



THE **ORTHO** **PEDIK**

Helping Kids Defy the Odds



■ Maika, 4 years old [cover story]

The EOS Effect?

See how Maika and Gabriel will benefit from the new 3D imaging system

[Maurice Crossfield] Spinal surgeons have always been faced with the challenge of working on a patient without having a full view of the bone structure they are working on until they are in the midst of the procedure. But thanks to the new EOS imaging system at the Shriners Hospitals for Children® – Canada, that obstacle has become a thing of the past.

Maika's story

Maika's family is particularly pleased with the new arrival of the EOS imaging system. At the age of four, Maika has already undergone numerous X-rays as doctors try to treat several conditions, including Pierre Robin syndrome, scoliosis and a loss of bone density. While her treatment has so far resulted in incredible improvements in her quality of life, many more treatments lie ahead. Her condition of campomelic (boney) dysplasia will also require many more X-rays to monitor her condition.

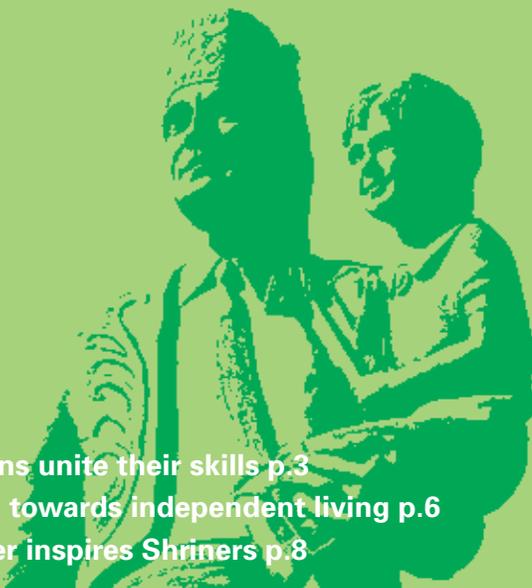
"She's had three operations a year with a minimum of six X-rays for every operation," said her father, François Bouffard. "Plus the other 12 times during the year where they are doing X-rays to monitor her bone density. Now she will only be exposed to a fraction of the radiation she was exposed to before." With EOS, with the same number of X-rays she still won't have reached a tenth of what she would have been exposed to previously. The EOS X-ray imaging system will be there, giving doctors the best possible images to ensure the best possible treatment.

Taking the guesswork out of orthopaedic surgery

"Surgeons used to rely on two dimensional images to determine the type of surgical intervention," said Jean A. Ouellet, M.D., orthopaedic surgeon at the Shriners Hospitals for Children® – Canada. "The EOS system eliminates the guesswork" [continued on page 4]

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Innovation Now

[Reggie Hamdy, M.D.] It's a fact. Excellence in pediatric care is brought forward by innovation in research, clinical and surgical expertise and technology. In this issue of the Orthopedik, the stories of Thanh Hien as well as our cover story on the positive impact of the new EOS imaging technology purchased thanks to a generous donation from the LOSNA showcase the excellence we strive to achieve.

It is my distinct pleasure to announce the appointment of Jean A. Ouellet, M.D. as Deputy Chief of Staff of Shriners Hospitals for Children® – Canada. He is the recipient of the McGill University Health Centre Scoliosis and Spinal Research Chair and is recognized by the Quebec government's Fonds de la recherche en santé du Québec (FRSQ) as a Clinical Investigator (Chercheur Boursier Clinicien 2). Dr. Ouellet com-



pleted medical studies at the University of Ottawa, orthopaedic surgical specialization at McGill University and a pediatric, orthopaedic and scoliosis Fellowship at Texas Scottish Rite Hospital, Dallas. He completed an additional Fellowship at the Nottingham University Hospital in England. In the early 90s, he con-

ducted an international health development and research project in rural Malaysia, funded by the Canadian Society for International Health. He is also the recipient of important multi-year, peer-reviewed operating and education grants, notably from the Department of Defense, CIHR, FRSQ, Scoliosis Research Society, MITACS, and AOSpine of North America.

