health solutions can improve disease-specific quality of life by providing the tools to monitor their symptoms and stay connected with their care providers. Monitoring and ongoing communication with the care team helps patients receive recommendations, rather than waiting for a visit at the clinic. This can help prevent exacerbations or deteriorations in health that may result in an emergency department visit and reduced physical and mental health function," she says.

Bioethical concerns with anti-aging claims

8. Stay active and healthy, accept outer changes and beware of "magic bullets."

Bioethicist Jennifer Fishman is all in favour of people aging well. But she has ethical concerns about claims and assumptions made by certain anti-aging practitioners, who promote quick-fix drugs and supplements to reverse aging and extend life. "There are questions about the safety and efficacy of long-term hormone replacement therapy for life extension, for example, and we really don't know enough about long-term effects that could possibly be harmful to health. I don't fault anyone for looking for a magic bullet, but the money spent on these products could be used to do other things that would give people a better quality of life," says Fishman, Associate Professor in the Biomedical Ethics Unit and the Department of Social Studies of Medicine.

Fishman cautions that some implicit assumptions in anti-aging or successful aging marketing can discourage people from a healthy acceptance of normal aging. "There is an ageist element to the successful aging movement, which suggests there's a problem with growing old. It assumes we have total control over the aging process, which we don't, and it may encourage us to blame people who don't age well because they didn't do the right things," she says.

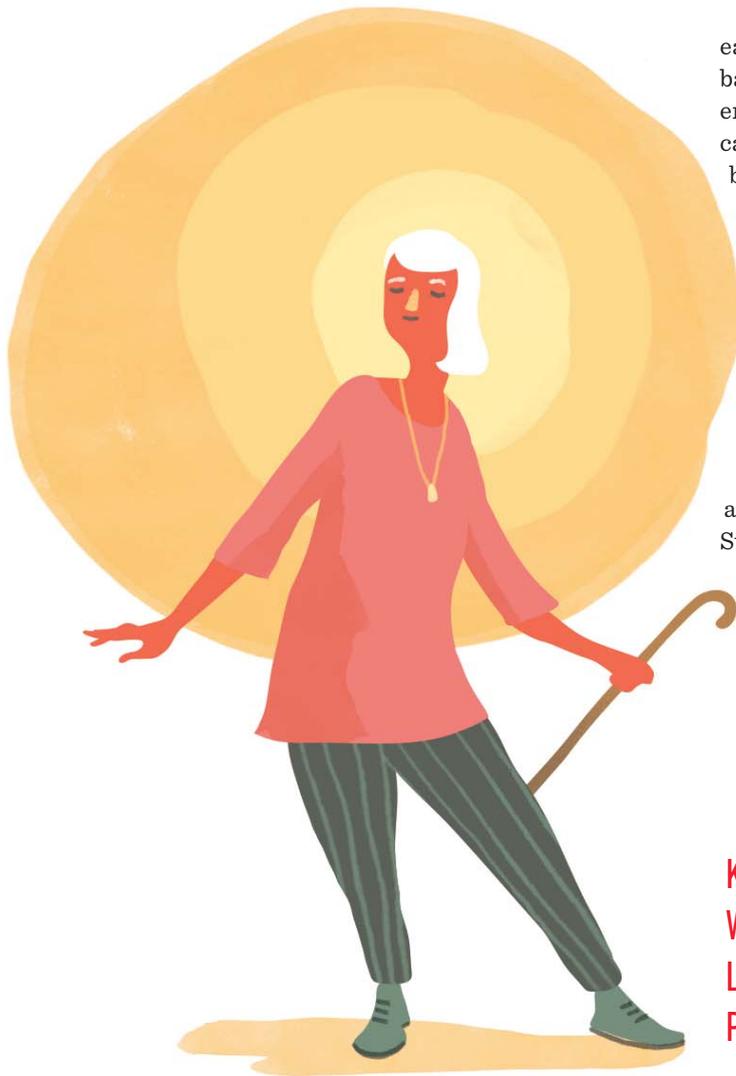
Gerontologists should encourage older adults to stay active and vital, maintain mobility, and accept the outer changes that come with aging. "The golden ticket would be compressed

morbidity, so you extend quality of life and reduce time spent ill later in life. Another essential social goal is to create a society that is more accepting and accommodating to an aging population,” she says.

9. Engage in meaningful occupations that give you satisfaction.

Patricia Belchior, Associate Professor, SPOT, evaluates the effectiveness of video-game training in improving the visual attention skills of older adults. “Research has shown certain types of computer and video games can improve some aspects of cognitive skills among older adults. For instance, our research on visual attention has used games that have certain characteristics, such as the need to react to unpredicted stimuli on the screen and being fast-paced,” she says.

More broadly, Belchior offers this advice for aging well to people living with or without disabilities: “Keep active by playing a sport, dancing or walking. Keep challenging your brain by learning a new language, learning how to play an instrument or learning a new skill. Keep social and engage in occupations that are meaningful and bring you satisfaction. And above all, keep a positive attitude towards the aging process,” she says.



Individualize exercise to improve mobility

10. Set SMART goals to increase your motivation for exercising and gain specific mobility benefits that matter in your daily activities.

As a co-investigator in the pilot study Managing Mobility Outcomes in Vulnerable Seniors (MMOVeS), Sabrina Figueiredo, MSc’10, PhD’17, observed the benefits of a six-month, individualized, exercise-focused, self-management program in improving mobility for seniors after a hospital discharge. “Our findings suggest participants in the MMOVeS group had three times greater odds of improving in any of the seven mobility indicators than participants in the exercise information group,” says Figueiredo, Assistant Professor, SPOT, and Associate Director of the Physical Therapy Program.

