



**Hôpitaux Shriners**  
pour enfants  
**Shriners Hospitals**  
for Children™

**Canada**  
Pediatric Specialty Care

Volume 3, number 1 | **SPRING 2008**

# THE ORTOPEDIK



*Helping Kids Defy the Odds*



■ Jessyca [page 3]

## The Nervous System Closely Monitored During Back Surgery

[Lise Lacroix] Surgery to correct a back deformity such as scoliosis is a major operation involving some low risks of neurological complications. Such operations are constantly monitored throughout their duration by a team of experts. There are also specialized tools and techniques for determining if the nervous system is being affected during the operation, enabling the surgeon to diagnose the problem on the spot and make any necessary adjustments. With the support of the Tunis Shrine Centre (Ottawa) the Shriners Hospitals for Children (SHC) – Canada recently acquired a new piece of equipment that will monitor neurophysiological activity during back surgery and help protect the central and peripheral nervous systems.

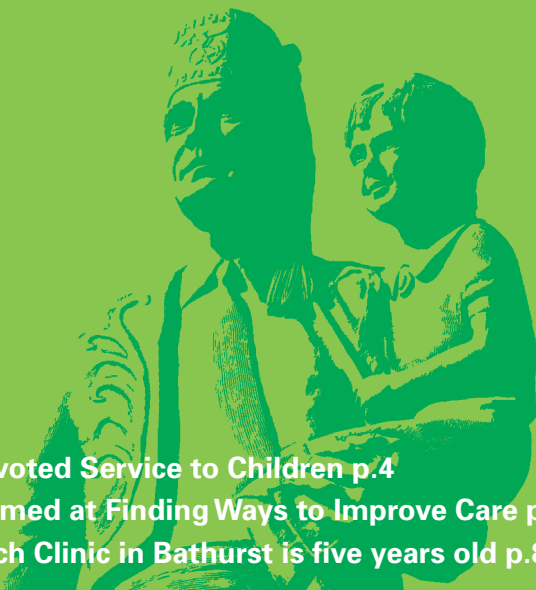
“This new machine is more accurate and offers more complete monitoring than the equipment we had. The team performing surgery to correct a back deformity can progressively ensure that none of the steps in the operation is affecting the fragile, vital nerves around the spinal column,” explains Dr. François Fassier, Chief of Staff.

The new device continuously measures sensory and motor evoked potentials before and during an operation. Sensory evoked potentials are the central nervous system’s response to sensory stimulation. Motor evoked potentials are determined by the electrical response of a muscle or motor nerve fibre to electrical or magnetic stimulation. The nervous responses are recorded by small electrodes connected to a machine that processes the information and generates a graphic image of the potential.

This machine is just one of the tools used by a well-trained, experienced team. The multidisciplinary team that carries out back surgery at the SHC also includes members from The Montreal Children’s Hospital and Montreal General Hospital. [continue on page 2]

### In this Issue :

- Years of Devoted Service to Children p.4
- Research Aimed at Finding Ways to Improve Care p.6
- The Outreach Clinic in Bathurst is five years old p.8





A few weeks before the equipment was delivered, orthopaedic surgeons, anaesthesiologists and electrophysiology technicians attended a training session at the Western Hospital (London) and at the Sick Kids (Toronto).

“Very few hospital centres have this technology. We would like the experience we’ve acquired over the years and the protocols we’re creating for standardizing the practices used during these operations to help us become the centre that our health network partners look to for training and expertise,” sums up Lise Lacroix, Nurse Manager of the operating room and post anaesthetic care unit. |

The Evoqued sensory motor potential monitor, worth \$75,000, was purchased thanks to a donation from the Tunis Shrine Centre in Ottawa.

## Administrator’s Message

Since I arrived at Shriners Hospitals for Children in Montreal last December, I have discovered a whole new world. Every health care institution has its own personality, particular environment and life in the community, and at Shriners, the quest for excellence, innovation, passion and compassion prevail. Clinicians and researchers work side by side to offer care that it is at the leading edge of knowledge and technology. This creates

a dynamic, warm environment for those who work here and for the children and families who receive care here.

