INVESTING IN

CANADA'S FIRST SMART HOSPITAL: CORTELLUCCI VAUGHAN HOSPITAL

Mackenzie
Health
Foundation

THE ULTIMATE SUITS YOU

THE DIGITAL REVOLUTION — TRANSFORMING HEALTH CARE

The digital revolution has literally transformed every aspect of our lives — it's changed how we work, communicate, spend our leisure time, manage our finances and travel.

Mackenzie Health is now bringing the enormous power of the technologies we use in our day-to-day lives to transform the delivery of health care — saving lives, empowering patients, improving the hospital experience, and reducing errors and wait times.

Imagine early warning systems that use information from medical devices, laboratory tests and a patient's electronic medical chart to automatically detect subtle changes in their condition and send an alert to the health care team on their smart mobile device.

Imagine if a mobile telemetry monitor could automatically detect a patient going into cardiac arrest. That mobile monitor would not only notify the health care team, but also automatically open doors so the team could get to them as quickly as possible.

Imagine if a patient's meal is automatically matched to their dietary needs, and meals are automatically brought early or late depending on which diagnostic tests are being performed that day.

Imagine a smart hospital in which technology and information are used to anticipate the needs of patients and health care providers, and identify health issues before they become serious.

You don't have to imagine it any longer. This is the future of health care, and it's happening right here at Mackenzie Health.

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BUILDING CANADA'S FIRST SMART HOSPITAL

Construction on Cortellucci Vaughan Hospital is complete and the hospital is now fully open to our community.

- The 1.2-million-sq.-ft. hospital provides 350 patient beds with the ability to increase capacity to 550 beds. The first new hospital in Ontario in more than 30 years, it joins Mackenzie Richmond Hill Hospital, alongside our community-based locations, in providing access to state-of-the-art health care to residents.

- Cortellucci Vaughan Hospital is Canada's first smart hospital, featuring devices and information systems that communicate with each other to anticipate the needs of patients and health care providers. Much of this smart technology has also been applied to Mackenzie Richmond Hill Hospital.

- While digital technology has existed for some time, smart technology takes digitization one step further. Ultimately, smart technology becomes a digital member of the care team, helping to foresee what comes next in a patient's health care journey.

- For patients, it means more control, increased convenience, deeper knowledge and better outcomes. For the health care team, it means spending less time filling out paperwork, locating equipment and other staff, and gathering information from multiple places. And above all, there's more time to spend taking care of patients.

- In another Canadian first, Mackenzie Health is partnering with some of the world's leading technology companies to co-develop and test these new systems and devices in a real hospital setting before implementation. The Mackenzie Innovation Institute (Mi^2) was established in 2015 with the mission of implementing and evaluating innovative and patient-focused solutions. Mi^2 operates both a simulation laboratory as well as a "living laboratory" — a 34-bed acute care innovation unit created at Mackenzie Richmond Hill Hospital to pilot systems to ensure they're effective before they're rolled out across the hospital.

DESIGNED THROUGH THE EYES OF THE PATIENT

In late 2017, more than 450 people — including residents from across York Region, as well as hospital staff, physicians and volunteers — were able to experience "built to scale" patient rooms that were designed with input from patients, families and clinicians. The spaces, which included mental health and critical care unit inpatient rooms, operating suite and an emergency department examination room, to name a few, were also used to test real patient care scenarios.

This allowed the Mackenzie Health team to incorporate adjustments to the room designs to ensure safe and functional spaces that support our vision of creating a world-class health experience.

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This is a patient room which includes a smart bed, bedside tablet and a computer to document care in real time, among many other features.

PROVIDING ACCESS TO STATE-OF-THE-ART HEALTH CARE

Mackenzie Health has emerged as a community hospital leader equipped for growth and innovation. With a mission to relentlessly improve care to create healthier communities, Cortellucci Vaughan Hospital and Mackenzie Richmond Hill Hospital integrate technologies to elevate health care in York Region.

WHAT DOES SMART MEAN IN A CODE BLUE?

On a chilly fall morning, Joe, 50, visits the emergency department. He's not feeling well and is experiencing some chest pain. Joe's admitted and placed on a telemetry cardiac monitor for close observation.