Figueiredo believes that adding behavioural strategies to physical exercise programs can get older adults to stick with them and reap the benefits in their daily lives. “Sometimes patients have difficulty in grasping how isolated exercises will improve their performance of daily activities. Adding goals to your exercise routine may increase your motivation to keep exercising. For this to be successful, you need to set SMART goals, which are specific, measurable, attainable, realistic and have a timeframe for accomplishing them,” she says.

Prevention of mobility limitations with aging should start early in life. “Just as young adults are encouraged to invest in a bank retirement plan for the years to come, they should be encouraged to invest in physical fitness during their peak capacity to benefit from the positive effects of exercising as the body ages,” says Figueiredo.

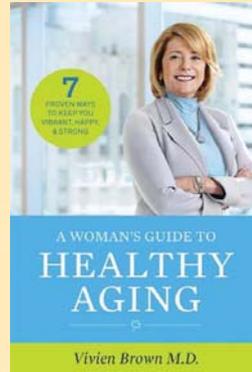
Keep on moving

Young Edith Levy was so invested in physical fitness and social camaraderie that she swam in the U.S. Olympic trials at 17. In the short term, she was denied the opportunity to compete in the 1936 Berlin Olympics because of Hitler. “All the Jewish athletes pulled out of the team, so she never got to go,” says her daughter Joyce Stein. But Levy reaped the long-term benefits of being physically and socially active throughout her life until her final days. Stroke aside, Stein attributes her mother’s relatively good health up until the very end to a lifetime love of activity. “She was never not doing something and then her physiotherapist kept her moving!” 🐦



KEEP ACTIVE BY PLAYING A SPORT, DANCING OR WALKING. KEEP CHALLENGING YOUR BRAIN BY LEARNING A NEW LANGUAGE, LEARNING HOW TO PLAY AN INSTRUMENT OR LEARNING A NEW SKILL.”

AGING WELL STARTS YOUNG



Vivien Brown, BA'75, MDCM'79, author of *A Woman's Guide to Healthy Aging*, shares her top tips on aging well for women. She counsels that the mindset and foundation for healthy aging are best set early in life. "We want to be architects of our future, not victims. The decisions we make when we're young and as we're aging, have a great impact. Start thinking about your health at a young age and the younger you start, the better it is,"

says Brown, Vice-President of Medical Affairs at Medisys Corporate Health and Faculty Advisory Board member, McGill Faculty of Medicine.

Brown cautions women not to neglect their own health in their role as family caregivers. "You need to take the time to take care of yourself, so you can be there in a vibrant, positive way."

Take the long view on diet. "Eating healthy is a lifestyle choice for the rest of your life. It's not to fit into a dress size or to do six weeks on a diet and give up." The MIND Diet—which combines a Mediterranean diet high in fruits and the low-salt DASH Diet—has been shown to reduce dementia risk. "You don't have to be perfect. If you follow it modestly, you still get a benefit," she says.

Brown notes that women represent 70% of new cases of dementia. "Brains do better when people are fit. Exercising even four times a week, instead of seven, is good for your heart, reduces stress and gets better blood flow to your brain. If exercise and healthy eating are never a priority, you'll pay the price with heart disease, diabetes, weight gain, chronic stress and poor brain health."

Bone health is a major, underestimated determinant of women's independence and longevity. "A bone fracture is a significant event. If a woman has osteoporosis and suffers a hip fracture, there is a 25% chance she will die in the first year and 40% chance she will need an assisted living arrangement, such as a nursing home," she says.

Brown recommends women get calcium from dietary sources and walk regularly. "When a woman is physically fit, she's less likely to fracture a bone. We want you to bounce, not break when you fall down." (Mark Witten)

OXFORD EDITION

/ by PHILIP FINE /

Newly minted Rhodes Scholar Alexander Lachapelle, MDCM'18, is Oxford-bound. When it comes to seeking advice, he is well placed: there are many others in the Faculty community who have enjoyed the same honour, including medical students Benjamin Mappin-Kasirer and Melissa Bailey, and faculty members Brian Ward, MDCM'80, PGME'92, Professor, Department of Medicine, and Anne Andermann, BSc'94, MDCM'02, PGME'06, Associate Professor, Department of Family Medicine. Medicine Focus invited these four to share their top travel and networking tips with Lachapelle to help him make the most of his time across the pond as he pursues a PhD in Clinical Machine Learning. We decided to write out their advice in a handy field guide for the benefit of all our readers.



OWEN EGAN/JONI DUFOUR



Find others at McGill who have worked at or been students at Oxford. They will put you in touch with some amazing people.

Send emails to those you think don't have time to meet you. Eminent professors will actually answer and make time for you.

You'll meet individuals who don't just define themselves in one way, as scientists or as doctors. The usual boundaries won't be there.

You'll find yourself coming back at night to your college and finding someone who spent the whole day doing something like reading ancient Aramaic.

Join college sports—rowing and football are good ones—to meet really interesting Oxford undergrads.

Take classes outside the university and attend concerts. Don't spend every night at your college.

Take a day trip to the Cotswolds, where there are quaint villages, or into London for excellent theatre. In Oxford, there is punting at the Cherwell Boathouse. There are also college-related activities, including weekly formal dinners, culminating with the May Ball at the end of term.

Listen to the people who will talk to you about local history. A professor you're walking with might point to a room in a college and say, "You know, that was Oscar Wilde's room." Another person will know everything about the local cathedral.

You will end up with many international colleagues.

Heathrow Airport is a hub for international travel. Who knows, you might find your way to an African or Asian country during your three years at Oxford. You can also get to Paris in just three hours. A four-hour sojourn will get you to the hills of Wales, which are dotted with sheep, and where they have the annual Hay-on-Wye literary festival. It's like Woodstock for intellectuals.

Oxford is a place where non-specific curiosity is valued. Ask questions and let the answers wash over you.

