Canadian Home Care Association

High Impact Practices

www.cdnhomecare.ca

Bringing It All Home

Telehomecare in the Northern Lights Health Region

About High Impact Practices

The Canadian Home Care Association (CHCA), as a national voice, promotes excellence in home care through leadership, awareness and knowledge to shape strategic directions. The Association is committed to facilitating continuous learning and development throughout the home care sector to support and promote innovative and effective practices across Canada.

During the CHCA's annual Home Care Summit, health care leaders from across Canada and abroad share new and emerging approaches to home care and engage in dialogue about their experiences so that leading practices from across the country and, around the world, can be examined and adopted. Every year there are initiatives that stand out – those that clearly will impact the health care system. The potential of these practices is such that home care stakeholders want to hear more and are eager to explore the applicability within their respective jurisdictions. Building on the momentum of the Home Care Summits and recognizing the potential "ripple effect" of expanding the dissemination beyond the Summit participants, the CHCA has undertaken to document and publicize a selection of these innovative practices from across the country as *High Impact Practices*.

EACH OF THE HIGH IMPACT PRACTICES:

- **Promotes** home care that provides evidence-informed service delivery directed toward the achievement of health outcomes in the settings that best support the individual, and family
- **Enhances** the effectiveness of home care
- **Raises the awareness** of the ways that home care contributes to an effective health care system
- **Mitigates** rising health care costs and accentuates existing resources and expertise
- **Enables sharing** and transferring of knowledge, expertise and experience through networking and peer-to-peer learning.

Thank-you to our High Impact Practices Partner…

The Canadian Home Care Association gratefully acknowledges the funding from Health Canada which enabled the documentation of this High Impact Practice. Health Canada is the Federal department responsible for helping Canadians maintain and improve their health, while respecting individual choices and circumstances.

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Health Canada Santé Canada

Bringing It All Home

Summary

Bringing It All Home is a telehomecare initiative from the Northern Lights Health Region that is fundamentally changing the model of care to better support home care clients in their own home. Telemonitoring is a means of reaching clients more effectively in order to provide increased observation of their clinical signs and symptoms.

The telehomecare program, *Bringing It All Home*, consists of a highly sophisticated telemonitor that allows nurses to observe and monitor multiple home care clients from a centralized station located in the home care department. The system consists of monitors that work with digital and analogue telephones. The monitors are placed in the home and clients are instructed to use the various monitor peripherals (attachments) to record their blood pressure, heart rate, weight, and oxygen saturation. A clinician (typically a registered nurse) at the home care office is assigned to review the readings and intervene as required by providing telephone support, teaching and consultation. The interventions are generally defined by clinical practice guidelines and/or physician requests. Where clinical parameters indicate the need, staff can be dispatched to make a home visit. The program can be used for individuals from as young as twelve years of age with one or more diagnosis. The client populations served with the technology include those post surgical intervention and/or those with single or multiple medical needs. Those served by the technology include those post coronary artery bypass or valve replacement; those with multiple medical problems such as CHF, COPD, diabetes and kidney failure; palliative patients; and those with toxemia.

Home care staff report that the remote monitoring has resulted in a reduction in emergency room presentations, visits to primary care, admissions to hospital and in the number of home care visits. Staff satisfaction with the technology is high – those in tertiary centres express feeling better connected to their patients and appreciate being able to intervene in a timely manner as opposed to waiting until when the individual can get in to see a doctor, often when in crisis. Home care nurses feel better supported and also more satisfied with their ability to more effectively track and treat clients. This is particularly relevant for those communities where, because of distance and staff supply, home care is only able to provide once weekly visits; the monitoring helps to improve the quality of service for their clients. Even locally, family doctors are able to reduce the need to see clients in their office, which for many involves a significant amount of travel.

Northern Lights Health Region

The Northern Lights Health Region (NLHR) is a jurisdiction within Alberta Health Services serving over 20 communities across 192,509 square kilometers. The largest community, with a population of approximately 80,000, is Fort McMurray located in the eastern half of the Region. The western half consists of High Level with a population of 4,200; Fort Vermilion (population 900); LaCrete (population 2,200); Rainbow Lake (population 1,350); and rural areas with a population of 13,350. Access between the eastern and western halves of the region is primarily by air, although travel by road is possible via a southerly route.

The home care office in the east is based in the hospital in Fort McMurray and in the west there is a main office in High Level and four satellite offices, all about a one to two hour drive from the main office.

Home care services are provided to supplement a client's ability to care for themselves with the assistance of their family, friends and community supports. Services may be provided on a short or long term basis and the Region's home care expenditures account for approximately three percent of the total budget.[1] Home care services are provided by a team consisting of nurses, home support workers, dieticians, physiotherapists, occupational therapists, social workers, discharge planners and monitoring by telehomecare.

