

M U H C

MCGILL UNIVERSITY HEALTH CENTRE

PERSPECTIVES



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Making history

Hanging over Hugh Scott's desk is a portrait of Dr. Robert Palmer Howard, one of Montreal's pioneering physicians, dean of the McGill Medical Faculty from 1882 to 1889, and one of the most influential people in William Osler's professional life. It isn't surprising, then, that Scott, a physician himself and the McGill University Health Centre's executive director, draws inspiration from the painting. After all, the six pillars of the MUHC's vision of the future are rooted in the institution's illustrious history and steeped in a tradition of innovation in patient care, research and teaching. The following interview with Dr. Scott provides a glimpse of the road map for the future of the McGill University Health Centre.



Dr. Hugh Scott

Q: Dr. Scott, could you outline the six pillars of the MUHC mission?

A: Whether we call them pillars or central missions or principles, they include pediatrics, neurosciences, mental health, women's reproductive health, medicine and surgery.

If we look at pediatrics, it's clear that we have an important historical expertise in and commitment to this area. In the founding document that defined the MUHC, it states that we will maintain a pediatric mission. This refers, obviously, to the Montreal Children's Hospital. But it also refers to the pediatric and adolescent activities that go on outside of the Children's such as the neonatal unit at the Vic and the adolescent psychiatry unit at the Allan Memorial Institute.

In some ways our neuroscience mission echoes our pediatric mission insofar as it is clearly a very important part of our history, and it will be a very important part of our future. The Montreal Neurological Hospital is one of our founding partners and the entire history surrounding Wilder Penfield is inextricably linked to our history and to McGill's. In business terms, we think neurosciences gives us a strategic advantage because at the MUHC we have a reputation of doing it particularly well.

The third pillar is a strong and continuing commitment to mental health. The establishment of the Allan Memorial Institute in 1944, a year after the founding of the McGill Psychiatry Department, was in itself a statement about the importance of psychiatry to the Faculty of

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Calculating the Impact of Research

The importance of the research activities conducted by a university teaching hospital cannot be overestimated. Not only does research lead to new cures and treatment methods for patients, it adds to the shared scientific knowledge base and generates spin-off industries and economic growth for the surrounding region.

The Research Institute of the MUHC (RI MUHC) is home to Canada's largest concentration of medical and health-care research investigators, bringing together over 500 researchers from around the world. Their work is leading to innovations and advances across the following research themes: body systems (including cancer, cardiovascular, respiratory disease, musculoskeletal disorders, and diabetes and kidney disease), life-span (including infection and immunology, human reproduction, cell and tissue engineering, and genetics and genomics), and well-being (including neuroscience, mental illness, public health and preventative medicine, and research and care, from newborns to the elderly).

Earlier this year, researchers at the RI MUHC were awarded approximately 10 percent of available federal funding as the result of a competition at the Canadian Institutes of Health Research (CIHR). This is the largest amount ever won by researchers at a single academic health centre.

To help readers keep up-to-date on developments in the area of research at the MUHC, this newsletter will regularly present profiles of the health centre's outstanding investigators and programs. In this issue, we will focus on the outcomes of the research activities conducted by Dr. Gerry Fried and his team in the area of minimally invasive surgery, or MIS. *



M U H C HEALTH PERSPECTIVES

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Establishing a Smaller Cutting Edge:

Dr. Gerry Fried's research is changing the nature of surgery at the MUHC

The pocket of Dr. Gerry Fried's white lab coat holds two pens, a laser pointer and a special marker he uses to indicate incision points on a patient's body for abdominal surgery. Today, Dr. Fried makes much smaller incision marks than he did when he started his career as a surgeon at the MUHC's Montreal General Hospital 20 years ago.

Instead of making the 15-centimetre incision required by traditional open surgical techniques for removing a patient's gall bladder, Dr. Fried and his team can perform the operation making only three or four incisions of five millimetres each. While it may seem obvious that a smaller incision is an absolute improvement, Fried and his MIS team carry out research that focuses on measuring MIS outcomes and on determining the most effective methods for training MIS surgeons in the techniques that Fried began using 12 years ago.

