



NATIONAL PROGRAM FOR HOME VENTILATORY ASSISTANCE (NPHVA)

MCGILL UNIVERSITY HEALTH CENTRE (MUHC)

The adoption of the Reacts platform by the National Program for Home Ventilatory Assistance (NPHVA) to conduct virtual home visits has enabled them to vastly improve efficiency, in addition to increasing patient and caregiver satisfaction.

Better communication.

Better efficiency.

Better care.



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Benefiting from direct funding from the Ministère de la Santé et des Services sociaux du Québec,

the NPHVA offers a range of ultra-specialized services for adults (in western Quebec) and children (across Quebec).

As of May 2018,

the NPHVA team was following over 150 patients via Reacts.

In 2012, 2.2 million Canadians (8% of the population aged 15 and over) received some type of home care for a long-term health problem, disability, or needs related to ageing. Nearly 9 out of 10 Canadians who received home care relied on help from family and friends, and about half of them received professional help.¹

That same year, 3.8 million Quebecers were living with some type of disability, nearly 50% of which were categorized as severe or very severe. This assessment included perceptual and mobility disabilities as well as psychological disorders.² About 3.2 million Quebecers, which represents 48% of the non-institutionalized population aged 15 years and over, suffer from at least one chronic health problem.³

By comparison, in France, it is believed that a total of 5 million people currently living at home suffer from health problems or a disability (1.2 million of whom are no longer autonomous), which represents a total expenditure of 34 billion euros per year and mobilizes 4.5 million health professionals.⁴ In the U.S., about 67,000 paid long-term health care providers dispensed services to about 9 million persons in 2014, representing annual expenses of \$211 to \$317 billion.⁵

In this context of seemingly overwhelming challenges of managing the population's health problems, telemedicine and telepresence are slowly revolutionizing the daily lives of elderly patients or those with chronic diseases, resulting in an increase in efficiency and reduction in costs for healthcare teams.

The clinical need

A system that not only enable connecting with patients and coaching them, but also remote lung auscultation, viewing of vital signs (pulse oximeter and blood pressure monitor) and remotely obtaining ventilator readings.

The technological need

The team's needs required a safe, versatile and reliable solution that is easy to deploy and use.

In addition to these previously mentioned articles, the Canadian Thoracic Society (CTS) also published its pediatric home mechanical ventilation (HMV) guidelines in April 2017.⁶ Some of the recommendations on the follow-ups required for a child receiving home mechanical ventilation include combining in-person home visits, in addition to outpatient clinic appointments, and virtual visits through telehealth. Based on randomized controlled trials, this recommendation shows that virtual visits are considered by adult and pediatric patients and their families as (among other things):

- Just as efficient as an in-person visit
- Easy to use
- A contributing factor in the decrease of hospitalization rates

Additionally, it has been determined that virtual visits reduce parents' stress levels by providing them with quick access to healthcare professionals without leaving their home.

“Patients become responsible for their care. They are taught how to be independent; we form a partnership with them.”

*–Véronique Adam,
Training and Development Consultant,
National Program for Home Ventilatory Assistance (NPHVA)*

Implementing virtual visits in Quebec

The solution

Transition to a clinical collaboration solution that is easy to use and simple, using patients' devices (e.g. computer, tablet, webcam, etc.).

The technological component

The Reacts platform is certified by Quebec's ministère de la Santé et Services sociaux and thus enables the NPHVA team to deploy a solution that meets their needs and complies with the province's strict confidentiality and IT security standards.

The National Program for Home Ventilatory Assistance (NPHVA) at the McGill University Health Centre (MUHC) has been providing services to those requiring home ventilatory assistance since 1993. Benefiting from direct funding from the Ministère de la Santé et des Services sociaux, the program offers a range of ultra-specialized services. NPHVA-MUHC's mission is to provide complex home care to adults living in western Quebec and to the entire pediatric population in Quebec. At present, over 1,575 patients across Quebec are benefiting from their services.

The NPHVA is a team of ultra-specialized professionals who support patients and their families in their everyday environments, in co-operation with the various local and regional healthcare professionals, through an array of clinical, technical and training services.

Currently, the NPHVA must meet certain challenges such as:

- Providing services throughout a vast geographic area
 - Respond to the increase in demand for services (up 13% annually) with the authorized human resources for the program
 - Maintain / Develop the current service offering despite budget constraints
 - Equitably offer a range of ultra-specialized care to adult and pediatric clients, no matter where they live
 - Support families, users and professionals in their learning and application of care related to ventilatory support at home
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The benefits

The Reacts virtual visits enable the NPHVA team to do regular follow-ups of patients receiving home ventilatory assistance. This remote support improves efficiency and access to care.