Besides his numerous academic and surgical skills, he is the loving husband and father of three. Despite his busy schedule he finds time to cycle and play a competitive game of squash. |

Administrator's Message

As Shriners Hospitals for Children® – Canada moves towards the construction of our new hospital on the Glen Campus, you, our readers, have asked us to keep you apprised of the latest news, developments and innovations. This is why, as of this issue, you will find that there will be a major shift in the Orthopedik newsletter. Our articles will focus more on the new project, how it will improve the patient and family experience and how it will benefit our health care specialists, staff, researchers and students. We will inform you about our fundraising activities, new technologies and their impact on patient care as well as advances in research and treatment. The Orthopedik will become

a tool and reference to support our future campaign to build our new hospital.

Simultaneously, Leaders in Care, a new newsletter which is published by the Public Relations Department at corporate headquarters of Shriners Hospitals for Children® will cover stories from the 22 hospitals in our system and will showcase the dedication and courage of our patients, staff, volunteers and, of course, our Shriners.

Our stories often go beyond words in print. Thanks to a revamped website, our Facebook and Twitter pages, there are now videos, interviews with our experts,

news clips, and articles on line. We invite you to visit our Facebook page at Shriners Hospitals for Children® – Canada and follow us on Twitter at ShrinersCanada. In fact, currently Thanh Hien, Gabriel and Maika come to life as they are featured in wonderful new stories on these sites.

Sincerely,

Céline Doray

The Orthopedik is a quarterly publication of the **Shriners Hospitals for Children® – Canada**
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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 erondeau@shrinenet.org or **514-282-6990**.

The Orthopedik can also be downloaded from www.shrinershospitalforchildren.org

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A Surgical Challenge that Changed a Life

[Maurice Crossfield] When four year-old Thanh Hien was run over by a large truck, in Vietnam, it seemed that she would never walk properly again. Thanks to the leading edge surgical care at the Shriners Hospitals for Children®– Canada, she is now walking the road to recovery.



Thanh Hien at her arrival

In August 2010, now nine year-old Thanh Hien was brought to Montreal, helped by a sponsor family. At her arrival, she was unable to wear shoes and had to grasp a baby slipper between her toes and drag it to protect the side of her foot weight bearing to the ground.

Despite the serious deformity of her foot due to the crushing effect of the accident and the extensive burn-like scarring, enough blood vessels had survived to make a microsurgical reconstruction possible.

The Surgery

In early September, the carefully planned 12 hour surgery required the unique com-

bination of skills and expertise of Lucie Lessard, M.D., Head of Plastic Surgery at the McGill University Health Centre and orthopedic surgeon Reggie Hamdy, M.D, Surgeon in Chief at Shriners Hospitals for Children®– Canada. For the first four hours, Dr. Lessard carefully removed the scar tissue to dissect and preserve the arteries and veins. Dr. Hamdy patiently manipulated the affected area in order to progressively realign the ankle and the foot to install an external Ilizarov fixator while Dr. Lessard removed a flap of skin, fat, fascia, tendon, an artery and



During the time her foot is in the Ilizarov fixator, Thanh Hien shows off her Halloween costume

veins from Thanh Hien's forearm with a microsurgical connection of harvested forearm into the radial artery and vein to the ankle artery and vein. The connection was successful. The newly connected flesh was then tailored to replace the traumatized skin. The microsurgical flap maneuver brought new and fresh blood to the scarred and traumatized ankle.

Thanh Hien's lower leg and foot remained in the Ilizarov fixator for many weeks.

In order to gradually ensure the repositioning of her foot and all of the soft tissues surrounding it, Dr. Hamdy prescribed specific adjustments of the Ilizarov device. On a daily basis, a nurse from the inpatient unit team would perform the adjustments and with Thanh Hien's help care for the entry sites of the Ilizarov. This allowed for the slow and controlled stretching of the microsurgical flap to revitalize function and position. By mid December the Ilizarov fixator was removed and replaced with a cast to ensure the final repositioning of her foot.