"Not long after MIS first came out, in 1990, Dr. John Hinchey and I went to Germany to see this technology applied to gall bladder surgery, and the thing that really excited me was seeing the patient the day after. Patients who've had open abdominal surgery are in a lot of pain the next day. They can barely move and it's hard for them to breathe. As the surgeon, you feel kind of guilty walking into the room because of what you've inflicted on someone who the day before was feeling pretty good, and you have to convince your patient that you've done something positive by putting them through so much pain.

"With MIS, the next day the patient is often up and walking around and eating. The first time I saw that, I said, 'It's unbelievable! How can we do this at the General?'" Fried and Hinchey brought the techniques home to Montreal and within weeks of their return, they performed the first MIS gall bladder surgery in the city.

Today, having performed, by his estimate, more than 1,500 MIS operations, Fried is equally excited by the research aspect of his work. Four years ago, he and his colleague, Dr. Liane Feldman, were mandated to establish evaluative criteria to help guide the application of MIS across surgical specialties.

He approaches his research with pragmatism. "In surgery, one of the areas in which you do research is technology . . . but just because something is new doesn't mean it's wonderful," he explains. "When you're introducing a new technology, you've got to show that what you're doing has a better outcome than what would result from other treatment options. In the case of laparoscopy, or MIS, the traditional options are drugs or open surgery techniques."

Fried, Feldman and the MIS team's research has two objectives. The first is to establish a set of

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Dr. Gerry Fried: big strides in MIS research



(**Making History** continued from page 1)

Medicine. The development of psychiatry at the Montreal General further contributed to the progress being made in this field and to the expertise within the university network. Mental health is an area that the MUHC is committed to building by bringing together the traditions of the Allan with those of the Montreal General. What the area of mental health needs to move forward is co-operation among health professionals and community liaisons, and this is what we are intent on developing.

The fourth pillar is women's reproductive health. Again, where we've come from says a lot about where we're going. People forget that one of our founding institutions was the Montreal Maternity Hospital, which joined with the Vic in 1926 when the women's pavilion was built. But women's health at the MUHC is more than obstetrics and gynecology. We've developed a very strong in-vitro fertilization unit, which effectively means that we care for our patients from pre-conception right through to geriatrics. When we look at women's health issues, we're concerned with the unique aspects of female health, and that's one of the reasons for using the word "reproductive" when describing this part of our mission.

The final two pillars are the more obvious ones: medicine and surgery, which are what people think of first when they think of hospitals. Within these areas there are programs, for example, cardiovascular and oncology, that cut across many disciplines. But these programs are anchored in medicine and surgery, which I hope will be highlighted in future issues of this newsletter because these are clearly areas in which the MUHC is distinguishing itself.

Q: *What came first, the idea to integrate services or the need for a new infrastructure?*

A: In organizing how we deliver care, we're responding to several factors, including the way the professions and society are organized and the way in which illness presents. In some cases, the relationship between different health-care professionals isn't obvious, for example, a surgeon isn't the same as a psychiatrist. Despite their differences, however, sometimes they have to interrelate, and the hospital has to facilitate their interrelationship. As far as medicine and surgery are concerned, the interrelationship is much more obvious — if someone comes into your office and they've had a heart attack and they end up needing surgery, they flow through the

department of medicine to the department of surgery and then maybe back again and out to a rehabilitation institute.

What we're doing now, and what we'll be able to do much more efficiently at the Glen, is develop interrelationships within each service where professionals from various disciplines work together and with the different components of the overall health network — CLSCs, rehab



is to allow the development of special expertise within a group. If we look at orthopedics, the volume of activity at the single site environment of the MUHC's Glen facility will allow individuals within the group to develop a variety of interests, for example, one doctor may become particularly interested in spines, another in hips, and a third in hands, although all of them will still be able to meet the common challenges in their field. On separate sites,

everybody always ends up doing a little bit of everything. When you bring doctors together in one place, they can each develop their area of expertise within the group and that's when you can become competitive with the best in the world.

The new facility will also enhance our ability to justify funding for state-of-the-art equipment and operating rooms. When all our services are on one site, we can make maximum use of our resources and run everything with greater efficiency.