Since these challenges had been a major concern for several years, the NPHVA-MUHC decided to include telehealth as part of its service offering 10 years ago. At the time, computers and communication technology were less advanced and the costs associated with the use of the technology were high. As a result, only 26 patients had access to these services. A pilot project was implemented and it was concluded that:

- Specialized care can be provided via telehealth services.
- The quality and continuity of care were deemed comparable to that of traditional home visits.
- An improvement in the use of human resources was noted. In fact, clinicians spent more time in direct contact with patients or their families (or caregivers) and community workers compared to home visits.
- Users were satisfied with telehealth services.

To continue optimizing their work, in 2015, the NPHVA team began investigating new options available on the market in order to provide telehealth services to a greater number of patients. After an assessment period, the NPHVA officially selected the Reacts platform and integrated it in their home care service model in January 2016. The progressive deployment of Reacts province-wide within the NPHVA has continued since then, as part of support for all their services, which has enabled them to improve the remote follow-ups provided to their patients requiring ventilatory assistance at home.

The NPHVA-MUHC team uses Reacts on their own computers or mobile devices to connect with patients and caregivers, regardless of their location. They use the application to perform virtual home visits, collaborate with other professionals, and provide teletraining to patients and healthcare professionals. Reacts enables the NPHVA team to securely conduct audio-video communications, remote auscultation of their patients, receive data files from various types of ventilators, etc.

“Reacts allows us to provide state-of-the-art remote assistance and care to patients in the comfort of their homes, regardless of where they are located. With this clinical collaborative platform, we can really make a difference in the quality of life of patients and their families.”

*—Lyne Noel,
Coordinator of Respiratory Services, Adult Sites,
McGill University Health Centre*

Virtual home visits

A virtual home visit consists in conducting a regular follow-up with a patient receiving home ventilatory assistance, without the patient having to leave his or her home, by using the Internet and simple, low-cost technological tools. During a Reacts virtual clinic, patients log on to the platform via their personal devices, such as a computer, tablet or smart phone.

In addition to the basic personal devices used by patients, peripheral medical devices such as an electronic stethoscope for remote auscultation, and simple accessories such as a pulse oximeter and blood pressure monitor can also be used to obtain the patient's vital signs. An additional webcam is needed to see the ventilator screen and thus confirm the patient's ventilation in real time. The addition of monitoring tools included with some ventilation assistance devices completes the system. Remote use of these various tools enables NPHVA professionals to make sure that patients receive adequate ventilatory assistance.

In addition to virtual visits, Reacts enables the NPHVA to provide several other types of services to clients:

- Support for training given to the patient
- Instruction on a new technique to be included in the clinical plan
- Visual contact to resolve technical problems and assess clinical deterioration
- Clinical monitoring, such as after changes to ventilation settings
- Remote medical consultation between patients and NPHVA medical directors
- Multidisciplinary meeting between health professionals and the patient
- Support of the professional practice of the various local partners

“The Reacts platform is simple to use, secure, and centered on collaboration, supervision, education and remote assistance. It thus meets the many needs of the NPHVA team and most notably, brings health professionals closer to their patients.”

*– Yanick Beaulieu, MD, FRCPC,
Cardiologist-Intensivist
President and Chief Executive Officer
Innovative Imaging Technology*

In conclusion, integrating virtual visits via Reacts to the NPHVA's service offering has led to improved access and efficiency of the care provided to their patients, regardless of where they live, in addition to increasing the satisfaction both of patients and professionals. As of May 2018, the NPHVA was monitoring over 150 patients via Reacts and was planning on increasing this number to over 400 patients who would benefit from their virtual care services.

Sources:

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About Reacts

Reacts (Remote Education, Augmented Communication, Training and Supervision), is a secure, integrated collaborative platform created by Quebec-based Innovative Imaging Technologies Inc. (IIT). It was designed to suit the multiple collaborative needs of healthcare professionals and patients, and incorporates unique and unparalleled interactive features, such as augmented reality for remote virtual guidance, supervision and training.

Reacts is presently being used in 28 countries, across various medical disciplines in both clinical and educational settings, for applications ranging from secure messaging, remote wound care, tele-ultrasound, and teleconsultations, to interactive tele-surgical assistance and remote procedural supervision. Strategic partnerships include medical device manufacturers and healthcare innovation focused organizations such as Joule, a Canadian Medical Association company. For more information, visit: www.reacts.com .

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Better communication.

Better efficiency.

Better care.



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