Take in a great Caribbean summer event in East Oxford called the Cowley Road Carnival; visit the local kebab stands; go to whiskey tastings; seek out someone who knows a lot about mushrooms and accompany them to pick in one of the local forests; and if anyone invites you on a ramble (a walk, almost always to a pub), say yes. In fact, if anyone asks you to go for a drink or for dinner, always say yes.

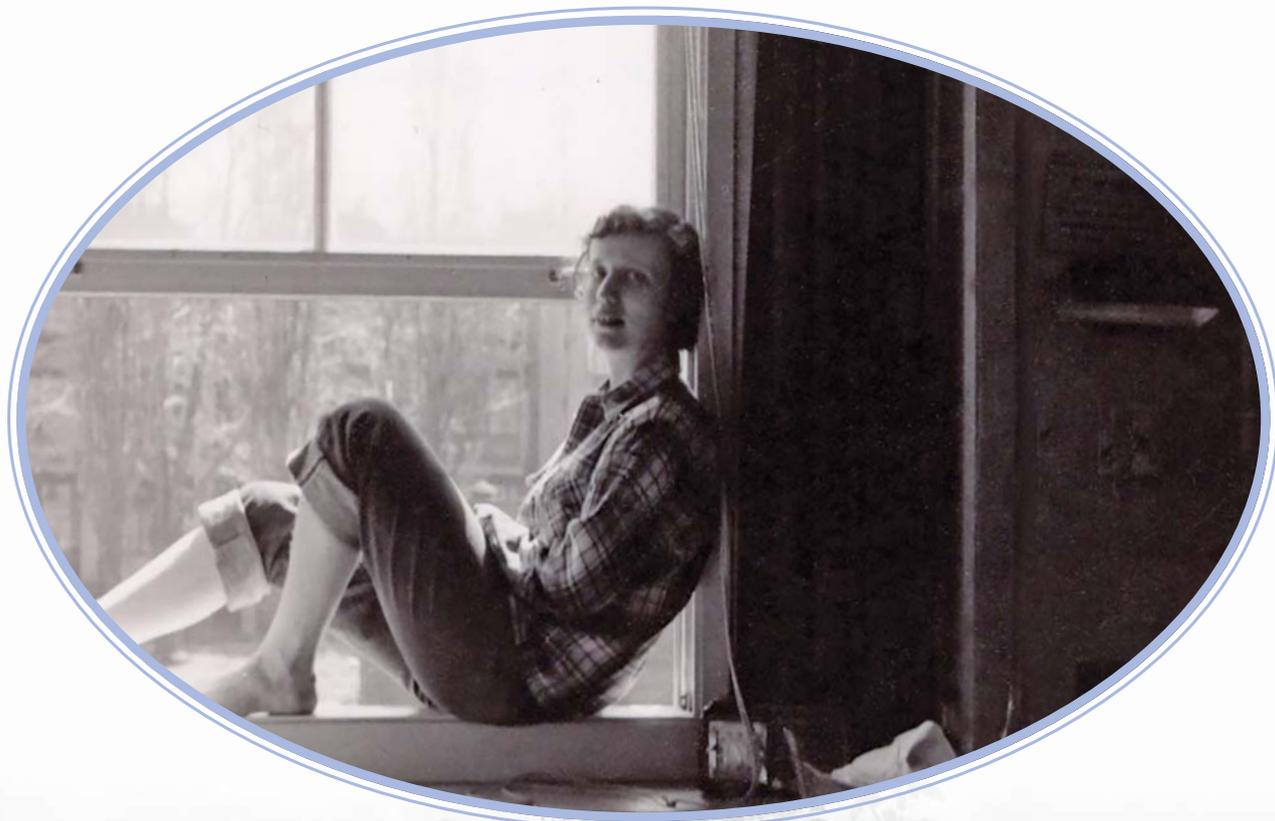
Go to the Freshers' Fair, where any minor hobby has its own society. There's free pizza.

You'll always find a good cup of tea. Make sure to pick up some McVitie's biscuits to accompany it.



A LINE OF CURTSIES

/ by PHILIP FINE /



COURTESY OF CAROL COLE

It was a different time, says Carol Collins Cole, DIP P&OT'54, BSc (P&OT)'55, of her years at McGill.

Uniformed waiters served lunch and dinner to students in residence.

It was also the height of a polio epidemic that would leave an estimated 11,000 Canadians paralyzed. Cole remembers provincial governments from across the country sending new high school graduates to study at McGill—one of Canada's only two universities with a physical and occupational therapy program—to learn to care for those crippled by the disease.

Cole and a classmate were the first to earn BSc degrees from the School of Physical & Occupational Therapy (SPOT). As a McGill student and then as a graduate working in Montreal, she practised physiotherapy on many, including refugees, veterans, pregnant women, miners and sailors. One miner from Sept-Îles, treated for a broken neck, gave her a gold nugget that she still has today.

Her path to McGill began in Grade 9 in Schenectady, New York, where she befriended a hospitalized teen with polio, who had to wear a corset and leg braces. "I wanted to help people who were in that situation to get better," she says, adding that performing charitable deeds had always been an important part of her family, school and church life.

Cole decided to study physiotherapy. She looked at the program offerings in New York City and Boston, but both required her to study physical education or nursing, or to already have a bachelor's degree. Once she saw that the SPOT curriculum would allow her to concentrate more closely on physical and occupational therapy, she made up her mind. Soon enough, her grandmother was writing a cheque for her first year's tuition and she was shipping her trunk to Montreal.

It was September 1950, and, at 5'9" and wearing clothes her mother had sewn, the small-town teen felt intimidated by the backgrounds of some of her new peers when she arrived at her residence, Royal Victoria College (RVC). Amongst them were the daughters of a food magnate and of a former governor-general. Such worries quickly dissipated, though, as residence life brought together students from around the world and of different means.