Right from my first moments at the Hospital, I was touched and impressed by the humanity and generosity of the Shriners who accompany us and support us daily. I recently had the opportunity to meet colleagues from other hospitals in the network and the Shriners leadership.

This demonstrated to me the strength of our network and the volunteer work Shriners do across North America.

The Montreal Shriners Hospital can be proud of its tradition of excellence and its leadership in pediatric care. In this issue, we will present people who have made an exceptional commitment to the hospital for many years.

Enjoy your reading.

Céline Doray

**The Orthopedik** is a quarterly publication of the **Shriners Hospitals for Children – Canada**  
1529 Cedar Avenue, Montreal, QC, Canada, H3G 1A6

**We want to hear from you!** If you would like to ask us a question or suggest a topic for an article in an upcoming edition of the Orthopedik, please contact us at [gfouellet@shrinenet.org](mailto:gfouellet@shrinenet.org) or **514-282-6990**.

**The Orthopedik** can also be downloaded from [www.shrinershospitals.org/Hospitals/Canada](http://www.shrinershospitals.org/Hospitals/Canada).

**Editor** Guylaine Ouellet  
**Co-Editor** Emmanuelle Rondeau  
**Art Direction and Design** Le Groupe Flexidée Itée  
**Photography** Denis Alves | Guylaine Bédard  
**Editorial Board** Sharon Brissette | Rose-Marie Chiasson | Céline Doray | Dr François Fassier | Donna Fitz-Gerald | Kathryn Fournier | Nancy Gionet | Dr Francis Glorieux | Kathleen Montpetit | Susan Takahashi



# The China Doll

[ **Jessyca Marchand** ] Not long ago, I was asked to write about what my life is like, how I live with my disability and how I see my future. I thought it would be a good idea to write about these things so that people who are like me can see there is light at the end of the tunnel. Even if it seems like the tunnel will never end, it does one day! If I was able to see and touch the light, you could too!

I live like any 14-year-old teen. I go to high school like my friends. An instructor helps me get around, but that doesn't stop me from being in Grade 10 or from having fun with the people I like. I like to get out a lot, to go to the movies, to shows and to hockey games, because I'm really into sports. You could say that I like to cheer others on, because I don't actually play sports.

People ask me how I see my life in the future. I can't really say, because it's too far away. But when I think about it, I see myself as a journalist or a TV show host, like a "normal" person.



Jessyca, 12 years old

*I want to prove that people with a handicap can do great things, sometimes even more than others can.*

I think I owe my achievements and hopes to my family and my second home. My second home is the Shriners Hospital. Everyone who visits the hospital agrees with me that it isn't like a hospital at all. The nurses are really nice with the patients. The doctors take the time to answer all our questions, in English, French and even Spanish. We don't feel like patients, but more like friends. There are teachers to help us with our homework, and the kids who are too young to go to school have a playroom with games just for them. I owe a lot to the hospital and the staff, and I hope that, one day, I'll be able to do something for them.

Just because I have osteogenesis imperfecta (brittle bone disease), I've had more than 200 fractures, 14 operations and been through a lot of pain doesn't mean I can't have fun and enjoy my life to the fullest. There's a reason they call me "the china doll that's always smiling." It's because that's who I am!!



Jessyca, 14 years old with her dog Flocon.

## Acknowledging Service

[**Emmanuelle Rondeau**] At SHC, small dedicated teams make up a large extended family. On February 26, just about fifteen employees from various sectors of the Montreal Hospital lunched together to celebrate more than twenty years of service. During the meal, the conversation was animated, but what seemed to come

up the most were the good memories, the happy moments shared by one and all. A second ceremony took place in March in order to recognize the employees having completed five to fifteen years of service. These ceremonies are an integral part of Hospital efforts to ensure employee satisfaction.

When she greeted the group, Administrator Céline Doray thanked the members for their passion and devotion, and for sharing their life and career with the Hospital. They are the heart of the Hospital and the role models for the next generation. |

## Some Recollections and Reactions

### Yvonne Rock

Yvonne Rock, alias Rocky, Mrs. Bedrock and all the other nicknames that the children and staff bestowed on her. As a nurse's aid on the inpatient unit, she shares her spirit with all those around her.