For more information on the NLHR, visit: **http://www.nlhr.ca/main/default.aspx**

Special thanks to the following individuals who provided advice, answered our questions and reviewed this paper:

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Project Background

Research shows that the health care delivery system in rural and remote areas is significantly less than that which is offered in urban settings. According to a 2006 scan of rural and remote home care programs, undertaken by the Canadian Home Care Association (CHCA), the main challenges all programs face are a lack of health human resources, lack of support systems and local resources, limited transportation, and the requirements to travel long distances and hours to see very few clients.

Faced with these very challenges - an increasing demand for home care services across a sparsely populated vast geography; and intrigued by the potential of technology applications, the Northern Lights Home Care Program secured funding in 2005 from Alberta Health & Wellness (Provincial Telehealth Clinical Services Grant Fund) to implement remote monitoring through the Fort McMurray office. In the ensuing years the program has been enhanced and extended throughout the Region and has benefited from support from Canada Health Infoway as well.

Defining Rural and Remote:

The notion of rural and remote is not only an issue of quantification (distance and population). Remoteness can be defined by the individual's connectedness to a social support network of any kind, and to the health care system, both in terms of access and contact. Time and effort to access or provide care are key elements of the rural and remote context.

(CHCA, 2008)

Telehomecare is defined as the application of information and communication technologies to enable effective delivery and management of health services such as medical diagnosis, treatment, consultation and/or health maintenance between a patient`s residence and a health care facility or professional.[2] It is also described as a subset of telehealth focusing on the use of information and communications technology to bring health care directly to a patient`s home. In combination with a care team and an evidence-based model of care, telehomecare provides for remote monitoring of the patient's condition; targeted and rapid response from the care team to an emerging health crisis; and coordination of care amongst multiple providers.

It was believed that telehomecare would be a means of empowering clients to identify risks, complications, and problems early thereby reducing hospital admissions, frequent visits to emergency departments, physician offices, and delaying admissions to long term care facilities.

The goal of the *Bringing It All Home* initiative was to provide enhanced seven day per week access to home care for all clients on the program. Specifically, the home care program wanted to:

- Provide preventive and proactive care to clients, particularly for those with chronic conditions (The majority of the home care service hours (81%) are provided to individuals with long-term care needs)[3]
- Achieve a reduction in avoidable visits to the emergency department and physician`s office, particularly those that were a result of inability to access a home care professional
- Reduce the hospital readmission rate
- Provide clients and/or caregivers a sense of security, peace of mind resulting in a better quality of life
- Enhance the level of education and self-management skills provided to clients.

Implementation

Early in 2003, the Northern Lights Health Region Home Care Program began introducing the staff to the concept of remote virtual visits through the use of technology in order to promote staff "buy-in" and appreciation for the added value of the new technology. Through structured meetings and informal dialogue, issues of practice via telephone were debated and a willingness to try this approach to care was achieved. Interestingly, although there were not enough staff and it was often physically impossible to reach some clients in their homes, staff was reluctant and cautious about the feasibility of a technology solution. However, by 2005 with funding and the equipment in place, a nurse leader was retained to oversee the program. In May 2007 the program was expanded to the west side of the Health Region – to include High Level, Fort Vermilion, La Crete, Rainbow Lake, Paddle Prairie and Zama City.

Telehomecare monitors were installed in client homes in Fort McMurray. Each monitor was installed with all the specific information pertaining to that client – for regular vital signs monitoring. The monitors were also installed in two outlying communities located 1-3 hours from Fort McMurray. In order to accommodate multiple patients from the communities, the vital signs monitoring unit and videophone were situated in a Community

Centre in each location. Clients were issued individualized “swipe cards” containing each client’s own specific information. The monitor was configured so that each client could swipe their card as a means of identification. This action initiated visual and audio prompts directing the client through the process of taking their weight, blood pressure, heart rate, oxygen saturation levels and answering up to ten subjective questions. The ability to be regularly monitored and avoid lengthy trips or anxiety about whether symptoms were serious was an enormous immediate benefit to the program.

The Technology:

- A store and forward, Plain Old Telephone Service (POTS) based home monitoring system
- The device is client–friendly and hospital grade, (Medical class 2 FDA medical device) and utilizes a voice and visual prompt to guide the user
- The monitor collects a client’s weight, blood pressure, heart rate and oxygen saturation along with up to ten “yes/no” customized subjective questions that relate to the diagnosis
- The monitor is designed to accept information from other diagnostic peripherals (attachments)
- Videophones are also available

The data gathered by the telehomecare monitor is automatically collected and sent over POTS (plain old telephone system) lines to a central base station computer located at the Home Care office. The information is received and stored for clinical review. The information is also linked to the nurses’ laptops so they can monitor individuals after hours as part of their on-call service. This allows them to serve more patients and potentially avoid the need for in-person visits at night.

