

Partnering with Patients: The Toronto Central LHIN Telehomecare Experience

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Abstract

Chronic obstructive pulmonary disease (COPD) and heart failure are responsible for significant healthcare costs in Ontario. One program developed to improve the management of these conditions is Telehomecare, which provides six months of health status monitoring and patient self-management education at no cost to participating COPD and heart failure patients. The Toronto Central Local Health Integration Network (LHIN; formerly the Toronto Central Community Care Access Centre), an early participant, enrolled over 3,000 Telehomecare patients between 2012 and 2016. Research shows that the program reduces emergency department visits and hospital admissions, improves patient confidence and self-management skills and is associated with high patient satisfaction. Program improvements and expansion are ongoing.

Introduction

Chronic diseases are the leading cause of death and disability in Ontario and are responsible for 55% of the province's total direct and indirect health costs (Ontario MOHLTC 2007). According to the 2003 Canadian Community Health Survey, nearly 80% of Ontarians over the age of 45 have at least one chronic condition and two-thirds of these have more than one. Untreated or poorly managed, these conditions can predispose to others.

Two conditions responsible for significant costs to the healthcare system are chronic obstructive pulmonary disease (COPD)

and congestive heart failure (CHF). It has been estimated that COPD exacerbations cost Canadians more than \$650 million annually (Mittman 2008), while hospital admissions for heart failure cost nearly \$500 million (Tran et al. 2016). In addition, neither condition is being optimally treated in the current system (Public Health Agency of Canada 2011; Foebel et al. 2011).

In 2007, the Ontario Ministry of Health and Long-Term Care published *Preventing and Managing Chronic Disease: Ontario's Framework*, a document intended to inform planning for chronic disease prevention and management. According to the report, Ontario needed a fundamentally different way to address chronic disease: a systems approach that focused on prevention, was centred on individuals, used interdisciplinary, integrated care teams and supported proactive continuing care. The Telehomecare program is one response to that report.

The Telehomecare Program

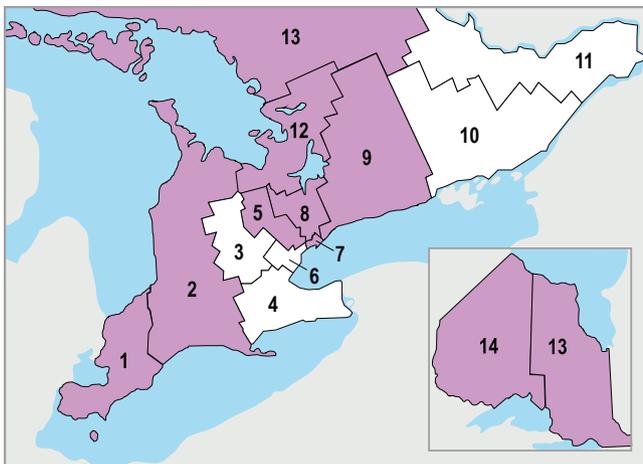
Telehomecare was developed by the Ontario Telemedicine Network (OTN), an independent, not-for-profit organization funded by the provincial government and Canada Health Infoway. The OTN's mission is to develop and support effective telemedicine solutions and inspire their adoption in Ontario and it collaborates with more than 1,300 healthcare organizations and 8,000 healthcare providers to provide a number of initiatives, including Telederm, Telestroke, Telecrisis and Telehomecare (OTN 2017a).

Phase 1 of the pilot Telehomecare program started in 2007 with eight Family Health Teams (FHTs) and 813 patients with heart failure or COPD. At the time, it was the largest telemedicine home care program in Canada. Its objectives were to:

- reduce the impact of complex chronic disease on patients and on the healthcare system, beginning with COPD and heart failure;
- build an integrated system of technology-enabled care that encourages patient self-management for complex chronic diseases; and
- enhance the quality of life for patients and their caregivers.