*"I have so many stories to tell... early on, when patients came from far away, sometimes the staff would get special permission to take a patient out on pass. One Christmas, I brought a young girl home and she celebrated the Holidays with my children. Today, this girl is a forty year-old woman. We still stay in touch by phone. I even saw her last year when I went on vacation down south."*

### Denis Alves

Denis Alves is a medical photographer and videographer. He began his 25 years of service in housekeeping and moved on to become a driver. Once he completed his studies, he was able to marry his passion for photography with his work.



*"The kids just blew me away from day one. I still get that special feeling. When you spend time with the patients, you don't see the pain and malformations; you just see kids and feel their spirit. Each day, they help me to stop and appreciate life and they make it all worthwhile. I am proud to be here and to be part of the team, in my own little way, of those who do so much for them."*

### D<sup>rs</sup> Anneliese Recklies and John Mort

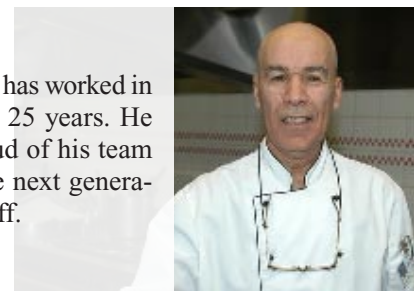
Put together, researchers Anneliese Recklies and John Mort share 60 years of service at the Hospital. And, yes, they met in the Laboratory !



*"Over the years we had no choice but to grow personally and professionally. We have been fortunate in our respective careers because we work in an environment where we have had the freedom to pursue interesting questions and we have had the support and consideration of great investigators."*

### Aziz Zioudi

Aziz Zioudi, Chef, has worked in Food Services for 25 years. He is passionate, proud of his team and of shaping the next generation of kitchen staff.



*"Here, I have everything I need to be happy. In the kitchen we have the liberty of creating new recipes and varying the menus and spices... here, respect and humanity prevail... here, when I have a bad day, all I have to do is step out into the playroom and watch a child play, and I feel better."*

Invested as Officer  
of the Order of  
Canada in 2004.

5

In beginning of  
the lab in 1973.

## Paying Tribute to a True Scientific Leader

*It gives me great personal pleasure to recognize Dr. Francis Glorieux's 35 truly outstanding years of service to mankind, all of which has taken place at the Shriners Hospital in Montreal. At a time when heroes often become free agents, the relationship between Dr. Glorieux and the Shriners organization is remarkable.*

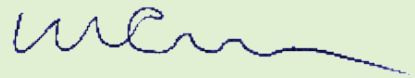
*I remember well our first contact when we were offering him only hopes for a future which I believe he saw more clearly than did any of us at the Shriners Hospital. He started his pioneering work in a series of closets and participated over the next few years in building one of the most innovative, productive and exciting laboratories in the world. He participated in recruiting outstanding scientists, being secure and confident enough in his own abilities to never feel threatened by excellence in his colleagues. This is of course how great teams are built on the basis of personal loyalty amongst coworkers.*

*His research has brought him great renown. However, one must remember that it has also made the Shriners Hospital, McGill University, Quebec, and Canada a destination for individuals who wish to join in the excitement of research. Some come to train, some to collaborate, but all to share their knowledge and learn from Francis Glorieux and his team.*

*In preparing this tribute, one must of course concentrate on his contributions. Very few individuals are able to significantly alter the course of a human disease in a way that dramatically improves the life of those suffering from disease. Francis Glorieux has done it twice. He was not solely responsible for developing the treatment for X-linked hypophosphatemic rickets but he certainly carried out the large scale trials which indicated that the deficiency could be corrected and near*

*normal growth restored. When one talks of the current management of osteogenesis imperfecta, giving credit is much easier. He conceived of the treatment, provided the laboratory data which allowed it to be used in humans, carried out the clinical trials in patients, wrote the papers, delivered the addresses, and changed the life of virtually every patient in the world who suffers from this very crippling condition.*

*He has of course made many more contributions to our understanding of normal bone growth in children and the diseases that afflict children's skeletons and he has trained a host of individuals who have extended his work even further... His 35 years at the Shriners Hospital are significant and truly worth recognizing!*



Richard L. Cruess, M.D.



