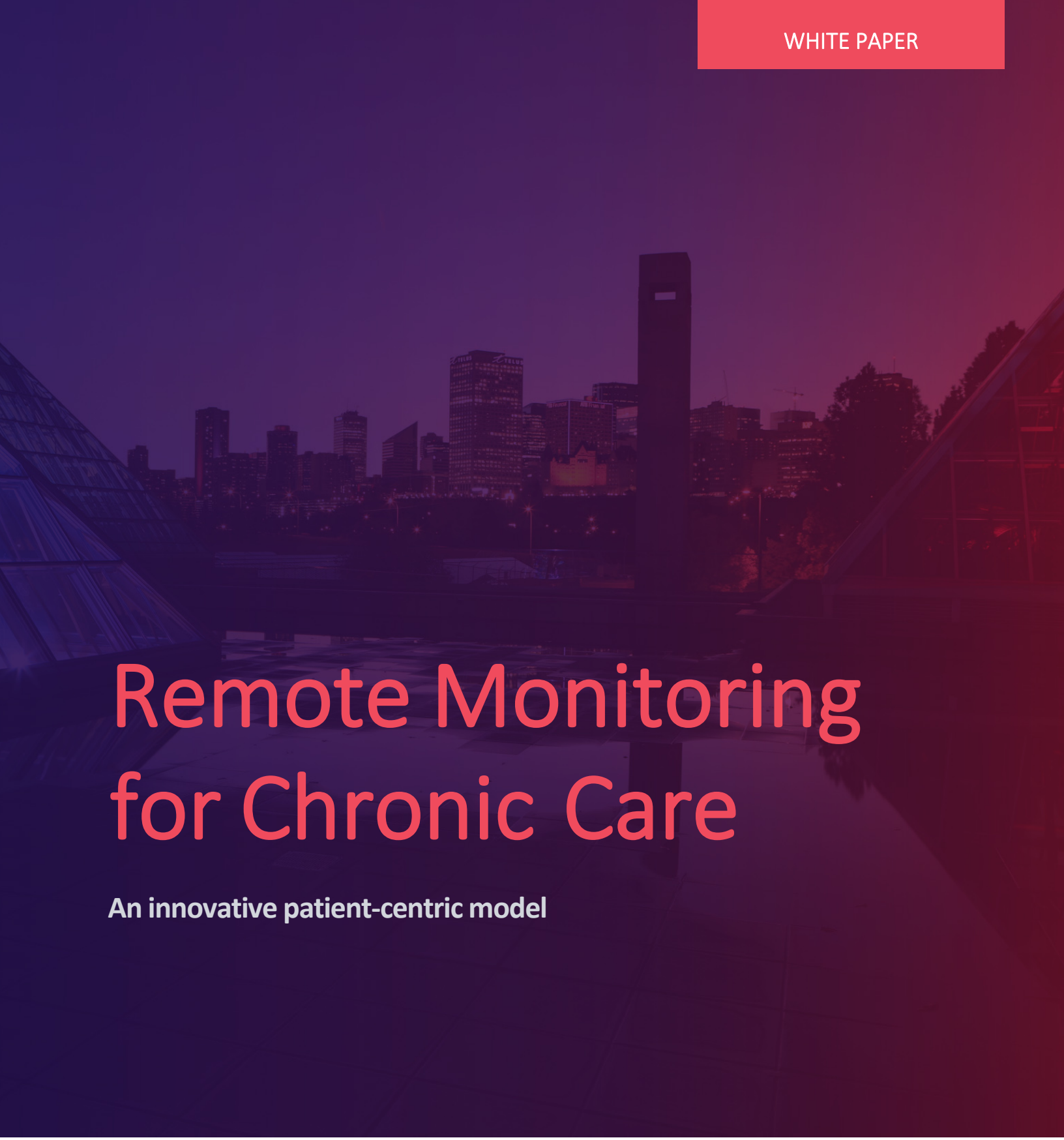
WHITE PAPER



Remote Monitoring for Chronic Care

An innovative patient-centric model

Health City

Remote Monitoring: An innovative patient-centric model

Background: Covid-19 pandemic highlights needs and opportunities

In Alberta, family physicians are supported by Primary Care Networks (PCNs) to provide ongoing medical care for patients with chronic conditions. Physicians and PCNs face challenges in delivering optimal care for these patients, including limitations on time and resources. Models that integrate virtual care and physician compensation have yet to be fully established, impacting the pre-pandemic uptake of virtual care models.

The pandemic has made it evident that the need for alternative care models that minimize risk to patients and healthcare professionals exists, especially for patients living with multiple complex chronic conditions who are at greater risk of requiring acute care in the case of a Covid-19 infection. As a result, many healthcare organizations have started to implement solutions to deliver comprehensive services remotely.

Supporting patients to stay safely at home can reduce risk of injury or infection in the best of times, and that benefit is further emphasized during the Covid-19 pandemic. Moreover, at-home health services may particularly benefit rural patients with chronic conditions. These group of patients may require more frequent follow-up, and by residing in rural areas, they may face long distance drives in potentially dangerous conditions to visit their family physicians.

Remote Monitoring: Supporting rural patients with chronic conditions in Primary Care Networks

Remote monitoring is an approach that enables regular monitoring of chronic conditions without the need to visit a clinic in person. Patients enter the biometric data relevant to their chronic condition on a predetermined schedule (or in some cases the data is sent directly from monitoring devices), answer questions about their symptoms, while the remote monitoring platform providers receive alerts for results requiring follow-up.