Client specific clinical parameters are set in the computer. The system triages all the incoming data and colour codes variances for easy and prompt identification by the Home Care Nurse of any warning signs or changes in the client’s condition. This is an effective way of consistently and accurately recognizing opportunities for early intervention of potential problems, ultimately preventing complications and/or potential admissions to acute care. The system also provides the means for clients to receive immediate feedback on their symptoms thereby increasing their knowledge about their disease and the ways to better manage their conditions.

In one example a young girl was struggling with “spells” and yet was fine every time she was assessed by a clinician. Trips to Edmonton to see a specialist were particularly difficult because of the distance. Without any evidence the physicians were not able to treat. Telehomecare was installed and within weeks the family was able to capture vital signs when the spell occurred. The home care nurse forwarded the information to the cardiologist who was then able to treat.

Telehomecare is used to connect clients to tertiary care. In one case a client with multiple chronic illnesses and frequent hospitalizations is monitored. Every two weeks and/or as needed, the home care nurse sends the client’s vital sign data to the Alberta Renal Insufficiency Unit at the University of Alberta so the nephrologist can adjust medication and avoid the need to transfer the client to Edmonton. Additionally, the technology is used to host meetings every six to eight weeks with the health care team and the client.

Within the Northern Lights Region, doctors find that they can request monitoring at specific times (i.e. morning and night) and use the data to adjust medications, negating the need for the client to come to town.

The technology is used to bring together the local Primary Care Network, the nurse practitioner and cardiac navigator for the Heart Function Clinic, and the telehomecare clinician. The team meets every two weeks to review clients; identify those who would need to have the telehomecare initiated and to discuss progress for those on the cardiac rehabilitation program.

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“I like the idea that I can do a retest at any time if I'm not feeling well.”

~ *Client*

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Monitors are left with clients as long as necessary. Post surgical patients may only have a need for about a week until they are stabilized and their self management teaching is complete. For others, such as the frail elderly where the strategy is to keep them at home for as long as possible, the monitor may remain in the home indefinitely becoming a means of medication management and general observation without the demand on personnel.

Many individuals are encouraged to continue self-monitoring using commercially available equipment as it helps them track their condition and provide the health care team with tangible data in the event of an incident.

Outcomes

As a result of the *Bringing It All Home* initiative the Northern Lights Health Region Home Care Program has evolved its model of care from the traditional schedule driven approach to one where home visits are made when clinical needs dictate.

From the client perspective, the system is easy to use and supports client self-management and confidence regarding their self-care. It serves to reinforce health teaching and the consequences of lifestyle decisions. Clients are comforted that they can contact a nurse at any time and relay their symptoms.

The *Bringing It All Home* initiative has given clients:

- The ability to improve or maintain their functional status
- The ability to manage and detect changes in their conditions
- Increased confidence in their ability to self-manage
- An increased quality of life, particularly as it relates to trips to health centres or waiting for home care staff to visit
- An increased sense of security that someone is helping them with their condition.

Nursing Staff have found that using telehomecare:

- Reduces the pressure on limited human resources, particularly the supply of nurses
- Helps to streamline the processes used in client care
- Enables home care nurses to provide a rapid response to changing client needs
- Enhances communication between members of the health care team
- Improves the access to quality and efficiency of the home care services
- Increases their confidence in keeping clients at home
- Allows them to provide better care and early identification of problems that may not be evident during the home visit.

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"This program has improved my ability to provide my patients with good care."

~ *Physician*

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Key Success Factors

- A dedicated "champion" nurse to promote the program and be responsible to work with stakeholders to overcome barriers to implementation and resistance to technology.
- Dedicated clinicians trained in this form of care management which requires strong assessment and case management skills as the nature of this practice is working virtually.
- Communication and education to other health professionals, physicians, clients, family and caregivers in order to establish buy-in, support and trust.
- Engaging public in order to raise awareness of this evolution in health care and to reinforce concepts of self-care and management.
- Patience and support to address technical problems associated with start-up.