With a patient in 2003.

## Research Aimed at Finding Ways to Improve Care

[René St-Arnaud, Ph.D.] At Shriners Hospitals for Children (SHC) the expertise of basic researchers, orthopaedic surgeons, and clinicians is combined to use the full arsenal of techniques available to rapidly translate scientific discoveries into treatments that benefit patients.

### How does this translate in real life?

Let's look at a real life example. Distraction osteogenesis (DO) is the standard technique used worldwide for limb lengthening or deformity correction. About 6000 children with congenital anomalies of the limbs are being actively followed at the 19 Orthopaedic Shriners Hospitals for Children, and a significant number of these will need lengthening procedures. The basic principle of the technique includes attaching an external apparatus that allows for the application of traction on the bone segments, performing an osteotomy (a cut through the bone to be lengthened) and then gradually distracting (moving apart) the two bone segments. This controlled distraction, in turn, generates new bone within the distracted gap. This widely used procedure, however, has a major drawback: the long duration of time until the newly formed bone in the distracted

zone solidifies. This, in turn, can lead to or exacerbate many medical problems such as pin site infection, swelling of the lengthened limb that can cause severe discomfort and pain, and loss of bone (osteoporosis) of the lengthened segment. It also can cause psychological, social and financial problems for the patient and his family. Research by Drs. Reggie Hamdy and René St-Arnaud at SHC-Canada is aimed at accelerating the rate of bone regeneration to expedite the removal of the external fixation.

Our hypothesis is that proteins present in the bone environment called growth factors, must contribute to new bone formation during DO. If we can identify the relevant ones and modulate (increase or decrease) their activity, we believe that bone formation could be accelerated following DO. We first developed a rabbit-based animal model of DO because due to its size it was easy to manipulate from a surgical standpoint. However, it was impossible to work with this species on a molecular level. We then developed a mouse model of DO which provides more research avenues. We have started to use the many genetic mice models available to precisely determine the impact of specific genes on the outcome of the surgical procedure.

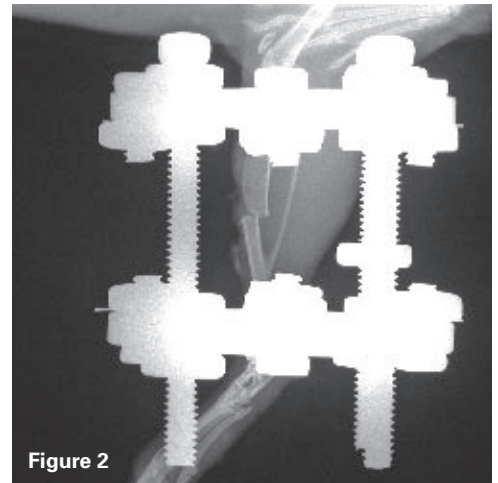


Figure 2

Distraction osteogenesis in mice. The X-ray image shows the miniaturized Ilizarov apparatus applied to a mouse tibia where the osteotomy (cut through the bone) has been performed. Distraction will begin five days after surgery. The use of animals in research at the Canadian Shriners Hospital follows the ethical principles of the Canadian Council on Animal Care and animals are provided with pain medication.

Our research has already identified key pathways that regulate bone formation during DO: signalling by bone morphogenetic proteins or fibroblast growth factors. Experiments are in progress to manipulate these signalling pathways in mice in order to develop efficient drugs that could eventually improve bone formation in patients undergoing limb lengthening.