Another benefit is that we'll see greater synergies between clinical care and research, which at the moment is being conducted all over the place. The MUHC is a teaching hospital and an academic centre, and it aspires to be the largest medical research entity in Canada. With so much going on, it could be that a researcher who's working

When you bring doctors together in one place, they can each develop their area of expertise within the group, and that's when you can become competitive with the best in the world.

institutes and so on. For example, it's important for women's reproductive health to have a close relationship with pediatrics. We're not talking dramatic changes, and to some degree we're already organized in this way. The Glen will make our method of operation much more effective because right now we're operating on multiple sites and so the degree of integration between activities is more complicated than it should be.

Q: *Can you give me specific examples of how each of these pillars will be enhanced by the completion of the new Glen facility?*

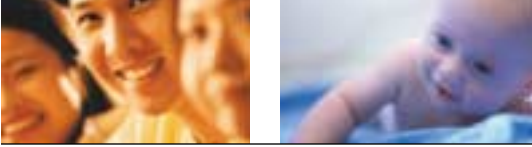
A: The first way will be by physically bringing together in a single location what is now in multiple locations. One of the purposes of the MUHC

on reproductive health is actually located down at the Children's. Well, that researcher can still get together with the appropriate clinicians who are at other locations, it's just harder. Right now we're spread out over 32 buildings. The serendipity, we hope, is going to be enhanced when everybody is in a common place, though it's impossible to predict which researchers will interact with which clinicians.

Q: *How will new technology at the site impact service?*

A: New technology will affect everything, from how you make your first contact with the hospital to how hospital staff manages the amount of data that flows back and forth. A simple visit to the

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Developing the network

In Montreal, as in other cities across Canada and around the world, reconciling the needs of patients and those of the many players in the health-care system has prompted professionals across fields to re-evaluate how they interact with each other. At the McGill University Health Centre, this has led to a new and exciting kind of communication. By forging stronger community links and developing collaborative relationships with the rest of the health-care network, the MUHC and its network partners have found better and more efficient ways to care for their patients.

A community's health-care system is a fundamental part of its identity. As such, whenever it undergoes a major change, it's inevitable that members of the community will feel anxious.

Witness the collective agitation caused by the *virage ambulatoire* that transformed the province's health-care landscape more than a decade ago.

With the bringing together of five distinguished institutions to form a single hospital — the McGill University Health Centre (MUHC) — and with the anticipated confluence of all that expertise in a brand new venue, one of the MUHC's key responsibilities is to reassure the community that merging, streamlining and integrating do not mean a reduction in service and care. If anything, the very act of planning the MUHC was a catalyst for further developing partnerships within the health-care network with the aim of ensuring a continuous, comprehensive network of care for all levels of patient need.

Since 1996, the CLSC/MUHC Steering Committee has regularly organized meetings where MUHC representatives sit down with the directors general of 14 Montreal CLSCs. The group has examined, among other issues, palliative care, mental health, and hospital-to-home transition. Other partnerships between the MUHC and the community



home-care programs have been good for patients. "People are receiving the right care in an environment that better suits their needs and allows for faster recovery."

Another program, this one piloted by the Community Health Information Network (CHIN) with the participation of the MUHC, is working on enhancing electronic communication. This program connects patient databases to several of the region's health-care providers and to some physician's offices, and is a further example of how the MUHC is working towards making the continuum of care increasingly seamless.

Common says enhanced

communication among partners in the network has not only meant improved patient care, it has made life better for health-care workers on the front line of delivery. "There's a much better awareness that we're all in this together, that it's not us against them. For instance, hospital nurses now have a better understanding of what CLSC nurses deal with, and vice versa. By knowing how the CLSCs operate because they're dealing with them all the time, hospital nurses can tell their patients what to expect at the next step of care. It helps the patients to feel they're not being sent into a vacuum."

Dr. Rick Riopelle, MUHC Chair of Neurology and Neurosurgery, has been involved in network development for the MUHC since coming to McGill University in July 2000. Before his arrival in Montreal, he worked with the Heart and Stroke Foundation of Ontario to develop a coordinated stroke strategy for that province. "We want to be able to move patients along the continuum of care, from admission to reintegration into their homes, with maximum efficiency and with the best level of care across all sites of care," he says, adding that it

tives for several years. Through the MUHC Network Development Steering Group, which had its first meeting in April 2000, Shannon oversees a new approach centred on continuity of care and offering complementary services to children, adolescents, adults and families. "Our aim," she says, "is to provide a more coordinated approach to care that truly has the patient receiving the best care in the best place at the best time."