One RVC memory has Cole standing on its Sherbrooke St. steps (now the Schulich School of Music) with her fellow residents and curtsying for an open-air limousine passing by, carrying the then-Princess Elizabeth.

SPOT was located up the hill on Pine Ave. in a former Golden Square Mile Edwardian mansion, Beatty Hall. Cole attended lectures held in the ballroom and a dark wood-paneled billiard room. She had massage therapy classes and learned how to use electrodes to stimulate muscles. Under the Occupational Therapy curriculum, she studied sewing and weaving as well as metal and wood work.

Cole loved discovering Montreal. She would travel by street car and then bus to Verdun Protestant Hospital, now the Douglas Mental Health University Institute, to treat psychiatric patients. She still remembers reading the sign on the street car: *Défense de cracher sur le plancher* (No spitting on the floor). She can also still recite the French she used in physiotherapy: *Toussez s'il vous plait* (please cough) and *Pliez les genoux* (bend your knees).

Between her third and fourth year, she interned in Alberta, "hot-packing" polio patients to relieve muscle spasms. The Salk vaccine came out that same year and conquered polio.

Her parents convinced her to take a fifth year at the School to earn its newly offered bachelor of science degree. She and a fellow student struggled through Physiology but were saved, she says, by a young Phil Gold, BSc'57, MDCM'61, MSc'61, PhD'65, co-discoverer of the carcinoembryonic antigen (CEA), still used widely to test for cancer today. "He helped us with these frogs, where you had to cut their spinal cords." She remains thankful for his kindness.

In 1953, in her starched white uniform with velvet green striped cap, she would travel to the Montreal General Hospital, which was then located on De la Gauchetière St. Each ward contained forty beds. She would have to drag the large privacy screens from the nurse's desk. She remembers that one of her patients was a Chinese sailor injured at port. She also treated Hungarian refugees, some grappling with the aftermath of shrapnel wounds, at the now-defunct Queen Mary Veterans Hospital, where she secured a staff position after graduation.

In 1957, she married George Cole, MDCM'57, a day after his graduation. They had met in 1954 and had discovered that they both had attended high school in Schenectady.

They moved to the United States and would eventually settle in Minnesota. She continued in her career until starting a family, eventually raising four children. She and her husband would later volunteer every year in Haiti and, since his passing, she has been an avid traveller.

She looks back at McGill as a time in her life where she got to work with a great autonomy in a wide variety of situations and meet people from around the world. "The best thing that ever happened to me in my life was going to McGill University. I'll say that over and over."

THE FRENCH COACH

/ by RABIA ALAVI /



OWEN EGAN/JONI DUFOUR

A new book, *Le Français en milieu médical – Guide de préparation à l'examen de français destiné aux candidats aux ordres professionnels. Infirmières et médecins*, reflects the persistence of its author, Patricia Pattyn, a language coach who helps clients in the health professions master French as a second, third or fourth language to ensure that they are able to meet the language requirements to practise in Quebec.

In the past 20 years, Pattyn has assisted many individuals, including many newcomers to the province. She describes her typical client as someone “who is otherwise so talented and experienced, but lacks one important tool to progress in his or her career—and that is a sound knowledge of French.”

New OQLF French exam format

Pattyn decided to write this guide when the Office québécois de la langue française (OQLF) announced last year a revised format of the OQLF French exam. “In the oral interview of the old format, the emphasis was more on the specialization of the professional attempting the test. But the new version is very different. Where previously medical practitioners were expected to focus in the exam on their area of specialization, the new version of the test is more diverse. It tackles the basic four years of medical education,” she explains.

Tips from the pro—How to ace the exam

“Vocabulary, vocabulary, vocabulary,” stresses Pattyn. “Ensure that you can structure a sentence, with the right vocabulary, tenses and pronunciation. For instance, if you are asked to make a diagnosis, make sure you use the right tense.”

Her recommendation for professionals is to practise their French everywhere they go. “If you work in a hospital, read your patients’ files and lab reports in French.”

Pattyn reminds her students that the real purpose of the exam is not to gauge medical knowledge. “You can leave that for the job interview,” she says. “For the exam, focus only on speaking correct French. Show the examiner that you will be able to work with your patients in French.”

Teaching strategy

Pattyn meets her potential students first, to evaluate their competency in the language. “I must determine what they already know and which aspects they require help in, to best help them,” she says. “After that it is simple. From the easiest situations and simulations, I take them to more difficult ones.”

Dr. Zu-Hua Gao is the inaugural Doris Nunes-Collins Chair in Pathology, Chair of the McGill Department of Pathology and Pathologist-in-Chief at the McGill University Health Centre (MUHC). After training in China as well as in the United States and Atlantic Canada, he came to Montreal, where he needed to bring his French quickly up to speed. He passed all four sections of the OQLF exam within a year, ensuring his success by taking classes with Pattyn. He describes the strategy that Pattyn adopts as a French coach: “She is goal-oriented. She frames her teaching methodology according to the needs of her student. Even after I passed the exam, I connected with her to prepare for job interviews and official meetings as Chair. Each time, Patricia adapted her teaching to match my requirements.”

Institut Patricia Pattyn

Pattyn runs a school, certified by Employment and Social Development Canada, called the Institut Patricia Pattyn (IPP), to provide coaching in French as a second language to health professions practitioners, with the dual purpose of helping them to pass the OQLF exam and serve their patients well.

Pattyn has a long relationship with McGill. She designed and taught an intermediate level course in oral communication to Ingram School of Nursing and School of Social Work students in 2006, and co-wrote a textbook for a 6-credit written expression course for the same project. This was arranged through the McGill English and French Language Centre.

For a twenty-year period, she also worked as a translator specializing in consent forms, research proposals and other documents for researchers and administrators working in the health and social services sectors.

“Persistence is the key to success,” she says. “The OQLF French exam is challenging, but it is not impossible.”

