Medtronic Canada Newsroom

World's First Heart Valve Replacement Using Extended Reality Platform Brings the Operating Room to the Remote Surgical Specialist for Virtual Support During Live Procedures



Platform Significantly Reduces Travel as a Barrier to Patient Care

MONTREAL, June 21, 2021 /CNW/ - The Jewish General Hospital (JGH), a member facility of the West-Central Montreal Health Authority (CIUSSS), together with Auger Groupe Conseil Inc. (AGC) and Medtronic Canada ULC — a subsidiary of Medtronic plc (NYSE:MDT) — have pioneered the first application of the Microsoft HoloLens for use in real-time, extended reality (XR) clinical support of a minimally invasive heart procedure.

On March 15th, 2021, this novel partnership completed the first end-to-end remotely guided transcatheter aortic valve implant/replacement (TAVI/TAVR) – a minimally invasive procedure to replace a heart valve. Dr. Sam Radhakrishnan, the proctor or teaching specialist in Toronto, was able to remotely guide the JGH TAVI team of Dr. Ali Abualsaud, Dr. Nathan Messas, and Dr. Emmanuel Moss through the procedure in real time at the JGH in Montreal, using the intra-operative extended reality platform. It is comprised of three key elements:

- The Microsoft HoloLens 2, a headset which enables bidirectional remote viewing in real time. The use of extended reality headsets and glasses has grown during the pandemic because of the limitations on travel to and within a hospital.
- A modular system that allows the remote proctor to view the cardiac event monitors in real-time, without requiring the active clinician wearing the HoloLens 2 to look up at the screens.
- A three-dimensional clinical pathway overlay depicting step-by-step instructions for a specific surgical procedure.

"We think of it as bringing the operating room to the surgical specialist. Rather than coordinating resources to bring a specialist to another hospital for training, now we can greatly simplify the process, which can help improve the timeliness of patient care, especially in an emergency," said Dr. Lawrence Rudski, director of the Azrieli Heart Center. "There are significant advantages to using a real-time, extended-reality system for both the proctor and the clinician on the receiving end, such as having the same view – which is almost better than being in the same, often crowded, room. In addition, this platform has the flexibility to be expanded to many other types of procedures."

During the initial peak of the pandemic in spring 2020, the JGH was designated as a lead COVID-19 treatment site. The ensuing staffing challenges, combined with travel restrictions, required effective and remote training solutions. In collaboration with Quebec engineering firm AGC, the JGH piloted the use of the Microsoft HoloLens to help train and redeploy staff.

"We chose to work with Microsoft mainly because of the HoloLens 2's unmatched performance and in part because of the security offered by their encryption design," said Marcel Lafontaine, CEO of AGC. "We are very proud of our work in combining the mixed reality experience of voice, video and a 3D overlay with no lag time. This is a unique plug-and-play solution, and we're very excited to see it deployed in such an impactful way for clinicians, and ultimately for patients."

The initial success of this project led to developing remote support in a complex clinical pathway and connectivity to medical

imaging with the help of leading medical device company Medtronic.

"We are thrilled to be able to contribute our expertise to this unique partnership and are looking forward to seeing this collaboration extend to other clinical pathways," said Richard Paré, regional business director of the CardioVascular Portfolio at Medtronic Canada. "This innovative platform can enable health systems to optimize surgical resources and scheduling, while protecting staff, during the pandemic but also afterwards as they shift their focus to addressing the surgical backlog."

The partnership is currently planning additional applications in the field of cardiovascular medicine and in other areas.

This project is supported by OROT Innovation Hub at the JGH.

Microsoft and HoloLens are trademarks of the Microsoft group of companies.

About CIUSSS West-Central Montreal

The Integrated Health and Social Services University Network for West-Central Montreal (CIUSSS West-Central Montreal) is committed to providing healthcare recipients with timely access to a seamless continuum of care that focuses on individuals' particular needs.

The area covered by this network is home to approximately 345,000 people, who are served by more than 30 member facilities. Included are one of Montreal's leading hospitals (the Jewish General Hospital) and an interlocking array of three specialized hospitals, five CLSCs, two rehabilitation centres, six long-term care sites, two-day centres and several affiliated research facilities.

Treatment and care are provided by a staff of more than 12,000, and over 600 doctors.

About Auger Groupe Conseil Inc.

https://www.augergroupe.com/en/augmented-reality

Founded in 1985, Auger Groupe Conseil consists of engineers and IT experts with a focus on the industrial and medical sectors. This includes expertise in Microsoft business & development partnerships, mixed reality platforms such as VR / AR / XR, and Artificial Intelligence. AGC is based in Canada, with teams in the USA and Spain.

About Medtronic Canada ULC

Proudly serving Canadian healthcare for over 50 years, Medtronic Canada ULC (www.medtronic.ca) is a subsidiary of Medtronic plc, the world's largest medical technology, services, and solutions company — alleviating pain, restoring health, and extending life for millions of people around the world. Serving physicians, hospitals, and patients across the country, Medtronic Canada ULC is headquartered in Brampton, Ontario, with regional offices in Montreal and Vancouver. The company is focused on collaborating with stakeholders around the world to take healthcare Further, Together.

Any forward-looking statements are subject to risks and uncertainties such as those described in Medtronic's periodic reports on file with the U.S. Securities and Exchange Commission. Actual results may differ materially from anticipated results.

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