Apps of the future will be prescribed to patients by their care-givers

**BY JOSEPH CAFAZZO
AND JESSICA FIFIELD**

TORONTO – More apps than ever are not only being recommended by healthcare providers, they are actually prescribed as part of their care.

This means more than it might seem. These apps are connected to the clinic, and information will flow both ways. Care decisions are made collectively, with the patient far more engaged and active than ever before.

It wasn't that long ago that physicians really didn't see a need for patients to have easy access to their personal health information. That has certainly changed in recent years, with patient portals emerging across the country.

Much remains to be done to improve the content and context of patient portals, and their role is likely to be more important in the near future than it is today.

Prescribed mobile health apps can take the utility of patient portals to an entirely new level. Targeted to a specific chronic illness, the apps will be used as personalized digital companions that offer access to contextualized, actionable information. They will also provide tactics to manage their conditions, and links to their care teams.

In this way, patients are care-givers and can become more proactive.

Clinicians are recognizing this and embracing mobile applications as an extension of treatment. So much so, that the latest generation of our apps are designed with the intent that they will be prescribed.

Currently, the clinic provides the patient an orientation to the app, but training shouldn't be necessary if the app is well designed with human-centered principles. Eventually, enrolment can be achieved by the patient alone through access to the patient portal.

For patients who require more assistance, a digital pharmacy could provide fulfillment and assist with providing access to

Ned provides continuity of care for prostate cancer survivors. Separate patient and clinician apps provides convenience to connect on symptoms and wellness. For the first time, lab results are retrieved from OLIS, enabling access for patients from across the province.

digital health peripherals, such as a blood pressure monitor, a weight scale, or a Fitbit.

Our team at UHN, consisting of designers, developers, human factors engineers, and researchers, have been working on realizing this vision by translating a decade of clinical trial learnings into a suite of apps for the self-care of chronic illness.

Medly, our app platform for those with multiple chronic conditions, is currently being prescribed by the Heart Function Clinic at University Health Network. Patients have been prescribed the mobile app which monitors patient vital signs and symptoms.

An algorithm determines the status of the patient and alerts the patient and clinic as needed. The system is able to detect problems before they become serious, creating peace-of-mind for patients, their families, and their care providers alike.

Ned, our prostate cancer survivorship application, will soon be prescribed by a number of oncologists in Ontario. Keeping these patients engaged and regularly reporting their symptoms is a challenge. Ned addresses this by prompting the patient regularly for status through widely used symptom surveys and also receives their PSA lab results with trends and interpretation.

In a first for patient access in the province, these lab results are fed directly from the Ontario Lab Information System (OLIS), and not through community lab systems or the hospital. The prospect of access to systems such as OLIS opens up the possibility of province-wide deployments. Stay tuned for more announcements of OLIS-enabled apps in the future.

Another app that will benefit from this improved access to clinical data is bant, our diabetes management platform, with its ability to track physical activity, meals, and record blood glucose levels via Bluetooth integration.

By creating a complete dashboard about their care, and by providing access

to their data from a seamless, secure provincial database, patients will be given opportunities for self-care that would not have been possible before. bant, will launch with this new functionality on both iOS and Android in the New Year.

Like any next generation of technology, barriers to integrate data from multiple sources are numerous. What is needed is the creation of a pathway, where applications can access and merge healthcare data, and eliminate the blind spots of privacy and security policy of personal health information.

In turn, such a pathway will lead to an ecosystem of prescribed apps, giving clinicians, patients and their families a completely new way to interact with one another outside of the traditional provision of care.

There are times when we need to reinvent the way we work. In healthcare, we are facing those times. There is no moment better to create technologies that let people live well despite serious chronic illness, and to have them achieve a level of independence that has never been possible before, when we thought of patients as simply passive participants in their own care.

Joseph Cafazzo is Lead, at eHealth Innovation, an organization previously known as the Centre for Global eHealth Innovation; Jessica Fifield is Communications Coordinator.

Joule, CloudDX aim to bring VR to hospitals

OTTAWA – Joule, the Canadian Medical Association's accelerator company, has announced a new partnership with Cloud DX, the award-winning Kitchener, Ont.-based digital healthcare and artificial intelligence (AI) innovator. The goal is to bring advanced technologies, such as virtual reality, into the hospital sector.

"In today's exponential age of digital and mobile health, AI platforms and new technologies like the Cloud DX Vitaliti monitor are becoming indispensable tools for improving patient outcomes. There is a worldwide shift in medicine to include sensor technologies, as physicians and patients focus on preventative treatments and actionable information," said Dr. Brian Brodie, Chair, Canadian Medical Association.

"Technology is changing the way Canadians will receive healthcare tomorrow and the development of the Cloud DX Vitaliti platform is bringing us one step closer to experiencing a futuristic clinical user experience, today."

Developed by Dr. Sonny Kohli and the Cloud DX team as Canada's entry in the recently-completed Qualcomm Tricorder XPRIZE competition, the Vitaliti is a wearable medical device that continuously records a patient's vital signs, collects data on symptoms, and uses artificial intelligence to autonomously diagnose 19 separate health conditions.

At the recent Singularity University Canada Summit, Cloud DX revealed a new mixed reality (virtual and augmented) application for clinical triage and decision support. By connecting Vitaliti to Microsoft's HoloLens, doctors will be able to

see a live 3D holographic display of the patient's vital signs in the HoloLens headset.

"In the not-so-distant future, we believe that automated, hands-free, mixed reality displays like the Microsoft HoloLens will enable doctors to quickly triage patients and decide on treatment options faster," said Dr. Sonny Kohli, Chief Medical Officer and Co-Founder, Cloud DX. "Vitaliti is meant to address capacity problems within our healthcare ecosystem by solving them through non-face-to-face innovation.

"This technology can also be used in remote and rural communities or from

> **Automated, hands-free, mixed reality displays like the HoloLens will enable doctors to quickly triage patients.**

someone's home when access to care is more challenging. In a country as vast as Canada, these resources can have a life-saving impact on Canadians."

The Vitaliti vital sign monitor is in clinical testing prior to approval by Health Canada, and the first commercial version of the technology will become accessible in 2018. Meanwhile, Cloud DX provides patients with at-home Connected Health diagnostic kits and subscription-based services that are medical quality, Health Canada licensed and already in-market.

Data from these kits can act as an early-warning system for patients going into crisis, assist in keeping immune-compromised patients out of hospitals.