gency physician and associate professor at York University's School of Health Policy and Management, also cites bed blockages as the key to ED overcrowding, although other measures — such as improved home care to keep patients with chronic illnesses out of the ED — are also needed.

He also recommends better communication between specialists and general practitioners to help manage people with chronic illnesses, as well as long-term, stable health care funding, to enable hospitals and health-care regions to plan ahead for 5 years or more.

Montreal's Regional Health Board has had some success in dealing with overcrowding. Over the last 2 years, the board has increased home care services and improved access to medical clinics and outpatient services to free beds within hospitals, says Julie Boucher, who oversees EDs for the board. The board has also developed a management guide to improve coordination between emergency physicians and those coordinating admissions. Some hospitals have hired medical coordinators who are on-site or on-call 24/7.

There has been progress, but the board's goal, to ensure no patient waits more than 12 hours on a stretcher to get a hospital bed, hasn't been reached.

In Ontario, Liberal Premier Dalton McGuinty campaigned on promises to open 1600 more hospital beds, hire 8000 nurses and make it easier for international medical graduates to practice medicine — promises he has since delayed, given the province's fiscal woes.

In Halifax, where charge nurse Del MacKinnon works in emergency at the Queen Elizabeth II Health Sciences Centre, the province did open 21 new long-term beds in early April. The decision was part of a 10-point plan responding to charges by unionized staff that patient backlogs were endangering lives. "Hopefully the turnover will open up other beds [for acute care patients]," says MacKinnon.

Other proposed solutions include the type of pilot program tried in Rivière-du-Loup, Que., where pharmacists were an integral part of ED medical teams, analyzing patient files and responding to drug allergies, incorrect dosages or prescriptions and drug interactions.

These solutions may help reduce backlogs, but will not eradicate them because they don't address the underlying cause, maintains Drummond and CAEP. "The principal problem for emergency medicine is overcrowding, and we have a solution: increase bed capacity. The question is whether we have the political will to enact that solution." — *Laura Eggertson*, CMAJ

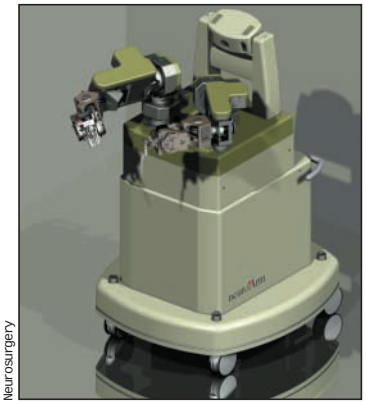
SURGICAL TECHNOLOGY

Robot arms to revolutionize neurosurgery — and more

DOI:10.1053/cmaj.1040616

The development of a space-age robot enabling neurosurgeons to operate with greater precision and dexterity from *outside* the operating room received critical funding that should see it in use by 2006.

The $30-million Project neuroArm, a joint Calgary Health Region and University of Calgary venture, will incorporate microsurgical tools and real-time magnetic resonance imaging (MRI) to guide surgeons — working behind a desk — through the brain's complex folds. A $10.5-million federal grant from the Canadian Foundation for Innovation, announced Mar. 9, will complete the funding.



Neurosurgery

The neuroArm technology holds great promise.

Once the neuroArm is built, sound, sight, and touch data enhanced through the robotic sensors and MRIs will flow onto computer screens to create 3-dimensional images that will map the brain for surgeons.

The microscopic precision of what will be the world's first image-guided surgical robot, being built by the same company that designed the Canadarm used by NASA in outer space, is part of a technological revolution, says Dr. Garnette Sutherland, project leader.

"It's not just about building a robot, it's about changing surgery," Sutherland said from his office in Calgary.

"Robotics are more precise ... are much more ergonomic and improve surgeon stamina. It opens the door to telesurgery, surgical simulation, and translates molecular imaging and nanotechnology into the operating room."

Sutherland worked with MD Robotics of Brampton, Ont., for 2 years to design the squat robot, which is reminiscent of Star Wars' R2D2. The machine will be operated by a surgeon using hand controls to move surgical tools while watching a screen, thus increasing visualization and removing the danger of hand tremors.

Sutherland envisions other disciplines will use the neuroArm to improve techniques and patient care. "Virtual surgery is a natural progression of robotics," he said. (Robot photo reprinted from Louw DF et al. "Surgical robotics: a review and neurosurgical prototype development." *Neurosurgery* 2004;54:525-37) — *Dina O'Meara*, Calgary, Alta.