indirect costs such as absences from work, and the cost can rise to over $3,000 per patient (Chapman, Bourbeau, & Rance, 2003). In 1998, the total cost of COPD in Canada was $1.67 billion (Health Canada, 2002).

These numbers indicate that COPD is a considerable burden to the Canadian health care system. Thus, any intervention that improves patient management and reduces the number and length of hospital visits would have a significant positive impact on Canadian health care organizations.

How Pulmonary Rehabilitation Helps

Pulmonary rehabilitation (PR) is a low-cost way of helping patients manage COPD (O’Donnell et al., 2007).
In PR, health professionals educate patients on how to manage their COPD through exercise and nutrition. PR has been shown to improve exercise capacity and quality of life for COPD patients while reducing their health problems and associated health care costs (Ries et al., 2007).

Indeed, PR has been shown to be more effective than traditional pharmacological management (Lacasse, Goldstein, Lasserson, & Martin, 2006; Lacasse et al., 1996; Ries et al., 2007). Thus, PR has emerged as the new recommended standard of care for patients with chronic lung disease (Ries et al., 2007).

A recent Canadian survey has shown that all the PR programs in Canada have a capacity to serve only 1.2 per cent of the COPD population, with patients in rural areas having the least access to PR (Brooks et al., 2007).

The extremely low access to PR, despite its demonstrated outcomes, has prompted the Canadian Thoracic Society to state, “An urgent need exists to increase access to PR programs across Canada” (O’Donnell et al., 2007).

Pulmonary Rehabilitation via Telehealth

With this in mind, the Caritas Centre for Lung Health in Edmonton, along with Telehealth Alberta Health Services, have developed the Breathe Easy Telehealth PR outpatient program so that patients in rural northern and central Alberta can receive PR without leaving their communities.

The PR outpatient program is delivered via videoconferencing technology and began in January 2006. So far, four regions have participated:

- Aspen (Bonnyville, Barrhead, Cold Lake)
- Peace Country (Grande Prairie, Peace River)
- East Central (Camrose, Killam, Vermilion)
- David Thompson (Drayton Valley)

Here’s how the Telehealth PR program works:

A physician refers a patient to the nearest participating Telehealth site. The patient is assessed via Telehealth by a Caritas Centre pulmonary physician. The physician reviews the patient’s history, respiratory medications and so on. For many patients, this is the first time they’ve had the opportunity to speak with a lung specialist.

After the assessment the patient is either accepted into the program, referred for further testing or, very rarely, declined participation due to health risk.

Once a patient is accepted, a program is developed by the physician through consultation with the Telehealth program coordinator, remote rehabilitation clinician and the patient. This program includes exercise and education sessions held twice a week for eight weeks.
The patient completes his or her exercise sessions at the remote location under in-person supervision from a health care professional. Similar to the standard PR program, the patient performs aerobic, strength and breathing exercises.

Each education session is presented by the Caritas Centre multidisciplinary team via the Telehealth broadcasting system. Patients have the opportunity to ask questions, and the sessions include information on:

- respiratory diseases
- exercise and fitness
- respiratory medications
- inhaler devices and technique
- nutrition
- relaxation and stress management
- travel
- home care
- oxygen therapy

Extra sessions can be arranged to review progress and address any other concerns.

At the end of the program, the patient is seen once again by a Caritas Centre pulmonary physician (via Telehealth) to review progress and alter treatment plans (medication, additional referrals, etc.) if needed.

Health outcomes data on quality of life and exercise capacity are collected on all patients before and after completing the PR program.

**Evaluation of Telehealth Pulmonary Rehabilitation**

Preliminary study results from this program were presented at the 2007 American Thoracic Society Meeting (Jourdain, MacDonald, Jendzjowsky, Wong, & Stickland, 2008).

**The results can be summarized as follows:**

Eighty-six out of 113 patients completed the Telehealth PR program.

Those who completed the program showed significant improvements in exercise capacity as evaluated by 12-minute walk distance (556 metres before vs. 708 metres after) and quality of life as evaluated by St. George’s Respiratory Questionnaire (52 units before vs. 45 units after).

On average, patients saw an improvement in their quality of life that was well above the minimum clinically significant difference.

When we compared results from the rural Telehealth group with the results from the standard program in Edmonton, we found that both programs have similar improvements in quality of life and exercise capacity.

These preliminary results indicate that pulmonary rehabilitation delivered via Telehealth is an effective way to improve health outcomes in patients with chronic lung disease.

For more information about the Breathe Easy Telehealth outpatient PR program, please contact Tina Jourdain at the Caritas Centre for Lung Health by phone (780-482-8951) or e-mail (tinajourdain@caritas.cha.ab.ca).
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Mission Statement of the Alberta Centre for Active Living
Working with practitioners, organizations, and communities to improve the health and quality of life of all people through physical activity.

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