With the Network Development Steering Group, the MUHC is building on its experience of working with the CLSCs over the past five years during the shift to home care. Developments already in place include joint programs with CLSCs wherein patients are sent home with their own IV units or home-feeding tubes and followed by CLSC staff.

Carol Common is the senior advisor of community outreach for the MUHC's adult sites. She says the

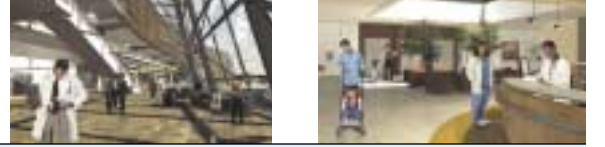
"Enhanced communication among partners in the network has not only meant improved patient care, it has made life better for health-care workers on the front line of delivery."



Carol Common, senior advisor of community outreach for the MUHC's adult sites

are being forged by the MUHC Network Development Steering Group (NDSG), the Long Term Care Network Advisory Group (LTCNAG), and the Rehabilitation Network Advisory Group (RNAG).

Valerie Shannon, MUHC Director of Nursing, has led the MUHC's network development initia-



Equipping Excellence

all comes under the heading of “organizational learning.”

In the context of health-care delivery to a major population base, this has meant turning conventional wisdom on its head and focusing on the kind of care a patient needs rather than whether a facility can provide the service. “Let’s say an acute-care hospital determines that a stroke patient is ready for discharge,” says Riopelle. “The hospital can claim, ‘we’ve done our job’, but in effect, there’s been no agreement on where the patient should go next to address his or her needs.” In the old days, patients were sometimes left in medical limbo — discharged from the hospital but not eligible for admission to a rehabilitation facility — because of poor communication or the lack of standardized criteria.

In response to this, the MUHC Network Development Steering Group struck the Rehabilitation Network Advisory Group, which identified stroke as an area that needed attention. According to Riopelle, the delivery of health care is more efficient for being patient driven. “Only by matching the needs of a patient to what various organizations can provide can we identify the gaps in the system and fill them in.” For Riopelle, the advances in network development have led to structural changes in the MUHC and have had a positive impact on planning for the Glen project.

“A lot of the issues that people have been concerned about with regards to the new facility, such as the number of beds, can be addressed by parallel developments on the network side. The more efficient the network, the more streamlined the new facility will be.”

Riopelle also says that a relentless focus on the needs of the patient within the continuum of service is key to overcoming the concerns expressed by health-care professionals, organizations and advocates over the future of the system. “By building a network that focuses on the needs of the patient, we’ve moved from a situation where patients didn’t trust the system to one where they feel a lot of trust. This sort of network development depends on communication, which in turn leads to a broad acknowledgement of certain standards and to maintaining a commitment to those standards. If everyone adheres to a system of accountability to higher standards, the patients will do better, and if the patients do better, the system will benefit because the cost of care will be reduced.”

As for making the new Glen facility the hub of network development, everyone agrees that the obvious benefits in logistics, new technology, teaching, research and communication will only enhance the relationships and support that are already such an important part of patient care. ❄

The MUHC’s ongoing activities to help develop the pediatric health-care network will be the subject of future articles. Please stay tuned.

Gamma knives, magnetic resonance imaging machines, linear accelerators — these are some of the tools of the trade in a modern hospital. But what they do, how they do it and how much they cost remain a mystery to many people. This regular feature of *MUHC Health Perspectives* will shed light on the equipment our health-care professionals need to deliver the very best care to their patients. Today we focus on the **Doppler ultrasound machine**.

As most people know, an ultrasound machine transmits high-frequency sound wave pulses into a patient’s body and measures the echoes of these waves as they reflect back from different tissues. A computer then transforms the echoes into a two- or three-dimensional slice image to give a clear, static picture of structures inside the body.