In January 2011, Thanh Hien underwent rehabilitation therapy, finally walking on the sole of her foot and proudly wearing her first pair of sneakers.

The End Result

A few weeks later, Thanh Hien returned home to Vietnam, this time with both feet firmly on the ground. |



Thanh Hien wearing her first pair of real sneakers walking with her mother Hung Ngo

EOS: A Safer Alternative

[continued from page 1]

that came with traditional 2D images. We are able to obtain CT (computer tomography) quality images of the spine in an upright position with a 3D rendition of the entire spine.”

Developed from a Nobel Prize-winning technology by a team of engineers, orthopaedic surgeons and radiologists, the system uses two low-powered beams of radiation to take full frontal and side images of the patient while they are standing. Using a system of reference points, radiology technicians can then combine the front and side views to create a full three-dimensional image of the patient’s bone structure. This in turn provides the orthopaedic surgeon with over 100 clinical parameters for pre- and post-operative surgical planning. “This was designed specifically for spinal deformities,” Dr. Ouellet explained. “Because the joint is in a weight bearing position we have better insight into the deformity and are therefore better able to correct it.”

Safer

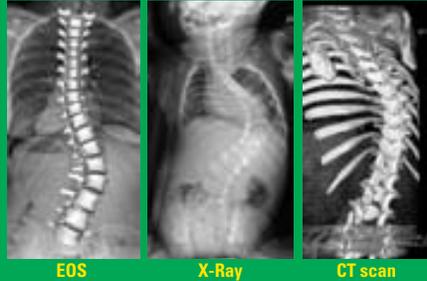
François Champion, Head of Medical Imaging, said the EOS system will replace CT scans for many patients, while only taking a few minutes to complete. “With this system we are getting a better quality image with up-to 89% reduction in radiation exposure compared to a conventional X-ray.”

This reduction in exposure is especially important for the young people who will

“With this system we are getting a better quality image with up-to 89% reduction in radiation exposure compared to a conventional X-ray.”

– François Champion

Imaging Comparison



be examined using the EOS system at the Shriners Hospitals for Children® – Canada, as they are more susceptible to the negative effects of X-ray radiation. Studies have shown a link between the exposure of teenage girls to X-rays and higher rates of breast cancer later in life. Yet having access to those images is vital to diagnosing spinal problems and determining the best corrective treatments.

Better understanding

“The better you understand where the pathology is, the better your ability to correct the problem,” said Dr. Ouellet. “With a clearer idea going into the procedure there is less risk for the patient and better potential for faster rehabilitation.”

The resulting image can even allow a surgeon to do a “virtual surgery,” going over the procedure in detail before carrying it out on the patient. Once the stuff of science fiction, doctors can now navigate a patient’s spinal column on-screen.

No small task

The EOS system required the construction of an entirely new examination room to house it, complete with lead-lined walls and new electrical installations. Construction took eight months to complete, with everything built to the highest possible standards for safety and efficiency.

Image: EOS Imaging, Canada



EOS imaging system acquired thanks to a donation of \$565,000 from the LOSNA

Bringing the EOS X-ray system to the hospital was made possible through a \$565,000 donation by the Ladies of the Oriental Shrine of North America (LOSNA), on behalf of Lady Dorothy Erma Rutherford.

To be able to use the EOS system all of the radiology technicians required a three-day training session to learn to use the EOS imaging system, followed by another three days of on-computer training to perform the three-dimensional reconstruction, a process that takes about ten minutes.

Discovering the possibilities

“It’s mainly intended for spinal work, but we can use it on other parts of the body as well,” said François Champion, “This is the first imaging system of its kind in the Shriners Hospitals® network and we are still discovering all of its possibilities. It is very motivating to have this kind of new technology coming in.”