In each region of Ontario (see Figure 1 for regions currently covered), Local Health Integration Networks (LHINs) lead the program and select host organizations – hospitals, Community Care Access Centres (CCACs) or FHTs – to deliver nursing services and provide equipment. The OTN provides program design, oversight, implementation and support services; manages the technology; maintains an expert Clinical Advisory Committee and provides training to clinicians to deliver Telehomecare. Processes and protocols are based on best practice guidelines, including those of the Canadian Thoracic Society, the Canadian Cardiovascular Society and the Registered Nurses’ Association of Ontario.

FIGURE 1.
Map of Ontario’s LHINs, with LHINs that have Telehomecare programs shown in purple



LHINs = Local Health Integration Networks. Source: OTN 2017.

1. Erie St. Clair; 2. South West; 3. Waterloo Wellington; 4. Hamilton Niagara Haldimand Brant;
5. Central West; 6. Mississauga Halton; 7. Toronto Central; 8. Central; 9. Central East; 10. South East;
11. Champlain; 12. North Simcoe Muskoka; 13. North East; 14. North West.

When Telehomecare was launched in three LHINs in 2012–2013, it was available only to COPD or CHF patients living in independent residential settings. Since completion of

the pilot program, availability has expanded and Telehomecare now offers support to patients with comorbid diabetes, as well as those living in supportive living environments, transitioning from hospital to home or requiring a focus on monitoring. More than 9,000 patients have been enrolled to date and the program is scheduled to cover the whole province by 2018 (Benefits Evaluation Report 2016).

The Toronto Central CCAC was in one of the three LHINs that originally agreed to participate in the pilot program. As of October 2016, it had provided more than 3,000 Telehomecare clients with the ability to receive medical care in the comfort of their own homes (TC CCAC 2016).

How It Works

Telehomecare is a six-month, no-fee, patient self-management program in which nurses remotely monitor the health status of COPD and CHF patients and provide regular coaching to support their goals of care. After a patient is referred to the program (by a primary care provider [PCP], other healthcare professional or the patient him- or herself), a trained nurse talks to the patient’s PCP about the specifics of the program and learns the parameters for that patient’s monitoring. A technician then installs home monitoring equipment through which patients can measure their vital signs (blood pressure, oxygen saturation and weight) and answer simple questions about how they are feeling. Nurses monitor each patient’s output via an Internet connection and alert the patient’s PCP if they see signs of an exacerbation. PCPs also receive regular reports on each patient.

At the same time, the Telehomecare nurses provide the patients with frequent health coaching by telephone, educating them about the relationship between their behaviour and their health with the goals of building patients’ self-management skills and helping patients take control of their own health. Patients are encouraged to establish goals of care because reaching a program milestone can provide a sense of confidence and empowerment that will help the patient continue to self-manage.

Telehomecare nurses have a background in chronic disease management and complete a rigorous, evidence-based training program. They partner with the patient’s primary care team, specialists and other healthcare providers, not to replace the patient’s usual appointments but to keep all parties informed and participating in the patient’s care plan.

The Toronto Central LHIN currently has seven nurses on the Telehomecare team, all with at least six years of experience in both community and academic hospitals in areas ranging from cardiology to the emergency department. Their experience is vital to their work with Telehomecare patients because they need to demonstrate confidence when dealing with clients and other healthcare professionals. Clinical reasoning and independent decision-making are mandatory skills for nurses in this role.

Evidence for Benefit

According to the OTN, “comprehensive telemedicine adoption” could save Ontario \$244.9 million annually by reducing emergency room visits, travel grants for visiting physicians, critical care transfers and hospital admissions because of unmanaged chronic disease (OTN 2017b).

This is not an unreasonable expectation. A British study of more than 3,000 people with diabetes, COPD or CHF found that compared to usual care, telehealth interventions reduced mortality by 45% and hospital admissions by 11% (Steventon et al. 2012). A systematic review of telemedicine interventions in primary care found that they were frequently more cost-effective than usual care (Bashshur et al. 2016), while a review of telemedicine in chronic disease management found that telemonitoring reduced hospital admissions, length of hospital stays and emergency department visits (Bashshur et al. 2014). Other studies have found Telehomecare programs to be associated with improved quality of life (McLean et al. 2011) and fewer COPD exacerbations (Vitacca et al. 2009), as well as increased access to healthcare for those living in underserved areas (Bowles and Baugh 2007).