A Doppler ultrasound machine offers dynamic — rather than static — feedback, specifically about the rate of blood flow. By measuring the change in frequency of echoes as they bounce off moving red blood cells, it’s possible to determine how fast blood is moving through the body. This information helps doctors detect blood clots, narrowed vessels and arterial blockages. In obstetrics, Doppler ultrasound machines are used to monitor fetal and placental blood flow in a high-risk pregnancy to make sure the baby is receiving enough nutrients. In neurology, they’re used to look for unusually high blood velocity in the brain, which is often caused by narrowed or blocked blood vessels and may be an indicator for stroke. The cost of a Doppler ultrasound machine is approximately \$250,000.

If you want to learn more about the equipment used by MUHC professionals, or if you just want to test your knowledge in this area, visit the MUHC Foundation’s web site at www.muhcfoundation.com and take the “How Much Does It Cost?” challenge. ❄



Image courtesy of Philips Medical Systems

Portraits in Time

The collective history of the McGill University Health Centre is rich in stories of talent, dedication and vision.

MUHC Health Perspectives will feature, on a regular basis, some of the men and women who have contributed, or are currently contributing to, the MUHC’s development. To find out more about the builders of the McGill University Health Centre, visit the MUHC Foundation’s web site (www.muhcfoundation.com) and take the “Famous Montreal Physicians” quiz in our features section.

ALEXANDER MACKENZIE FORBES



Dr. MacKenzie Forbes was an orthopedic surgeon, a Montreal native, and for a time, an outpatient surgeon at the Montreal General Hospital. Forbes was also passionate about caring for children. With friends and colleagues, he rented a facility at 500 Guy Street primarily to aid handicapped youth.

The first patient was admitted in 1904. What began as a ten-patient facility quickly grew. By 1920, the Children’s Memorial Hospital was large enough to be authorized as a McGill University teaching facility. Dr. Forbes was instrumental in the hospital’s expansion and in the establishment of what would become the Montreal Children’s Hospital.

JESSIE BOYD SCRIVER

Dr. Jessie Boyd Scriver was one of five women to graduate from McGill University’s Faculty of Medicine in 1922 at a time when female doctors were still a rarity. She was a brilliant student, placing second overall in her class of 126 and winning the Wood Gold Medal for best examination in clinical branches. Dr. Scriver went on to a distinguished career, becoming professor of pediatrics at McGill University, president of the Canadian Pediatric Society, president of the Child Health Association of Montreal and president of the Federation of Medical Women of Canada. ❄





(Cutting Edge continued from page 2)

outcome measurements from three perspectives: the patient, the surgeon and the health-care provider. "Treatments must give the patient the care he or she is seeking, show measurable physiologic improvement to the surgeon, and be cost-effective solutions. All of these are important. With our research we're trying to define what outcomes we should be measuring for the different diseases we treat, how we should be measuring them, and how to make sure that the measuring tools are accurate and sensitive enough to distinguish differences between treatments. Then we accumulate the data in a long-term fashion for each of the clinical problems that we treat with MIS."

The second research objective is to refine methods for training surgeons in MIS techniques. In the past, surgeons would improve their skills over time by performing operations. Fried is developing ways to train surgeons as much as possible before they go into the operating room. "Look at elite athletes," he says. "No matter how good they are, they don't just go to a competition and compete. They have to develop strategies for practising in ways that are actually going to improve their skills."

Similar to pilots training in a flight simulator, Fried's students practise in surgery simulators. This helps them to anticipate a variety of scenarios that can arise during a real surgery and to prepare strategies for dealing with them. "With this type of training, when something happens in the operating room, you've been there before and you don't go into a panic. In fact, your outcome will be better."

Like any good coach, Fried encourages a bit of friendly competition. Surgeons' training scores are often posted on a blackboard hanging in the break room that doubles as a training lab. "When we're looking at designing simulators, it's really important

for us to make something that's fun to use and generates a sense of competition. When people are in a competitive situation, they want to do better."

Having surgeons train in simulators is also a way to measure and track their performance. "We're able to find out what aspects of their technical skills are deficient and need to be improved through further practice in the training system, and it allows us to look at how well they perform compared to experts in the field."