With only a handful of EOS imaging systems in North America, this is the

"It is very motivating to have this kind of new technology coming in."

– François Champion



first McGill University-affiliated site to possess the technology.

"This is a winning situation for everyone," Dr. Ouellet said. "Less radiation, more information with the patient in an anatomically correct position, and the pictures we get are of CT scan quality."

Gabriel's Story

For ten year-old Gabriel, the EOS X-rays mean doctors will be able to keep a closer eye on his spinal column as he grows without exposing him to unnecessary radiation. Born with three vertebrae that were tethered together and suffering from scoliosis, he underwent surgery at age nine in which one vertebrae was removed and then steel rods and screws were inserted to straighten out the extreme curve of his back.

"He will require these X-rays twice a year, probably until he stops growing," said his mother, Lacramioara Pliot. "We are very happy that there won't be so much radiation, yet he can be followed closely." Gabriel's condition has improved to the point that he wants to become an astronaut when he grows up. He even wrote a book about his dream which he gave to his orthopaedic surgeon Dr. Ouellet. |

"With a clearer idea going into the procedure there is less trauma for the patient and the potential for faster rehabilitation."

– Jean A. Ouellet, M.D.



EOS system
3D rendition

Image: EOS Imaging Canada



Gabriel, one of the first patients to be examined with the EOS 3D medical imaging system

On the Path... to an Active Life Independence Camp

[Trudy Wong] In July 2010, five patients from Shriners Hospital for Children®– Canada participated in the 2nd Edition of *On the Path... to an Active Life Independence Camp* at Camp Massawippi in Quebec's Eastern Townships.

This year, the two week camp was expanded so that francophone and anglophone participants with either spina bifida or cerebral palsy could participate and interact with each other.

In addition to regular camp activities, *On the Path* offered workshops to help with life skills such as preparing a simple meal as a group, budgeting and doing laundry. Rochelle Rein, physiotherapist, led an adapted sports workshop and Trudy Wong, social worker, helped facilitate the goal-setting and budgeting workshops.

“Thanks so much to the Philae, Tunis and Karnak Temples for their generous donations which made it possible for these youths to benefit from this life-changing experience” said Trudy Wong. |



Nathalie, Christopher, Valerie, physiotherapist Rochelle Rein, physiotherapy student Julie Letendre and Paige

Campers at the 2010 *On the Path* camp



In June 2010 I was fortunate to attend Camp Massawippi with the support of the wonderful Shriners from Philae. I live in Nova Scotia and travelled to Quebec to attend camp.

It was my first time away from my home province alone. Camp Massawippi was a great learning experience for me and helped me advance my independence and living skills. One of my favorite memories of camp is that I got to meet so many great people. There were many laughs, stories, songs and games carrying on in our cabin.

For 20 years I have been with the Shriners Hospital for Children®– Canada, and I got to see some people from the hospital at camp like Trudy and Rochelle. It is always wonderful to see a familiar face when so far from home. Camp Massawippi was one the highlights of my summer last year. I hope to attend again this summer and see some people I have met as well as advance my independence skills even further.

*Sincerely,
Paige*

My second year at camp was quite different than first because the program focused more on autonomy. This was thanks to the fact that they had more workshops that helped us learn new things. This was very good and beneficial because it allowed me to get my temporary drivers permit and I am now awaiting my official license.

I want to thank the Shriners Hospitals for Children®– Canada, the Spina Bifida Association and Hydrocephalus Association of Quebec, for the opportunity for two consecutive years to participate in this program. Thanks to you, I have met extraordinary people who feel like a second family to me.

Thank you again for this amazing experience that has changed my life!

Nathalie

Generations of Children Will Learn Their A, B, C's Thanks to AHEPA!



The Montreal AHEPA Family (American Hellenic Educational and Progressive Association) has fulfilled its six-year pledge to raise more than **\$250,000 to fund the classroom in the new Shriners Hospitals for Children®- Canada.**

At the 2011 Annual St-Valentine's Charitable Ball, members of AHEPA presented the final installment of \$58,000 to the Chairman and members of the Board of Governors, Shriners, hospital representatives and teachers from the classroom.