The Project

The province of Alberta is comprised of five Health Zones. The Central Zone encompasses urban and rural regions, and is home to a population of over 450,000[1] with higher chronic disease rates than the provincial average for most chronic conditions.[2] PCNs in Alberta's Central Zone are collaborating with Health City, Boehringer Ingelheim, Alberta Innovates and TELUS Health to deploy a community-based remote monitoring solution for patients with chronic health conditions.

Over the summer of 2020, three PCNs (Drayton Valley, Kalyna Country and Wolf Creek) recruited 37 patients with chronic conditions to participate for 90 days in this project. Each patient was provided with a monitoring kit including:

- a touchscreen tablet
- blood pressure monitor
- thermometer
- weight scale
- pulse oximeter

PCN nurses provided training for each patient to ensure they were confident in their use of the monitoring equipment and remote monitoring platform. In addition to monitoring their biometrics using the provided equipment, patients used the remote monitoring platform to answer questions about symptoms related to their chronic conditions at regular intervals. Designated PCN nurses monitored the remote monitoring platform and contacted patients to follow up on any concerning results. When necessary, nurses liaised with family physicians and may arrange for patients to have a virtual or in-person visit with their family physician.

Project Evaluation: First Phase

The first phase of the project ran over the summer and fall of 2020. The initial evaluation focused on patient and provider experience, with some analysis of early patient outcomes.

Project Reach

The initial phase of this project was successful in rapidly recruiting patients to participate, echoing similar experiences of virtual health initiatives during Covid-19. Exceeding the initial target of 30 patients, 37 patients participated in the project, and each had at least one chronic condition. The most common condition was diabetes, followed by hypertension, chronic obstructive pulmonary disease and heart failure. Patients' average age was in their sixties, and slightly more females than males participated.

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[1] Statistics Canada. 2017. Central Zone Census Profile. Statistics Canada Catalogue no. 98-316-X2016001. Ottawa. Released November 29, 2017.

[2] Alberta Health Services. 2017. Central Zone Healthcare Plan.

Provider Experience

The provider experience is an important consideration in any new healthcare initiative. While some providers embrace innovation, others may be cautious about its implications for efficiency, patient rapport and income. Although there were relatively few providers participating in this project, surveys conducted with nurses at two different time points showed the remote monitoring platform helped them to follow patients' conditions over time, and improved continuity of care and patient safety. These nurses' experiences demonstrated the importance of thorough, hands-on training for providers who use the platform and train patients on its use.

Patient Experience

Patient-reported experiences were overwhelmingly positive. All patients who completed a reflective survey reported feeling comfortable with the technology, and agreed that their information was private and secure. They felt safe and well cared for by their monitoring nurse, and all agreed that they would recommend this project to other patients with similar medical conditions.

> *"I felt extremely comfortable and supported with the added benefit of being able to be monitored from my own home. It was an added sense of security." Female, age 50-64*

> *"It is comforting to know that I am being monitored by a professional who is in contact with my doctor and watching my status. With the stress of today's illness, I find that a call from my nurses has helped extremely my anxiety and depression. It has made a huge difference to me. I thank these people for making me feel like a human being." Male, age 50-64*

> *"Very user friendly and is an easy way to get results to your health care team on your condition. I think this is a great program to allow people to remain in their home and still have their health monitored on a regular basis." Male, age 65+*

Patient Health Outcomes

This initial phase of the project afforded the opportunity to examine patient health outcomes through patient-reported measures and analysis of data captured in the remote monitoring platform.

Maintaining quality of life is challenging with a chronic condition, and even more so during the pandemic. Yet, of 11 patients who completed the EQ-5D-5L quality of life assessment[3] at both the beginning and end of their 90-day participation, over 60% maintained or improved their health-related quality of life. While the number of patients who complete this health-related quality of life questionnaire is relatively small, the results are promising.

[3] EuroQol Research Foundation. 2017. EQ-5D-5L. Available: euroqol.org/eq-5d-instruments/eq-5d-5l-about.

The remote monitoring platform identified clinically significant results as either “moderate” or “high” priority. The parameters for a significant result are set for each chronic condition and include any out-of-range readings for blood pressure, pulse or blood sugar, or symptoms such as dizziness, swelling or loss of appetite. Over the 90 days of participating in the project, patients reported having less need to visit their family doctor or a walk-in clinic, to visit an Emergency Department, and to call the provincial Health Link service.

Next Steps & Future Evaluation

Building on initial successes, the second phase of the project began enrolling patients in early 2021 and will continue through 2023 with a more robust evaluation approach. Additional PCNs have joined, representing most in Alberta’s Central Zone. A further 500 patients are expected to participate, each for 90 days, through 2023. This larger cohort of patients will enable more robust analysis of patient experience, health outcomes, and any impact on broader health system usage.

Future Opportunities

From an economic growth perspective, Health City has created a mechanism for a variety of regional companies to test and validate their remote monitoring in a live setting while receiving immediate feedback from clinicians and patients. Initial results show positive outcomes for patients, including rural residents, and a willingness by providers to work within this innovative model of care. Boehringer Ingelheim is taking an active role by working upstream to prevent and effectively manage chronic conditions, thus saving money and increasing patient outcomes.

With guidance from a steering committee composed of PCN leadership, Alberta Health Services, Ministry of Seniors and Housing, representatives and partners from Health City, Alberta Innovates and Boehringer Ingelheim, the next phase of the project will help provide sound information upon decisions will be made on how and where to appropriately introduce remote monitoring as a regular component of primary healthcare in the Central Zone and across Alberta.

Health City is a Canadian not-for-profit Corporation that works with clinicians, innovators, philanthropic organizations, and companies to develop new models of care that can drive better health outcomes and economic development in the health sector. Our focus is on transforming innovations from our health sector into solutions that have commercial application and global relevance, adopting them for impact locally and scaling them for export to global markets.

For more information, visit www.healthcities.ca.