Health system utilization data indicate that while on the Telehomecare program, Toronto Central LHIN clients reduced their emergency department visits by 46% and their hospital admissions by 63% compared with the six months immediately before the program (Figure 2). After program discharge, these benefits continued, with a 55% reduction in emergency department visits and a 75% reduction in hospital admissions over six months compared to pre-program numbers (TC CCAC 2016). Patient self-management skills also improved: client experience surveys showed that after program participation,

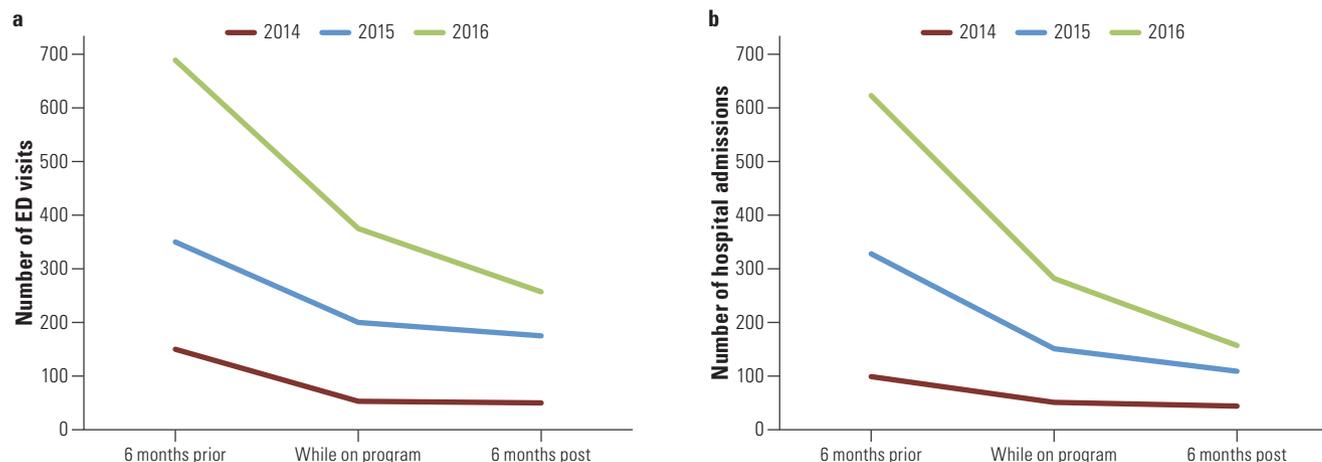
76% of clients said they were able to recognize the signs and symptoms of their disease getting worse.

Provincial data also show that the Telehomecare program improves patient self-management skills (Benefits Evaluation Report 2016). Data collected from Telehomecare enrolment and discharge surveys showed mean improvements in all areas of self-management, particularly those related to symptom management (e.g., increased agreement with the statement, “I work with my healthcare team to act on signs and symptoms that mean I am getting sicker”). Eighty-one per cent of patients were sure or very sure that they could continue to manage their symptoms after discharge from the program.

A formal research analysis of the Telehomecare program is being carried out for the Ontario Ministry of Health and Long-Term Care by the Toronto Health Economics and Technology Assessment Collaborative (THETA) at the University of Toronto. One descriptive study examined the monitoring parameters of 2,470 patients who spent at least one month in the program between July 2012 and March 2015 (Rac 2015b). A third of the patients had elevated blood pressure during their first month of enrolment; over seven months of program participation, these patients experienced clinically and statistically significant reductions in both systolic and diastolic blood pressure (mean reductions of 10.8/6.5 mm Hg). Program participants also demonstrated statistically significant reductions in impaired oxygen saturation levels and weight fluctuations.