Nick Aroutzidis, President of the Canadian Order of AHEPA said

"I am proud of the work that Montreal's AHEPA Family has done over the years, two of the most important missions of AHEPA, Education and Philanthropy have been fulfilled for the benefit of children across Canada."



Abigail Proudly Presents First Donation Towards New Hospital

Over the years, Karen Winter and her 8 year-old daughter Abigail have travelled to the hospital three times from Badger's Quay (Newfoundland) for treatment. "We are inspired by the work of the hospital staff and the Shriners who have taken care of everything," says Karen. They were so moved by the care that Abigail

had received that Karen collected \$500 at work this year to go towards building the new hospital, which Abigail is excited to see. "It's wonderful that the Shriners Hospital for Children®- Canada can help even more children and keep doing what they do." says Karen. |

Board Members Recognize Generous Estates

Bill Miller, member of the Board of Governors and representative of Al Azhar Shriners from Calgary (Alberta), unveiled recognition plaques in honour of 3 estate bequests from members of the Temple. Members of the Board of Governors gratefully acknowledged the generous individuals who donated over \$1.3 million through bequests.

Shriners Hospitals for Children®- Canada paid tribute to the following Estates:

- Shriner Blake Springer a bequest of \$339,112,
- Shriner Andrew Wilfert Benedix a bequest of \$368,238,
- Shriner George Edward Windsor a bequest of \$614,000. |



Dr. Robert Drummond, Chairman of the Board of Governors, with Bill Miller



A Story of Hope – WA WA Temple

[Don McDougall] *“This is a story of a young boy and the love of his family who are a beacon of light which motivates our actions.”*

To the nobles at the WA WA Shriners in Estevan (Saskatchewan), it seems like just yesterday when the Brown family reached out to them for help. Carter was born with some difficulties and his parents learned shortly after that he had a condition called osteogenesis imperfecta (OI) also known as brittle bone disease.

“With the comments we had heard before our trip we thought nothing could be done but within five minutes the team in Montreal gave us all the hope in the world” said Jenn Brown. Carter’s physicians were François Fassier, M.D., inventor of the Fassier-Duval rod, a telescopic rod used to treat the condition and Francis Glorieux M.D., Ph.D., who pioneered a treatment for OI called Pamidronate. Carter’s medical team was also included an occupational therapist, physiotherapist, dietician, social worker, and nurses including a care coordinator and cast technician.

Carter has had a major impact upon the nobles at the WA WA Temple. He assisted Ill. Sir Don McDougall at the circus shows in 2010, after confidently walking out to the center ring to the delight of all, he opened up with his enthusiastic “On with the show!”.

The Browns believe that their spunky little four year-old is determined and lets nothing stop him. This was demonstrated during the visit of Imperial Sir George Mitchell and Lady Deanna when Carter was asked to come to the front of the hall and he ran up from the far back corner.

During their most recent trip to the hospital, they met a young family that has a baby girl with OI. “It was their first time at the hospital and we spent a lot of time talking about dealing with OI and their baby” said Jenn. Another family had done the same for the Browns during their first trip and they were happy to be able to do the same for others.

As a result of Carter’s journey Mike and his father-in-law Paul Deren have both become Shriners. Mike has completed his term as President of the Estevan Shrine Club turning the reins over to Paul in 2011.

At home Carter is attending pre-school and running around with the other children.

“We are so thankful every day for the Shriners and all they have done for us. Without them and their hospital, life would be a lot scarier right now” said the Browns. |



Imperial Potentate George Mitchell, Mike Brown and Past Potentate of WA WA Don McDougall with “Future Shriner” Carter

In researching possible help, his parents Jenn and Mike were referred to a local Shriner. Within a very short time Carter was accepted by the Shriners Hospitals for Children®– Canada.