A few minutes later, the monitor detects he is about to go into cardiac arrest. His health care team is automatically alerted through their smart mobile devices, silently, eliminating the need for a hospital-wide overhead Code Blue page. Doors open before the team even gets there, allowing them to get to Joe's bedside quicker. The lights in his room turn on and essential clinical information is automatically displayed on the computer. Ultimately the team is able to intervene and save his life.

Simultaneously, notifications of this incident are automatically sent to ECG and X-ray technicians, and the diagnostic laboratory, in anticipation of required testing that will need to be performed to help Joe's physician create a personalized treatment plan.

This is just one powerful example of how smart technology anticipates patient needs and saves time that can mean the difference between life and death. Joe's experience is proof of this.

IMPROVE THE PATIENT EXPERIENCE

In a study published in the journal *Sleep*, it was found that when patients rest more, sleep better and feel in control of their environment, they're more likely to experience better outcomes and quicker recovery times.

Mackenzie Health is proud to partner with FlexITy to become one of the first Canadian hospitals with a customized **SMART BEDSIDE TABLET**. Through an integration with Mackenzie Health's electronic medical record, the MyCare tablet uses technology from GetWellNetwork® to give patients access to personalized health information, including tailored educational videos directly for their specific needs, prescribed medication and a discharge checklist.

The same tablet controls room lighting, air temperature, offers meal selection and entertainment options as well as provides access to a patient's medical charts, upcoming appointments and their assigned care team. The tablet also allows patients to communicate with their families through video conferencing and offers real-time translation services. These unique smart functions allow patients to be as comfortable and in control of their environment as possible.

SMART BEDS automatically monitor patients, giving health care providers real-time information without disturbing them. Smart sensors in the bed help prevent falls by sending an alert if bedrails are not properly positioned or if a patient at risk for falls is trying to get out of bed without assistance. The bed also integrates with staff members' smart mobile devices which can be programmed to automatically silence alarms when they enter a patient's room.

Other features of the beds that truly improve the patient experience include a digitally-enhanced remote which allows for personalized comfort settings like adjusting the firmness of the bed, in addition to a nurse call button with visual confirmation of placed calls. The bed also delivers verbal prompts that caution patients as well as caregivers, such as "care team has been called" and "brake not set." There is also a USB port for patients to charge electronic devices and a built-in device storage area.

The patient experience is quieter and less disruptive, helping to facilitate rest and recovery for our patients. Alerts are transmitted wirelessly to staff members on their smart mobile devices, reducing the number of hospital-wide alarms, and minimizing ambient noise. Through Mackenzie Health's real-time locating system, **SMART MOBILE DEVICES** can identify the exact locations of both staff and equipment on the units which enable faster response times during emergency situations.

"We didn't build a smart hospital just because we could. We built a world-class centre for clinical innovation, enabling continuous real-time quality improvement, where the entire clinical environment was designed on the principles of safety, satisfaction, efficiency and excellent clinical outcomes for patients."

— DR. A.S. GLADMAN, CHIEF INFORMATION OFFICER AND CHIEF MEDICAL INFORMATION OFFICER, MACKENZIE HEALTH

IMPROVE PATIENT SAFETY AND PREVENT ERRORS

From smart sensors in patient beds that can prevent falls by sending an alert if bedrails are not properly positioned, to technology that helps ensure the right product — including medication, breast milk and blood — is given to the right patient, patient safety is dramatically improved through the use of smart technology.

Mackenzie Health's real-time locating system also plays a vital role in patient and visitor safety. Integrated with Cortellucci Vaughan Hospital's security system, electronic locating tags are placed on confused or impaired patients who require close monitoring for the safety of others as well as themselves.

IMPROVE INFORMATION SHARING AND REDUCE COSTLY RE-ADMISSIONS

In Canada, one in 12 patients will be re-admitted to the hospital within 30 days, at a cost to the health care system of $1.8 billion annually. This also means a longer journey to recovery. While not all re-admissions can be avoided, it's estimated that up to 59 per cent could be prevented through improved record keeping, patient education and communication. Digital information sharing among health care providers and patients reduces the chance for costly and potentially life-threatening errors, for example, possible harmful medication interactions that can quite literally be a matter of life or death. The ultimate goal is to ensure our patients continue to receive the exceptional, personalized care they need to recover faster and get home sooner.