Le Français en milieu médical – Guide de préparation à l'examen de français destiné aux candidats aux ordres professionnels. Infirmières et médecins

By Patricia Pattyn

Institut Patricia Pattyn

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WHAT I MEAN TO SAY IS...

/ by PHILIP FINE /



OWEN EGAN/JONI DUFOR

A new pilot project at the School of Communication Sciences & Disorders (SCSD) has students listening closely to people whose words don't come easily. The Adult Outpatient Teaching Clinic pairs student therapists with clients experiencing language impairments as the result of a stroke.

Clinic founder and director Lauren Tittley, BSc'06, sees a dual purpose in the project: "There was a void in the community that we wanted to fill; also students were always looking for more opportunities to work with people with acquired communication disorders."

John Korb and Enza Barbieri are among the first to avail themselves of these new services. Both attend conversation groups held elsewhere, but the SCSD clinic offers them individualized attention and extra encouragement.

On the day that Medicine Focus visits the clinic, Korb, who experienced a stroke in 2010, is preparing a short genealogy presentation with the help of graduate student Kristine Pennell. He is trying to pronounce the title "Korb Family History." Sometimes, 'family' comes out as "flamily" and 'history' as "chistory." After practising with Pennell, Korb nails it: "Korb Family History." They record it. Korb sees this as a temporary victory. He knows that words that he can enunciate one moment may elude him the next. In an expression of frustration, he waves his hands on either side of his head, making the sound of a car racing by. He has difficulty verbalizing more than a few words at a time and often abandons sentences halfway through, relying instead on a chorus of "Oh yeah"s and "That's right"s.

Meanwhile, Barbieri is working with another graduate student, Johanna Gruber, BSc'15, on a presentation on tole painting, a folk art used to decorate tin and wooden household items, which she has been practicing for 20 years. She had to relearn the craft after her stroke. It was 2014 when the stroke hit Barbieri at the bank where she was working as a mortgage broker, taking most of her speech and leaving the right side of her body immobilized. To tell us the ages of her two daughters, she needs first to count every number up to 11 and then 14. She has regained some of her lost independence, though. She announces that today, she drove herself to the clinic from her home in Laval, thanks to an adapted vehicle.

Pennell and Gruber elicit a few words from their clients and then ask questions before interpreting their words back to them. The students write phrases onto a notepad with a Sharpie and have their clients type their complete thoughts on an iPad. After a few minutes of back and forth and flipping through an art catalogue, Gruber figures out that Barbieri is looking for the term 'brush stroke.' The ever-enthusiastic Barbieri flashes the thumbs-up sign in response.

Clinics of this kind are rare. In Quebec, private therapy is usually the only option for people dealing with long-term language problems after stroke. The public system normally covers speech pathology costs for the first year following the event. While this is a critical time for recovery, those who don't continue speech therapy past the first year are missing out on an opportunity, according to Tittley. "What we found is that if people can have access to therapy, they can make progress even several years down the road," she says.

The clinic, in its initial iteration, is open only two days a week. Tittley is seeking permanent approval and trying to secure research funding, which would allow the school to offer a range of services not currently available anywhere in Central Canada.

In the meantime, the first batch of clients prepare to give their final presentations to family and friends. After, the clinic will close its doors until its next session, when Sharpies, notepads and iPads will once again bring submerged words to the surface.

DR. ALICE BENJAMIN:

GRATEFUL PATIENTS GIVE BIRTH TO NEW FUND

/ by PHILIP FINE /



OWEN EGAN/JONI DUFOUR

Dr. Alice Benjamin, Associate Professor, Obstetrics & Gynecology, has delivered thousands of babies, inspired decades of McGill residents, and set up antenatal clinics for diabetic and renal patients that significantly reduce stillbirths and miscarriages. At 72, the maternal-fetal medicine specialist is still hard at work, turning high-risk pregnancies into textbook deliveries. But if someone compliments her on her achievements, she redirects. Praise, she feels, should be given to her peers in the developing world.

“Look at those doctors there with so little, yet they can manage so much. How can they do that? And how can I translate that here?” she asks in her usual soft-spoken manner.

For Benjamin, who has always encouraged her residents to volunteer in the developing world, there is a lot to be learned from exposure to this kind of resourcefulness.

It is in support of this educational philosophy, with its emphasis on appreciating what you have and making do, that a group of Benjamin’s grateful former patients, along with their families and friends, have come together to launch a two-stage campaign in support of McGill Global Health Programs (GHP) and the McGill Department of Obstetrics & Gynecology.

In the first stage of the campaign, the Dr. Alice Benjamin Fund will provide recipients with an opportunity to witness maternal health care as it’s practiced in low-resource settings. The hope is that in working alongside their counterparts in developing countries, the McGillians will also impart valuable knowledge and skills. Although preference will be given to medical residents, the award will also be open to undergraduate students, graduate students and fellows of any McGill Faculty of Medicine program or school.

It is important to realize how innovative those in developing countries can be, says Dr. Madhukar Pai, Director, GHP, Associate Director, McGill International TB Centre, and Canada Research Chair in Translational Epidemiology & Global Health. He gives the example of Rwanda finding success through health workers with rudimentary training. “They give iron supplements, check on the baby’s growth and make sure there are no danger signs such as high blood pressure.” If they see red flags, they refer the woman to a higher level of care.

At the same time, the challenges are legion. “Maternal mortality is shockingly common in many countries. We are losing 300,000 moms during pregnancy and childbirth every year, mostly in the poorest countries,” says Pai.

“Trying to save moms in those countries is one of the best ways to honour the legacy of Dr. Benjamin,” says Pai, whose professional and personal experiences feed his commitment. His daughter Annika was born three weeks early and at a low birth weight. She was delivered by Benjamin and is now a healthy 10-year-old girl.