The next development in MIS is robotics. Surgical instruments that integrate multi-jointed robotic arms will give surgeons a greater range of movement once inside the patient, allowing access to areas currently not possible, such as the back of the heart and difficult to access areas of the abdomen and pelvis. They can also filter out surgeon hand tremor and perform fine suturing on a scale not possible with today's technology.

Although MIS robotics are already on the market, Fried is characteristically pragmatic. "I think it will be a few years yet before the new technology reaches a level of maturity and sophistication that will truly benefit the patient. At that point it will be a worthwhile investment for the MUHC."

At present, the MUHC has several moveable carts that transport video monitors and computers to and from the MUHC's shared multi-purpose operating rooms.

"There are plans for an MIS suite at the

General that would adequately house all the necessary equipment," says Fried. "The equipment will be suspended from the ceiling and we'll have flat screen monitors that we can move in line with our angle of view so we won't have to crane our necks to the side to see what we're doing."

The new hospital on the Glen site will include several MIS operating suites, reflecting the evolution of surgery towards increasing use of MIS procedures. Two of these will include extra room for specialized equipment such as a CT scanner, an MRI

machine or robotics. "The idea is to plan for developing image-guided surgery," explains Fried.

The improved facilities will arrive not a moment too soon. By Fried's calculations, the referral rate for MIS procedures at the MUHC doubles every six months. He anticipates the total volume of MIS procedures quadrupling by the time he moves to the Glen.

"I'm looking forward to the additional resources at the Glen," Fried says. "I think Dr. Feldman and I have done well in terms of how we've developed the program

at McGill and how we've been able to integrate surgeons from all the sites into our research and training. Also, the quality of the surgeons we've trained has been recognized internationally. Our nurse coordinator, Donna Stanbridge, has also gained international recognition for her leadership in MIS nursing, research and planning of new MIS surgical suites. I'm very proud of our program and all the people who have worked hard to contribute to its success." ❄



Robotic surgical suites represent the next development in MIS

(Making History continued from page 3)

emergency room involves at least six data points, from the moment you register to the moment you leave. If you have a complex problem, 46 data points may be involved. Keeping track of all this information is crucial and requires the use of the most sophisticated technology available. This technology will allow for better and more rapid decision-making and will help us minimize the very real risks that exist of human error. Just as bar-coding changed Wal-Mart, bar-coding should change hospitals and the way patients are treated. In the future, your wrist bracelet will have your name and it should also have your bar code. This means that in a split second a patient's record will be accessed and we'll know what medication has been prescribed and what tests are pending. This will only improve the way patients are treated.

Q: How will all these changes improve the teaching function of the institution?

A: Teaching will be immediately enhanced by new facilities and technology such as lecture halls, smart rooms and video conferencing. Just as important,

space will be designated so that teaching can be conducted in an ambulatory setting, something that was never factored into the design of the existing facilities, simply because ambulatory care wasn't a consideration.

The Glen will also mark a major change in patient education. To be treated at the new hospital will be an educational experience, in every sense of the word. If we believe that patients should have a role in their own care, and we do, then we've got to help them with that. A clear intention of the Glen project is to make education a part of healing. There will be patient resource centres that will make learning about conditions and treatments both accessible and easy. We have to remember that the word "doctor" originally meant "teacher." Most of all, if we run the new hospital properly, we'll teach by example and we'll offer a great environment for learning.

Q: And that will draw more high-calibre students and professionals?

A: In the jargon of the Americans, we would

like the Glen to be a magnet hospital. This can be achieved by creating the physical structures and organizational psychology and interrelationships that attract nurses, doctors, researchers and health professionals and keep them here because they have the opportunities to be valued and to make valuable contributions.

Q: What do you personally find the most exciting and interesting in all this?

A: Right now our services are widely dispersed and our administration is complex, and lately the health system has gone through a lot of turbulence. People can't get better when they're in a state of agitation because nobody answered their call or they didn't understand the doctor's instructions or they were ten minutes late for a meeting with their surgeon because they got lost. If the Glen is a calm and calming environment that provides its patients with education and understanding, and also brings together a critical mass of talent, then we will have succeeded. ❄