IMPROVE EFFICIENCY

A recent study by the Fraser Institute shows clinicians spend up to 30 per cent of their time trying to find the right person to talk to or waiting for callbacks. Smart mobile devices enable nurses and physicians to communicate securely to expedite patient care. Patients, health care providers and hospital equipment are tagged with a real-time locating device, allowing staff to find colleagues, porters, or the closest stretcher, wheelchair or other equipment in seconds, saving valuable time in meeting the needs of our patients.

IMPROVE CONVENIENCE

The electronic medical record (EMR) implemented at Mackenzie Richmond Hill Hospital in 2017 digitally stores all patient information in one place. It can be easily accessed by patients and health care providers, giving them greater knowledge and understanding of their health care. Centralizing information reduces the time health care providers spend looking for information or asking patients the same questions. With computers available at each patient's bedside, health care providers can document care in real time, sending orders directly to the lab and pharmacy, and better engage patients in their care.

Mackenzie Health became the first Canadian acute care hospital with an emergency department and intensive care unit to receive Healthcare Information and Management Systems Society's (HIMSS) Electronic Medical Record Adoption Model (EMRAM) Stage 7 designation. From prevention of medication administration errors to ensuring complete health records are available to all clinicians, the designation signifies that Mackenzie Health has implemented a paperless environment through EMR. It also recognizes Mackenzie Health's successful adoption of digital health solutions that help deliver on our promise of world-class, safe and efficient care for our growing community.

A number of these digital solutions were first tested and implemented at Mackenzie Richmond Hill Hospital before Cortellucci Vaughan Hospital opened to the community.

- **Online access to your health records:** As part of the EMR implementation, Mackenzie Health patients experience more efficient appointment registration and check-in processes through the MyChart application. Available online and as a mobile application, MyChart allows patients and caregivers to view their medical information from Mackenzie Health, including laboratory and test results, clinical notes, past and upcoming appointments. Patients can even register for appointments up to seven days in advance.

- **Self-service registration:** Patients coming for appointments simply swipe their health cards at a self-serve kiosk, receive an armband, and proceed to their appointment, dramatically reducing registration time for patients and families.

- **Arriving to your destination faster:** Mackenzie Health has a free mobile application, available through the Apple Store and Google Play, to help patients and visitors navigate their way around the hospital or navigate to any of Mackenzie Health's community locations. The app is an easy-to-use tool that directs patients to Patient Registration as well as to a clinic, appointment, food court or closest washroom.

MORE THAN 175,000

patients have signed up for MyChart since it was introduced in 2017

ADVANCING INNOVATION AT MACKENZIE RICHMOND HILL HOSPITAL

Mackenzie Richmond Hill Hospital was the only Canadian hospital in 2018 to receive the College of Healthcare Information Management Executives' (CHIME)'s "most wired" award. This achievement recognizes our leadership and innovation in introducing health care information technology systems to help deliver on our promise of world-class, safe and efficient care for patients and families. It also comes on the heels of our Healthcare Information and Management Systems Society (HIMSS) Electronic Medical Record Adoption Model (EMRAM) Stage 7 certification.

To top it off, Mackenzie Health was named a recipient of the Healthcare Information and Management Systems Society (HIMSS) Nicholas E. Davies Award of Excellence in 2019. The award recognizes an approach to digital health that has helped patients access care and recover faster.

HELP US CREATE THE ULTIMATE

Mackenzie Health Foundation is spearheading the $250-million Ultimate campaign — the largest fundraising drive led by a community hospital in Canada — to help purchase equipment for Cortellucci Vaughan Hospital and enhance care at Mackenzie Richmond Hill Hospital. Our goal is now within reach. Help us cross the finish line. Your leadership investment will help give patients access to smart, innovative and connected technologies when they turn to Mackenzie Health in times of greatest need.

If you have any questions about Mackenzie Health's smart hospital vision, the Ultimate campaign or to discuss this opportunity in more detail, please contact:

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