His wife, Dr. Nitika Pant Pai, Associate Professor, Department of Medicine, describes some further complications, including an earlier miscarriage, high blood pressure, a placental abruption and the umbilical cord wrapped around the baby’s neck. She remembers Benjamin’s calm approach during the delivery and pure joy when the baby was born.

Benjamin’s patients talk of her love for her patients. “I felt like she was my second mother,” says Nitika.

Alexia Calvillo, whose daughters Athena and Olivia were both delivered by Benjamin, also felt that care. Just days after giving birth to her second child, she received a cancer diagnosis and had to spend a week in the hospital without her infant and toddler. “As soon as she found out I was admitted, she came to see me. If she had a break in her schedule, she would make her way over to the oncology wing and she would see me every day,” says Calvillo, the wife of former Montreal Alouettes quarterback Anthony Calvillo.

Anthony also saw that same care, during office visits. “It wasn’t ‘Okay, gotta get to the next patient.’ You knew you were going to be in the waiting room for a while, but when you got into that room she was going to give you her full attention and be genuine about it.”

Benjamin recalls that as a 16-year-old student in South India, she came across a female doctor treating an older man. She was struck by both the confidence and empathy shown by this young doctor and the effect on the patient. “All of a sudden, the trust came on to his face,” she says. “I said this is a profession I want to be in.”

She attended medical school in Delhi before moving to Toronto to specialize in internal medicine at Women’s College Hospital. “I liked internal medicine a lot,” she says. She enjoyed the debates and the discussions, as well as listing symptoms and narrowing things down to get closer to the cause. Her supervisors there convinced her to enter obstetrics, where she was quickly accepted.

That was 1973. Just a few months before she was to start, her late husband, who had been working for the National Research Council, was transferred to Montreal. But, in Montreal, the OB/GYN residents at the Royal Victoria Hospital had already been chosen. Undeterred, she went to see the head of the department. He confirmed there was no space for her, however, he added, there was one new hire who had been wavering. That person ended up turning down the position and Benjamin got in.

The old Royal Vic would become a special place for her. “This hospital made me who I am,” she says.

She would have a profound influence on many during those years at the Vic. One of them was Armand Aalamian, MDCM’88, PGME’90. “There are a few people, if you’re fortunate, who will influence your career and your life, and, for me, Alice Benjamin is that person. She both inspired and lit the flame for being a medical educator,” says Aalamian, Associate Dean, Postgraduate Medical Education, who worked with Benjamin as a resident in 1989, as well as the previous three years as a medical student.

“She always approached every single high-risk pregnancy from a meticulous, compassionate and skilled angle,” says Aalamian. “She’d say we need to learn about the illness, about the disease. She encouraged us to do more research, that we always be on top of things and know the literature.”

She opened her own practice in 1990. There, she would see about 100 women a week, all with the help of her longtime receptionist Palma Campagnolo. Over time, thousands of baby pictures came to adorn her office walls.

In 2017, Lorne Lieberman, BA’94, voiced the sentiment felt by so many parents of those thousands of babies: “How can we as a community give back to her?” asked the father of four, three of whom were delivered by Benjamin. His answer came during a meeting with VP-Dean David Eidelman, MDCM’79, when Eidelman encouraged him to form a committee with other families who had been touched by Benjamin’s work.

The fund’s committee now numbers 13 and has already raised more than \$100,000 towards an initial million-dollar goal. If this target is reached, it will provide exchanges for Faculty residents to volunteer abroad and foreign residents to visit McGill. It will also bring guest speakers for grand rounds and lecture series in the Department of Obstetrics & Gynecology. In its second stage, the campaign will support even more enriched educational and research opportunities in the Department of Obstetrics & Gynecology such as postdoctoral fellows, seed grants for faculty working in maternal and women’s health, and possibly even a chair in maternal and women’s health.

“Dr. Benjamin has been an excellent educator to our trainees for many decades,” says Dr. Togas Tulandi, Professor and Chair, McGill Department of Obstetrics & Gynecology, the Milton Leong Chair in Reproductive Medicine, and Chief of the Department of Obstetrics and Gynecology at the McGill University Health Centre. Benjamin, he says, is an advocate for women’s health, and the fund in her name will recognize this.

As Benjamin continues to threaten retirement, her patients and their families will continue to sing her praises, for what Lieberman calls her David Copperfield skills such as the ability to zero in on a fetal heartbeat. “When she puts on that heart monitor, it’s bang on,” he marvels. In the meantime, the demure obstetrician will deflect the compliments as she goes about delivering babies and appreciating their miracle.



OWEN EGAN/JONI DUFOUR

“

THE IDEA IS TO NOT INTERVENE BUT TO BE ABLE
TO RECOGNIZE WHEN SOMEONE IS SUFFERING.”

ON

WATCH

/ by PHILIP FINE /

Like the Medicine Class of 2017 before them, the Medicine Class of 2018 has embraced Wellness as a cause, dedicating their senior class gift to expanded Sentinel suicide prevention training for undergraduate medical students.

These one-day workshops—offered by the Medical Student Wellness Committee with the support of the Faculty’s WELL Office in collaboration with Suicide Action Montreal—teach students how to detect and act on signs of suicidal distress in their peers.

According to the Class’ Seeds of Change crowdfunding page, multiple studies have shown that medical training can be a peak time for psychological distress, with depression and burnout occurring in medical students at a higher rate than for their peers in the general population.

As it is, demand for the workshop outstrips supply. This campaign, which aims to raise \$5,000, will create 16 new spots—enough to satisfy current demand and eliminate the waiting list.

The senior class gift is a tradition whereby Med-4 students make their first collective philanthropic gift to the Faculty to support a project that is important to them, and that has a tangible impact on current and future students. It begins their legacy at the University.

During a lunchtime gathering to celebrate the campaign and to collect donations, students voiced their enthusiasm for this year’s project choice.

