Hands-free communications enhances patient care at Runnymede

BY MICHAEL ORESKOVICH

TORONTO – Runnymede Healthcare Centre, a 200-bed complex care and rehab hospital, has implemented a new, voice-activated technology to streamline collaboration among clinical staff. The centre is now using Vocera's hands-free, communication badges to support coordinated care for some of the most complex patients in the Greater Toronto Area (GTA).

By leveraging the new technology, Runnymede has increased its responsiveness to patients' needs, enhanced safety and elevated the patient experience.

Worn on lanyards, the badges recognize voice commands and respond by allowing staff to easily start conversations or receive incoming calls.

"The technology is lightweight enough to be comfortably worn at all times, so staff are always accessible during their shifts," said Runnymede's Vice President, Patient Care, Chief Nursing Executive & Chief Privacy Officer, Raj Sewda. "All they have to do is say the name of a person or department into their badge, and a conversation can start."

Prior to the badges' roll-out, clinical staff used mobile phones to communicate. Although practical, they were not ideal because staff often handle clinical instruments while treating patients. Hands-free badges enable staff members to talk with each other without interfering with the hands-on care they are providing.

The badges' ease of use also promotes increased collaboration among members of the clinical team.

Runnymede Healthcare Centre's adoption of Vocera communication badges enhances collaboration and the patient experience by increasing access to staff; the technology's portability is demonstrated by the hospital's Director of Patient Care, Frederick Go; Patient Care Manager, Simin Faridani; and Patient Care Coordinator, Victoria Forrest.

This enhanced collaboration also strengthens patient safety at Runnymede. If a patient has care needs that must be met urgently, the rapid communication facilitated by hands-free badges makes it possible for clinical team members to call others for support, or to quickly ask for additional supplies – all without ever leaving the patient's side or interrupting their care.

If the staff member they wish to reach is on their break, the system automatically sends the call to a designated back-up.

To further strengthen patient safety, badges will soon be linked to the hospital's nurse call system. "Before badges were implemented, it was only possible for nurses to be notified about patient calls through a digital display, and they had to go to the patient's room in order to talk with them," said Runnymede's Director of Patient Care, Frederick Go.

"Now we have the technology for notifications to be triggered on the badge worn by the patient's assigned nurse, who will soon be able to speak with the patient immediately after pressing their call button, to find out what they need and respond accordingly."

The badges are currently integrated with the hospital's main phone system, providing family members with a direct line to the clinical team if they have any questions.

"When a family member phones Runnymede, they're able to access our voice-activated system, and by simply saying the room and bed number of their loved one, they can be connected to the nurse who is assigned to them," said Go.

"This provides families with convenient access to our clinical team members whenever they need it."

If discussions are confidential and not suited to an open-air conversation, staff are trained to protect the patient's privacy by switching the badge's mode so that it works like a conventional mobile phone.

Runnymede anticipates the badges' recent implementation will support its delivery of safe, high-quality care. "The technology vastly simplifies communication and increases the accessibility of our clinical team, which benefits patients, families and staff alike," says Sewda. "It's an excellent tool for strengthening collaboration and enhancing our responsiveness to patients' needs."

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Universities across Canada foster the growth of healthcare innovation

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change the conversation," said Sellen. "Alison started to look at the moment of concussion and the motivators for actually changing behaviour and that's what led to this proposal with the helmet stickers."

Many of the projects under way in the program are designed for not-for-profit clinical environments where research and development resources are limited. There's no push to commercialize, but designs are often leveraged by other companies performing similar work, or further developed using government funds secured by the partner.

One student, for example, is working with the Schizophrenia Society of Canada's Youth Advisory Council to create a peer navigation app, intended to facilitate a more positive experience for youth with Schizophrenia through texting. Another project, led by Sellen, is developing an integrated digital strategy to provide easily accessible and brief first aid training to accompany naloxone kits used to treat opioid overdose. Randomized controlled trials of the digital training, available as a smartphone app, are scheduled to start at St. Michael's Hospital in Toronto.

At a time when mobile health apps are so pervasive, two Simon Fraser University (SFU) alumni have found a way to stand out from the rest by focusing on a next-generation, human-machine interface: wrist movement. Biomedical engineers Lukas-Karim Merhi and Gautam Sadarangani started to work with gesture recognition technology during their tenure as researchers at SFU.

They've since partnered with industry veteran and medical doctor Jose Fernandez to launch BioInteractive Technologies (BIT) and to develop a proprietary platform that accurately detects hand postures. Their flagship product is TENZR, a wearable wristband that detects six gestures out of the box: hand open, hand closed, up, down, left and right.

The product can be used to control medical equipment in operating rooms, complex robotic systems or mixed reality environments through gestures. It can also be applied to accurately monitor how people are using their hands.

TENZR is currently being evaluated by a lower mainland hospital as a tool to assist in stroke rehabilitation. Essentially, the product is a smart strap, using sensors embedded along its entire length to measure tendon and muscle movement without the need for calibration or any external beacons and cameras.

"The clinicians are interested in using the device to tell the number of times that a stroke survivor opens and closes their hand in a day," explained Sadarangani, who serves as the company's chief technology officer, with Merhi and Fernandez taking on roles of chief executive officer and chief operating officer respectively.

> **TENZR is currently being evaluated by a lower mainland hospital for stroke rehabilitation.**

"The premise is to encourage patients to move more or be more aware of days when they're not moving and to relay that information back to the primary care physician so they can intervene," he said, adding that up until now, that type of information was typically self-reported by patients.

TENZR is also well poised to play a role in the emerging world of ubiquitous spatial computing, where shared reality environments are emerging to solve challenges related to pain management, rehabilitation, surgical simulations and clinician training.

"Imagine that these digital assets you're looking at are all around you in 3D, and you're interacting with those assets, using your hands in the same way you interact with physical objects today," said Merhi.

BioInteractive Technologies is currently based out of SFU's Surrey, B.C., campus as an incubator client of Coast Capital Savings Venture Connection. Recently, the company was selected to take part in the Techstars Anywhere program, which provides access to hands-on mentorship, funding and lifelong access to the Techstars Network, one of North America's biggest start-up accelerators.

As their company marches steadily forward, the support of their alma mater is not lost on the two alumni.

"SFU prepared us for the challenges we took on beyond grad school," said Sadarangani. "Coast Capital Savings Venture Connection is bridging the gap between when an idea is in a founder's head and those first few crucial months to get things started."