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Robots comfort patients at Alberta Children's Hospital

CALGARY – Four childlike robots are being used to comfort young patients during stressful medical procedures at Alberta Children's Hospital.

The two-foot-tall robots, named MEDi (Medicine and Engineering Designing Intelligence), are programmed to mimic the actions of a child and to calm apprehensive patients with small talk and high-fives during procedures, such as vaccinations and blood tests.

"Hospitals, even bright and friendly hospitals like this one, can put children on edge, especially if they are here for a procedure that might involve some discomfort," says Margaret Fullerton, Senior Operating Officer, Alberta Children's Hospital.

"We've been testing the MEDi robots here for almost three years and it has become quite clear that this technology significantly improves the health care experience for our young patients and their parents and caregivers. The Alberta Children's Hospital is fortunate to have access to the first robots in Canada specifically programmed to help children manage painful or stressful medical procedures. It's a useful – and very cool – technology."

In a recent study conducted by Alberta Health Services and the University of Calgary, 57 children between the ages of four and nine were able to interact with MEDi while receiving their seasonal influenza vaccination at Alberta Children's Hospital.

The study showed children who interacted with the robots reported 50 per cent less pain compared to youngsters who received their vaccination with little or no distraction.

"These results show the potential and benefits for using robotics to help manage a child's pain while having a medical procedure done," says Dr. Tanya Beran, Professor of Community Health Sciences at the Cumming School of Medicine, University of Calgary, who helped program the robots. "Robots can be used during blood tests and IV starts and other uncomfortable procedures, such as stitches or fracture sets. It can even be used for procedures that aren't painful but cause distress for children, such as X-rays. The opportunities are endless."

Dr. Beran says the robots also give instructions on how to cope and improve the dynamic between child and parent. "Parents know their child is nervous, which makes them nervous. MEDi gives instructions that helps join parent and child together in a common action," she says.

Sheila Sousa says the MEDi robots have been a source of comfort for her nine-year-old son, who visits Alberta Children's Hospital every two weeks for injections to manage his severe asthma.

"The procedure wasn't nearly as uncomfortable with MEDi in the room," Sousa says. "Not only did it calm him down, but it helped me knowing Aidan was preoccupied and interested in something other than his treatment. It made the entire experience so much easier."

"All Aidan could talk about after his injection was the robot."

The four robots were funded by community donations to the Alberta Children's Hospital Foundation for use throughout the hospital, including the Vi Riddell Children's Pain and Rehabilitation Centre.

"We're so grateful to our generous donors for supporting such innovative technology," says Saifa Koonar, President and CEO of the Alberta Children's Hospital Foundation. "Any time pain and distress can be reduced for children, it's a very good thing."

Developers plan to further enhance the technology by personalizing the interactions through the use of facial recognition software. MEDi would then be able to greet patients by name and customize conversations according to the patient's history.

The University of Calgary is a leading Canadian university located in the nation's most enterprising city. The university has a clear strategic direction – "Eyes High" – to become one of Canada's top five research universities by 2016, grounded in innovative learning and teaching and fully integrated with the community of Calgary. For more information, visit ucalgary.ca.

Alberta Children's Hospital Foundation inspires our community to invest in excellence in child health, research and family centred care. Through the generosity of donors, the foundation provides funding for innovative programs, state-of-the-art equipment, advanced medical training and internationally-recognized pediatric research. www.childrenshospital.ab.ca

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 care system that is accessible and sustainable for all Albertans.

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