Pascal Chavannes was a psychologist before he enrolled in the MDCM program. He says those studying and practising medicine too often fail to see the warning signs in themselves. “We’re people who don’t think we’re at risk.” He says this kind of program helps people to look out for each other and get over the stigma of mental illness. “It’s trying to create networks where we can help each other—and to not see this as weakness.”

Classmate Doulia Hamad brings her experience in suicide prevention to the table for this campaign. She worked as a Suicide Action Montreal crisis counsellor for six years. The Sentinel program identifies language that can be an indicator of suicidal thinking. She gives some examples: “They’re not able to talk about the future or they say ‘What does it matter? I may not be there then,’ or ‘I wish I wasn’t here.’”

Students learn how to approach a distressed peer so that they can then refer them to the WELL Office or to other support services in the community. “The idea is to not intervene but to be able to recognize when someone is suffering,” says class member Nicola Smith.

VP-Dean David Eidelman, MDCM’79, and Beth-Ann Cummings, MDCM’03, Associate Dean, Undergraduate Medical Education, have donated \$2,000 and \$1,000, respectively, to this campaign, bringing the \$5,000 goal well within reach.

Pictured: Mame Daro Faye and Mary Koziol, both MDCM’18.

HERE'S TO THE MEMORY MAKERS

/ by PHILIP FINE /

Her good work has stretched from Haiti to Cameroon, from Nepal to Turkmenistan. Now, Christine Hwang, MDCM'92, has found yet another way to help others, this time, through a gift to “class connectors” in the McGill Faculty of Medicine Undergraduate Medical Education program.

When the International Federation of Red Cross and Red Crescent Societies (IFRC) helps hard-hit communities stem cholera, measles and yellow fever, they call on Hwang for her expertise. A delegate for the IFRC, she jumps in to help in disaster-zone field assessment and coordination.

At home in Ontario, she is Medical Director of Toronto Public Health clinics.

As an alumna, she has long wanted to create an award to recognize students who do their utmost to make medical school

memorable for all. “I liken it to a Mr. or Miss Congeniality,” she says, of the award she endowed in 2017.

The Christine Hwang Leadership Award recognizes a second-year medical student in the Faculty of Medicine who fosters a positive environment through leadership, initiative and community involvement. The inaugural award went, in fall 2017, to Florence Gagné.

For Hwang, the tradition of giving back to the Faculty began as a student, when, like Gagné, she was an active volunteer. She edited the yearbook, wrote for the medical student newspaper, coordinated a blood drive, and served as treasurer for the Medical Students' Society as well as for her class. At the same time, she says, there was an inclusiveness that went beyond individual efforts. “There were a couple of exchange students



OWEN EGAN/JONI DUFOR

from Denmark, and people in our class made sure they felt welcome.”

Humanitarianism has always been a driving value of Hwang’s. A daughter of two socially minded educators, she has an early memory of working with her father stapling together the math books he authored when her family lived in Jamaica in the late ’60s and early ’70s. From 1999 to 2000 she provided training to more than a thousand health workers in post-Khmer-Rouge Cambodia.

“I had one of the best years of my life,” she says. She has since completed seven missions with the IFRC.

Those missions had her driving along Nepal’s perilous cliffs, with eyes regularly looking upward for potential rock slides. In Haiti, she was seconded to the kitchen after a colleague fell ill,

her off-hours training as a pastry chef sorely tested as she cooked for 100 people. “Here I am in the morning, setting up the vaccinations in the public health tent, then running back to the kitchen to work on the menu and then going back to the tent.” And in Cameroon, she taught a communications officer about cholera. “At the end of the four months, he became a cholera expert.” She recently found out he now runs regional cholera outbreak programs.

Hwang’s gift recognizes those who show a similar initiative to hers. Medicine Focus looks forward to checking in with Gagné and other recipients in the future, to learn how they continue to follow in Hwang’s footsteps.

UNITING FORCE

Last year, Florence Gagné decided her class needed some help to stay in touch. With rotations starting across various hospitals, a regular meetup seemed in order, to relieve stress and encourage a sense of community. Gagné, a candidate of the Medicine Class of 2019 and active member of the Medical Students’ Society (MSS), joined forces with classmate and MSS colleague Camille Paradis to launch a monthly 5 à 7 at the Meredith Annex. “You can see friends you haven’t seen in a while and share,” she says.

Her classmates appreciate these get-togethers, as well as others that she has organized, so much so that a committee of them awarded her the inaugural Christine Hwang Leadership Award. The distinction recognizes a fellow student, not for their marks, but for their ability to bring their class together.

