G008

Innovative and Community Partnered Pulmonary Rehabilitation for Seniors in NB

Summary

- In New Brunswick, 1 in 5 seniors live with chronic obstructive pulmonary disease (COPD), a respiratory condition in which the airflow through the lungs is blocked. Symptoms include difficulty breathing, coughing, mucus production and wheezing.
- Less than 1% of people affected by this condition have access to pulmonary rehabilitation – a non-pharmacological treatment involving education, targeted exercise, and breathwork.
    - Pulmonary rehabilitation can reduce the COPD symptoms, improve quality of life and prevent doctor and hospital visits.
- Barriers to implementation of pulmonary rehabilitation programs include lacking designated or trained personnel, facility accessibility, hospital space, equipment and dedicated funding.
- As part of this pilot program, community-based pulmonary rehabilitation clinics were set up to provide education and therapy for older people with COPD.
    - Participants attended an 8-week program, consisting of 2-hour sessions occurring 3 times/week.
    - In this "student-infused" program, New Brunswick Community College (NBCC) students specializing in respiratory therapy, nursing and pharmacy technician studies delivered education and therapy under healthcare professional supervision within the community-based clinics.
    - This approach differs from regular pulmonary rehabilitation programs that are exclusively delivered by healthcare professionals in hospitals.
- The project aimed to assess the efficacy of the 8-week community-based, student-infused pulmonary rehabilitation program in the Saint John and St. Stephen clinics.
- 95 seniors received program services and 72 of them participated in the evaluation (M =72.72 years, range = 56-92 years, 51% women, 95% Anglophone, 5% Francophone)

HSPP Focus Area	Developing Innovative Care Pathways
Project Start & End Date	February 2020 – June 30 2023
Organization/Agency	New Brunswick Community College (NBCC)
Location	Saint John and St. Stephen, New Brunswick
Principal Investigator(s)	Tammie Black

Indicator	Impact / Outcome / Result	Quote
General health	After the 8-week pulmonary rehabilitation program, participants self-reported statistically significant reductions in the following domains compared to before the program: • **COPD-related symptoms** ($p < .001$); • COPD impact on **daily life activities** ($p = .017$); • COPD impact on **overall health** ($p < .001$); • COPD impact on **social functioning** (e.g., ability to participate in social events; $p < .001$); • COPD impact on **psychological disturbances** (e.g., feelings of anxiety, depression and overall psychological distress; $p < .001$). Participants' **walking distance** during a 6-minute test period increased significantly ($p < .001$). • This improvement meets the criteria for a minimal clinically important difference, meaning a noticeable change for both patients and healthcare professionals.	"*10 weeks ago, I was seriously thinking of selling my home. It has 24 stairs. I was gasping for breath by the time I got up to my bedroom. Now I can go up and it's just joyful. I would boast and boast and boast about this program. It has given me a new lease on life.*" "*When I began pulmonary rehab, I barely made it from handicap parking to the front door without stopping to rest. Upon completion, I could do a couple hours of working out, drive back home, then continue with afternoon activities. Something I hadn't done in years.*"

Indicator	Impact / Outcome / Result
Return on Investment (ROI)	• Research suggests that pulmonary rehabilitation is an effective treatment for COPD that can reduce the use of short-term care services and hospital admissions. • The average cost for a single COPD hospitalization is $7,419.35. Given that program costs are estimated to be $380,000 per year, preventing 52 hospitalizations would offset all program costs. • By extension, if the program enables each of the 95 program participants to avoid one COPD-related hospital admission, more than $700,000 in direct provincial healthcare spending would be saved per year. • More research is needed to determine program effectiveness for preventing hospitalizations as well as changes in program costs when offered to more people.

Methods and Comparison

- Participants' COPD-related symptoms and COPD-related impact of quality of life and activities of daily living were measured through the St. George's Respiratory Questionnaire Score.
- The Six Minute Walking Test was used to measure participants' endurance.
- These measures were collected both before and after pulmonary rehabilitation participation and results were analyzed statistically.

Conclusions and Lessons Learned

- After the 8-week pulmonary rehabilitation program, participants improved their COPD symptoms and disease management.
- The students' dedication and participation in the program increased clinic capacity and improved access to pulmonary rehabilitation for seniors with COPD. This model also contributes to healthcare student experiential learning and professional development.
- Community-based, student-infused pulmonary rehabilitation appears to be an effective delivery model and has been duplicated eight times already in Southwestern New Brunswick.

Recommendations

- By involving healthcare students in pulmonary rehabilitation delivery, this treatment can reach more New Brunswickers in need.
- This project recommends sustaining and scaling up this community-based student-infused program in New Brunswick as it has demonstrated efficacy on COPD symptoms and disease management. This could potentially decrease the risk of flare-ups among New Brunswickers with COPD and reduce costs and burden on the healthcare system.
- The program can be expanded to support patients with other pulmonary conditions such as pulmonary fibrosis.

Next Steps

- The project has received bridge funding from the Department of Health, which will enable program continuation for one year. Future partnerships (e.g., with the Collège communautaire du Nouveau-Brunswick (CCNB) Moncton campus) and additional funding could allow this pulmonary rehabilitation program to be expanded into community settings across New Brunswick.

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