An ongoing THETA study called THRIVE (TeleHomecaRe InterVention Evaluation) is now evaluating the clinical and economic impact of the Telehomecare program in comparison to matched cohorts of COPD and heart failure patients receiving “usual care.”

FIGURE 2. ED visits (a) and hospital admissions (b) before, during and after participation in the TC CCAC Telehomecare program in 2014 (n = 191), 2015 (n = 630) and 2016 (n = 1,160)



ED = emergency department; TC CCAC = Toronto Central Community Care Access Centre.

Patient, Caregiver and Health Provider Satisfaction

In client experience surveys, the Toronto Central LHIN found that:

- 88% of clients felt that the Telehomecare nurse understood what was most important to them;
- 94% felt that the equipment was easy or very easy to use;
- 85% were confident or very confident in their use of the Telehomecare equipment to manage their condition; and
- 94% would recommend the program to others (TC CCAC 2016).

A THETA study also found high patient satisfaction with Telehomecare: 93% of patients rated the quality of service they received as excellent or good, 91% stated that the program helped them manage their health problems more effectively and 90% disagreed with the statement “The equipment was difficult to use” (Rac 2015a).

Caregivers across Ontario have provided anecdotal support for the program, indicating that it provides them with both an empowering level of knowledge and the comfort of a clinician’s support. One caregiver said, “The program gave my mother the opportunity to recover in the comfort of her home. This was a major contributor to her recovery. It was also a great relief and support as a caregiver to be able to recognize and control potential crisis/anxiety with this condition.”

Telehomecare can also improve the work satisfaction of healthcare personnel. As one physician said, “The simple daily patient education component of the telemonitoring equipment has improved patients’ ability to manage their own health and chronic illness, which years of preaching in the office had not achieved previously.”

What the Future Holds

OTN is currently in the process of obtaining new software for Telehomecare nurses, as well as a peripheral kit for patients. Future patient groups covered by the program may include patients with chronic kidney disease, diabetic patients (already being tested in a pilot program), palliative care patients, patients with mental health conditions and frail seniors.

One THETA study, a qualitative examination of the first three Telehomecare sites, provided a number of suggestions for ways the program could improve (Hunting et al. 2015): make the patients’ tablets more user-friendly, make the monitoring technology more accessible to disabled patients or those with complex conditions, offer the program in languages other than English and French, reduce nurses’ caseloads, offer mentoring to staff, improve Telehomecare integration across healthcare providers and programs, address potential gaps in patient care, provide a dedicated support line and improve access to geographically distant patients. Some of these suggestions have already been implemented, while others are still under discussion.

Conclusion

As the Toronto Central LHIN program has shown, the Telehomecare program is an effective and proven method of delivering healthcare to patients suffering from chronic diseases. It allows patients to practice self-management, permits the delivery of seamless remote medical care and provides a new level of caregiver support. As technology continues to advance, Telehomecare has the potential to finally achieve the long-sought goal of making the patient a true partner of the healthcare team. **HQ**

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About the Authors

Josie Barbita has more than 25 years of experience as a health services administrator in both delivery and management roles. Her experience includes working in the acute care, primary care and community care sectors. Within her professional practice portfolio, Josie has the responsibility for the planning, implementation and operations of the direct care nursing programs as well as managing the interprofessional specialty team consisting of nurse practitioners, clinical nurse specialists and pharmacists at the Toronto Central Local Health Integration Network (LHIN). She has led and implemented new models of care, such as Telehomecare, and most recently led the implementation of a new community wound care strategy. Josie holds a bachelor of science degree in nursing and a master of science degree in health administration.

Susana Neves-Silva is a registered nurse with approximately 20 years of experience in both delivery and management roles. Her experience includes working in acute care and community care sectors. In her current portfolio, Susana has the responsibility for the operations of the Telehomecare and Rapid Response Nursing Programs in home and community care at the Toronto Central LHIN. Susana holds a bachelor of science degree in nursing.

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