Evaluation

The *Bringing It All Home* initiative has placed 85 clients on monitors since the program began. Informal evaluation by the Northern Lights Health Region has shown:

- A reduction in avoidable use of the emergency room through timely support and treatment changes.
- Decreased readmissions to hospital.
- Improved consultation with members of the health team.
- High rates of client satisfaction and willingness to use the device. Nurses have become adept at helping clients to accommodate physical limitations, for example positioning their walker over the scale.
- Increased client ability to manage their care. The focus on chronic disease management and support provided resulted in being less worried about their health condition and learning more about lifestyle management.
- Reduced travel time/costs for the nurse and client.

The program is currently managing Home Care clients seven days a week. The Northern Lights Health Region will undertake a qualitative and quantitative evaluation of the initiative through chart audits, and interviews of clients, families and care providers. The evaluation will capture cost effectiveness from both the home care delivery and health system perspectives.

“Monitoring my husband daily helped keep my husband away from the emergency department during his episodes of atrial fibrillation. It gave us a sense of independence while still having security of a medical watchdog.”

~ *Client’s Wife*

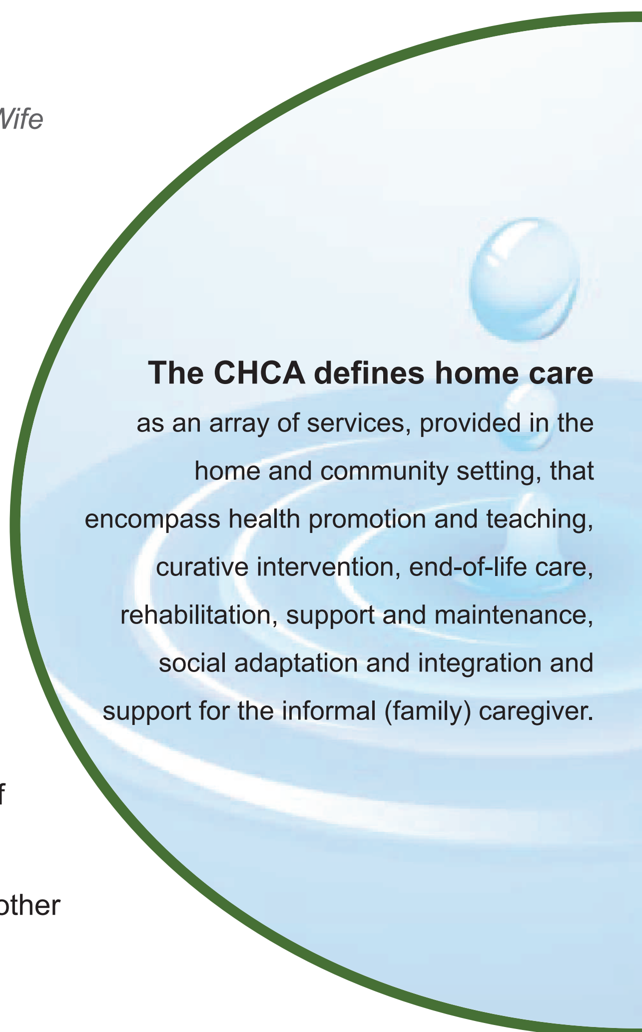
Conclusion

The *Bringing It All Home* initiative is an effective means of supporting clients to remain independent at home. It is particularly useful for individuals who live in rural and remote settings where access to health care is not regular.

The Northern Lights Health Region home care program plans to acquire additional units in order to serve more patients across the entire Region. Additional peripheral devices (such as glucose meters, monitors for prothrombin and INR[4] values) will be added so that more analysis can be conducted remotely. The team intends to use the monitors for pregnant women with pre-eclampsia and toxemia.

Conversations about rolling the program out across the province are underway. The Northern Lights Health Region home care team envisions opportunities to leverage the technology with nurse practitioners and through the adoption of clinical guidelines and standard orders.

For more information on the CHCA’s High Impact Practices or other initiatives, contact **www.cdnhomecare.ca**



The CHCA defines home care
as an array of services, provided in the home and community setting, that encompass health promotion and teaching, curative intervention, end-of-life care, rehabilitation, support and maintenance, social adaptation and integration and support for the informal (family) caregiver.

End Notes:

[1] Northern Lights Health Region Annual Report, p.31; and 2007-08 Annual Report, p.40

[2] Advisory Council on Health Info-structure, Connecting for Better Health: Strategic Issues – Interim Report, Health Canada, 1998

[3] Northern Lights Health Region, 2006-07 Annual Report, p.33

[4] INR is the ‘international normalized ratio’, a system established by the World Health Organization (WHO) and the International Committee on Thrombosis and Hemostasis for reporting the results of blood coagulation tests. All results are standardized using the international sensitivity index for the particular thromboplastin reagent and instrument combination utilized to perform the test (Websters Medical Dictionary)

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