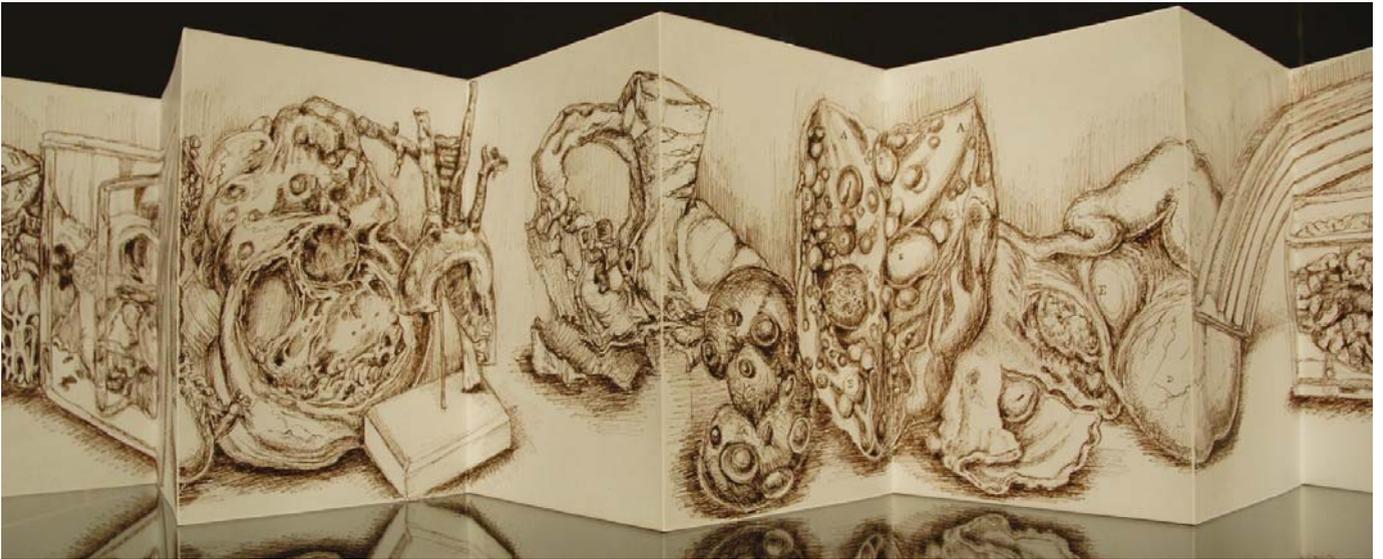
In their meetings so far, benefactor Hwang and recipient Gagné have talked about how important it is to balance intense studies with social events that foster community. “What people remember most about med school is the bond that was created,” says Gagné. (Philip Fine)



IMPOSSIBLE

PATHOLOGIES

/ by PHILIP FINE /



ARTWORK BY LUCY LYONS, PHOTO COURTESY OF LUCY LYONS

A diseased lung, an excised mole, a lopped-off polyp, these are not usually associated with beauty, except where British artist Dr. Lucy Lyons is involved.

An accredited medical illustrator, she mines medical archives for inspiration. At the Osler Library of the History of Medicine, she immediately struck gold. “One of the first things I came across was the Robert Hooper archive. I saw some boxes. I went ‘What’s in there? It says uterus. Let’s have a look.’”

Hooper was a British physician and medical illustrator working in the early 1800s, who made the eccentric decision to cut out his prints in the shape of the specimens depicted.

Lyons took Hooper’s images and applied a technique she calls “old-school Photoshop” to create a rough photo montage. She then redrew, printed and reconfigured, before sewing—or suturing—the pieces together in a long collage. To this, she also added her fantastical take on specimens from the University’s Maude Abbott Medical Museum.

The result is a collection of happy monstrosities, reminiscent of the pastiche approach of Monty Python animator Terry Gilliam.

Lyons’ theory is that medical specimens are too often overlooked. Redrawing and reconfiguring them allows us to better see and appreciate these discarded fragments.

In so doing, she says, “you give respect and dignity.”

Lyons, a teacher of drawing at the City and Guilds of London Art School, was the inaugural holder of the Michele Larose—Osler Library Artist-in-Residence award, made possible by Dr. Michele Larose, PGME’90, artist and pediatric neuro-psychiatrist.

In 2017, Montreal visual artist and photographer Loren Williams took over the role from Lyons.

For the Osler staff, who rolled out the red carpet for both artists, it has been a pleasure to see the collections used in new ways. “It opens us up to new communities who might not have considered our materials,” says Osler Head Librarian Dr. Mary Yearl.

Lyons says medical illustration has always been an important aspect of medical education and taking a long, artistic look at these specimens helps people appreciate what is normally reviled. “You can say almost all fragmented parts are monstrous because they’re what you don’t want to have. But I’ve always seen them as fascinating and beautiful and instructive.”



PLANNED GIFTS & BEQUESTS

A LEGACY OF INSPIRATION

You could be a teacher, nurse or secretary. Those were the choices for the women of her generation, says Vicki Gold, BN'68, who did not choose nursing so much as Nursing at McGill, which enabled her to embrace her passion for research and discovery, laying the foundation for a long and fulfilling career.

In the mid '60s, Gold transferred to McGill from a Harvard teaching hospital. She wanted to study at a place where Nursing was viewed as an intellectual and academic pursuit, rather than simply as a bedside practice. McGill was also attractive in that it offered an undergraduate Nursing degree, something, Gold says, Harvard would not adopt until years later. She remembers her McGill professors as some of the best and brightest, from cardiac surgeon Arthur Vineberg, BSc(Arts)'24, MDCM'28, MSc'28, PhD'33, whose experiments in the 1940s laid the groundwork for the modern bypass, to neuropsychologist Dr. Donald Hebb, MA'32, DSc'75, one of the first researchers to explain the brain's neural networks.

Her academically minded parents, originally skeptical of her career choice, were won over by her excitement, as they watched their daughter's world opening up. "It confirmed to them that I was absolutely in the right place."

Gold's career would take her to Los Angeles, St. Louis, Boston and New Haven, and into postoperative care, cardiovascular recovery, intensive care and emergency. She also spent years in otolaryngology and pain management, and worked as a women's health advocate and nurse educator.

Most recently, she helped found a free hospice for those with no caregivers in the New York State capital region, where she resides with her husband, Dr. John M. Gold.

After a long and fulfilling career, Gold is now setting the stage for young students to be inspired the way she was 50 years ago. A regular donor to McGill, she is still fascinated by the research it produces and has made plans for a bequest to support the Ingram School of Nursing. "I want other people to have the experience that I had."

Education was important to her parents, it's been important to her, and now she wants to pass that on to the next generation. "Having these kinds of experiences is just an incredible gift." As she looks back, she is grateful for all that she received at McGill.

"Education is the foundation for someone's future." —Vicki Gold, BN'68



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BACKCHAT @McGillMedAlumni

SOCIAL MEDIA ROUNDUP



lucy_in_the_sky07 Happiness is ... wearing a panda scrub hat #pandamonium



kepppppy Wouldn't trade her for any OTHER



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