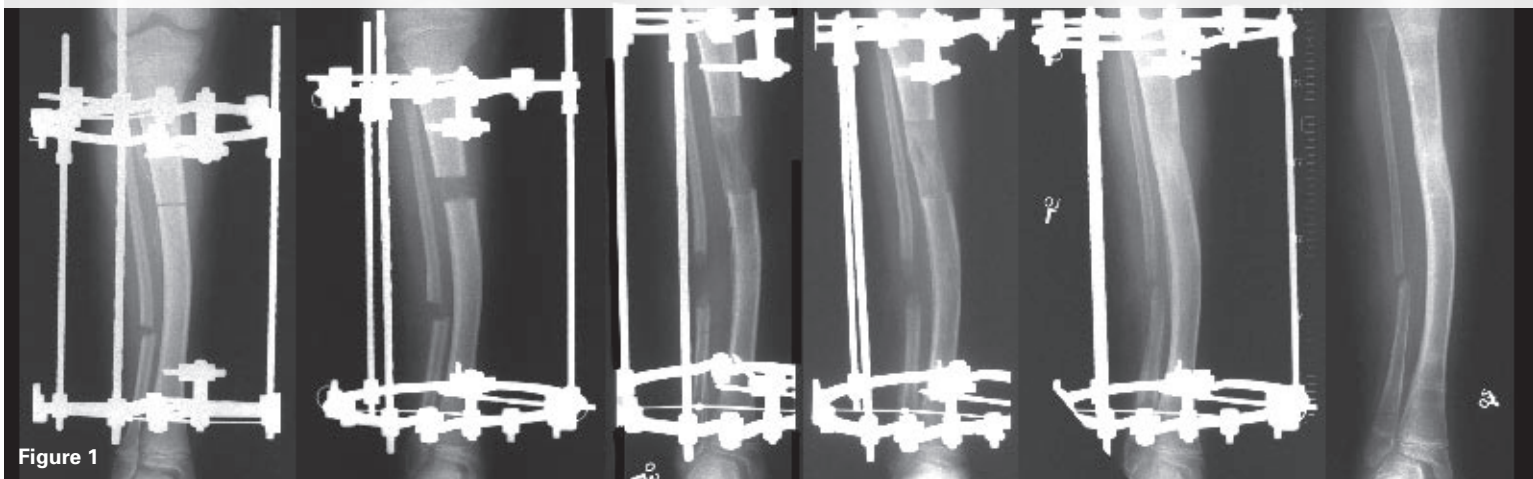


Figure 1

Radiological features of distraction osteogenesis in patients. The Ilizarov apparatus is clearly visible in the first five panels. The cut through the bone and subsequent gap following distraction can be seen in the leftmost panels. New bone becomes apparent as opaque material within the gap (middle panels). Once the newly formed bone is solid enough, the apparatus is removed (rightmost panel).

## Shriners from the Heart of Quebec Rally for the Kids

[Guylaine Ouellet] A delegation from the Shriners of Vallée du St-Maurice came to Montreal to present a donation to Hospital Chairman of the Board of Governors, Mr. Gary Morrison. This \$8000 donation is the sum of the fundraising events held in their area in 2007. The Vallée du St-Maurice Club is affiliated with the Karnak Shriners Centre in Montreal and it is composed of approximately 20 members. |

From left to right: Pierre Faucher, André Aubert, Gary Morrison and Jean Mongrain.



## New Study Focuses on Healthy Youngsters

[Frank Rauch, M.D., Ph. D.] Muscles and bones work together to move the body. When a serious disease occurs during childhood and adolescence, muscle and bone development can be affected and becomes abnormal. Any longstanding health problem (orthopedic diseases, rheumatologic disorders, cancer, etc...) can result in weak muscles and bones. To detect such weaknesses and treat them early on, it is important to measure muscle and bone strength. However, usual methods of measurement are not very precise. At SHC-Canada, we have developed a new technique, which we think is a better way to assess muscle and bone strength. Before we can use this new technique for our patients, we need to know the results in healthy young people in order to have a point of comparison.

This research project is being conducted jointly by SHC-Canada and researchers

at the Children's Hospital of Eastern Ontario. Researchers are currently recruiting young people between 6 and 20 years in order to measure healthy muscle and bone strength.

The testing process is simple and painless. Muscle strength is measured during easy jumping exercises. Leg bone density is evaluated with a special computed tomography machine which takes a picture (similar to an x-ray) of leg bones and surrounding muscles. Each participant is asked to fill out two questionnaires; one on what they eat and another on how much they exercise. The whole series of tests takes about one hour for each participant.

