

July 8, 2015

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Stroke care on wheels saves time and brains

Canada's first stroke ambulance to give stroke patients best chance for recovery

EDMONTON — Canada's first stroke ambulance — complete with a CT scanner, clot-busting drugs and the potential to cure a stroke before the patient even reaches hospital — is coming here thanks to the University Hospital Foundation's next major investment in the advancement of brain care at the University of Alberta Hospital.

The total cost of the stroke ambulance — \$3.3 million — will be funded by donors to the University Hospital Foundation.

"Its purpose is simple," explains Dr. Ashfaq Shuaib, Director of the Stroke Program at the University of Alberta Hospital. "Rather than waiting for the patient to go to the stroke centre, we send the stroke centre out to the patient.

"We can scan the patient's brain and start clot busting drugs right there in the ambulance. Reducing the door-to-treatment time is critical in saving the patient's life and limiting their disability. We can actually cure them of the stroke."

Through its Brain Centre Campaign, the University Hospital Foundation is committed to supporting the creation of a world-class Brain Centre at the University of Alberta Hospital to serve patients in Edmonton, Central and Northern Alberta. The Foundation has already raised more than \$31 million.

"Our vision is to support the University of Alberta Hospital to provide brain patients from across Alberta, Western and Northern Canada access to the most advanced diagnostic technology and treatment options in the world, right here in Edmonton," says Brain Centre Campaign Co-Chair Jim Brown. "The Stroke Ambulance is a tremendous example of the direct and tangible impact our commitment to the Brain Campaign will have on all Albertans."

The stroke ambulance has been custom-designed to meet the unique needs of Edmonton's environment and service area. And it is breaking new ground: the stroke ambulance at Alberta Health Services' (AHS) University of Alberta Hospital will be the first CT mobile stroke unit in the world to provide stroke patient care beyond the limits of a major urban centre. As part of a three-year clinical research project, researchers will study in detail its impact on patients' treatment and recovery as well as savings to health care and the community.

"The time for this project has come," adds Dr. Shuaib. "The outcomes of stroke are devastating, but the advancements in treatment have come so far in the last few years, and even months. We have the opportunity to get that treatment into the community; to where patients are."

Lorna Friess, a stroke patient who lost the use of half of her body in 2013, says early intervention could have made a huge difference in her outcome. The 43-year-old, who lives at South Cooking Lake (east of Sherwood Park), says she's glad others will benefit from this new approach.

"The difficulties I face as a result of my stroke are massive. Every day life takes so much effort. This project will save so many lives — and save so many people from facing the challenges I face. It is such a huge advancement for stroke care," she says.

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Extending stroke care into rural areas is significant, because nearly 25 per cent (313) of the more than 1,300 stroke patients who received acute stroke care at the University of Alberta Hospital in 2014 came from beyond the Edmonton Zone.

“The further you live from a centre that can give clot-busting drugs for a stroke caused by clotting, the greater the chances that you’re going to suffer major disability in a life-changing way, or die,” says neurologist Dr. Tom Jeerakathil, who serves as Northern Stroke Lead for the provincial Cardiovascular Health and Stroke Strategic Clinical Network.

About two million brain cells are lost each minute after a stroke. Losing brain cells isn’t the only challenge; doctors need to know what kind of stroke you’re having to provide life-saving care. An ischemic stroke happens when a blood vessel (artery) supplying blood to the brain becomes blocked by a blood clot. About 80 out of 100 strokes are ischemic strokes. A hemorrhagic stroke happens when an artery in the brain leaks or bursts (ruptures).

The only approved treatment for ischemic strokes is tissue plasminogen activator (tPA), a clot-busting drug that improves blood flow to the part of the brain being deprived of blood flow. But if tPA is given to a patient suffering a hemorrhagic stroke, the results can be deadly. And since the treatment window for stroke is counted in hours, Doctors need to identify the type of stroke quickly — and definitively — to save critical brain cells.

In the new stroke ambulance, a radiology technologist will join the two paramedics that ride in a standard ambulance. A fully operational CT scanner will be mounted in the unit, which will also be equipped with audio and video equipment so the attending stroke neurologist at the University of Alberta Hospital will be able to see and speak to the patient in the ambulance.

If the stroke neurologist confirms the patient is suffering from an ischemic stroke, they will be given tPA in the ambulance. The goal of the stroke ambulance is to shorten the time between the onset of stroke and the delivery of clot-busting drugs — giving more Albertans suffering from stroke the chance to recover — and to live without life-changing deficits.

“This is a novel way of treating stroke patients,” adds Dr. Ashfaq Shuaib. “And my colleagues all over the world are already asking us to share our results once the project is completed.”

The University Hospital Foundation raises funds to support innovation and excellence at the University of Alberta Hospital, Kaye Edmonton Clinic and Mazankowski Alberta Heart Institute.

Alberta Health Services is the provincial health authority responsible for planning and delivering health supports and services for more than four million adults and children living in Alberta. Its mission is to provide a patient-focused, quality health system that is accessible and sustainable for all Albertans.

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