For more information please call 514-282-7158. |



# Shriners Are an Indispensable Volunteer Network

[Emmanuelle Rondeau] Shriners Hospitals for Children depend on the support of Shrine Centres across North America. In 2008, approximately 375 000 Shriners took on fund-raising events and volunteers in the 22 hospitals of the Shrine system. The Canadian Hospital is affiliated to the following 17 Shrine Centres:

## Al Shama Shrine Centre

Edmonton, Alberta  
www.alshamalshriners.org

## Al Azhar Shrine Centre

Calgary, Alberta  
www.al-azhar.ab.ca

## Bektash Shrine Centre

Concord, New-Hampshire  
www.bektashshriners.org

## Cairo Shrine Centre

Rutland, Vermont  
www.cairoshriners.com

## Gizeh Shrine Centre

Burnaby, British Columbia  
www.shriners.bc.ca

## Karnak Shrine Centre

Dollard-des-Ormeaux, Quebec  
www.karnakshrine.com

## Khartum Shrine Centre

Winnipeg, Manitoba  
www.khartumshriners.org

## Luxor Shrine Centre

Saint-John, New-Brunswick  
www.luxorshriners.ca

## Mazol Shrine Centre

St-Jean, Newfoundland  
www.mazolshriners.com

## Media Shrine Centre

Watertown, New York  
www.webruler.com/shriners/  
media.htm

## Mocha Shrine Centre

London, Ontario  
www.mochashriners.org

## Mount Sinai Shrine Centre

Montpelier, Vermont  
www.webruler.com/shriners/  
mtnsinai.htm

## Oriental Shrine Centre

Troy, New York  
www.orientalshrine.org

## Philae Shrine Centre

Halifax, Nova-Scotia  
www.philae-shriners.com

## Rameses Shrine Centre

North York, Ontario  
www.rameses-shriners.ca

## Tunis Shrine Centre

Ottawa, Ontario  
www.webruler.com/shriners/

## Wa Wa Shrine Centre

Regina, Saskatchewan  
www.wawashriners.org

## Luxor Shriners

[Danny Bird] Last December, the Shriners Hospitals for Children (SHC) – Canada Outreach Clinic in Bathurst, New Brunswick celebrated its fifth anniversary. More than 500 children have attended this clinic since it was implemented in the fall of 2002. Thanks to the specialized follow-up services provided at this clinic, parents have been able to obtain treatment closer to home and the Shrine has saved a considerable amount of money in travel expenses.

The Outreach Clinic at the Chaleur Regional Hospital is staffed with a health care team composed of a physician and a nurse from SHC in Montreal who travel to New Brunswick four times a year to provide follow-up care to children of the region.

On the occasion of the celebrations, the Luxor Shriners through their eight Shrine Clubs donated \$36,000 to the Chaleur Regional Hospital Foundation.



These funds will be used to purchase new equipment, which includes a digital radiography unit, an orthopaedic workstation, and an electric lift examination table.

According to Dr. François Fassier, Chief of Staff at SHC – Canada, “The donation will allow for the purchase leading-edge radiology equipment, thereby improving the quality of care. The lift table will ensure easier access for patients, while being ergonomically correct for the health care staff.”

“We are very proud of the work we do to raise funds to help with the expenses of families who need to travel to the Shriners

III. Sir Daryll Stothart, Noble Scott Magee; Noble David Corey; Noble L. Barry Mabey; III. Sir Darrell Munn, Potentate; Noble Edward Gilks and Jean-Guy Robichaud, Treasurer of the Chaleur Regional Hospital Foundation.

Hospital for Children in Montréal or the Shriners Outreach Clinic in Bathurst,” said Darryl Stothart, coordinator of the Bathurst Outreach clinic. “Through special projects, the Shriners of New Brunswick have raised funds to purchase the equipment needed to ensure better services to our patients.”

Shriners Hospitals  
for Children - Canada  
www.shrinershospitals.org  
1-800-361-7256

