

Pulmonary Rehabilitation in Ontario: OHTAC Recommendation

ONTARIO HEALTH TECHNOLOGY ADVISORY COMMITTEE

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Conflict of Interest Statement

All authors at Health Quality Ontario are impartial. There are no competing interests or conflicts of interest to declare.

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The Ontario Health Technology Advisory Committee (OHTAC) is a standing advisory subcommittee of the Board of Directors of Health Quality Ontario. Based on the evidence provided by Health Quality Ontario and its partners, OHTAC makes recommendations about the uptake, diffusion, distribution, or removal of health interventions within the provincial health system. When making its recommendations, OHTAC applies a unique decision-determinants framework that takes into account overall clinical benefit, value for money, societal and ethical considerations, and the economic and organizational feasibility of the health care intervention in Ontario.

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When sufficient data are available, OHTAC tracks the ongoing use of select interventions it has previously reviewed, compiling data by time period and region. The results are published in the Ontario Health Technology Maps Project Report.

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This report was prepared by Health Quality Ontario or one of its research partners for the Ontario Health Technology Advisory Committee and was developed from analysis, interpretation, and comparison of scientific research. It also incorporates, when available, Ontario data and information provided by experts and applicants to HQO. The analysis may not have captured every relevant publication and relevant scientific findings may have been reported since the development of this recommendation. This report may be superseded by an updated publication on the same topic. Please check the Health Quality Ontario website for a list of all publications: <http://www.hqontario.ca/evidence/publications-and-ohtac-recommendations>.

TABLE OF CONTENTS

BACKGROUND.....	5
MAIN FINDINGS.....	6
CONCLUSIONS	7
DECISION DETERMINANTS	8
OHTAC RECOMMENDATIONS	9
APPENDICES.....	10
Appendix 1: Decision Determinants	10
REFERENCES	12

BACKGROUND

Pulmonary rehabilitation (PR) is a comprehensive intervention of exercise training, education, and behaviour change to improve the physical and psychological condition of people with chronic respiratory disorders, such as chronic obstructive pulmonary disease (COPD). (1) The Canadian Thoracic Society clinical practice guidelines state, “It is strongly recommended that patients with moderate, severe and very severe COPD participate in PR.” (2)

In 2012, Health Quality Ontario (HQO) conducted an evidence-based analysis to determine the effectiveness and cost-effectiveness of PR compared with usual care for patients with stable COPD. That analysis found that PR within 1 month of hospital discharge is cost-effective at \$18,000 per quality-adjusted life-year compared with usual care. In addition, “moderate quality evidence showed that pulmonary rehabilitation also led to a clinically and statistically significant improvement in functional exercise capacity compared with usual care.” (3)

Following the review of that evidence-based analysis, the Ontario Health Technology Advisory Committee (OHTAC) recommended the following regarding outpatient PR: 1) ongoing access to existing PR for the management of people with moderate to severe COPD in stable patients, and 2) use of PR within 1 month of hospital discharge, in patients following an acute exacerbation of COPD. (4)

OHTAC also made recommendations regarding opportunities for additional research in Ontario, as there was insufficient evidence for the committee to consider whether PR maintenance or post-rehabilitation programs improve patient outcomes. OHTAC noted the “substantial uncertainty arising from low/very low quality of evidence of effectiveness and cost-effectiveness evidence, but the potential for important health system and/or patient/clinical benefits.” (4)

To address this uncertainty, OHTAC made the following recommendation:

Prior to expanding access to multidisciplinary care and pulmonary rehabilitation, OHTAC recommends a field evaluation to evaluate the long-term impacts of effectiveness and cost-effectiveness, optimal delivery of programs, characterization of patients most likely to benefit from these programs, and a survey of existing services. (4)

In response to this recommendation, HQO commissioned the Programs for Assessment of Technology in Health (PATH) Research Institute to conduct a field survey to identify existing PR services in Ontario to provide information to OHTAC. (5)

MAIN FINDINGS

The Pulmonary Rehabilitation in Ontario Survey, conducted between April 2013 and February 2014, identified 43 full PR sites in the province. The majority of sites offer full PR services. The majority of PR services are outpatient programs (> 90%). Across all program types, the total estimated provincial capacity for PR outpatient care is 4,524 patients per year. On average, the wait time for outpatient PR is 6.9 weeks. This capacity accommodates 0.66% to 1.78% of patients with COPD, depending on the estimated prevalence of disease. Just over half of the programs (55%) provide services 5 days per week. More than 80% of patients attending PR complete the full program.

CONCLUSIONS

The findings of the Pulmonary Rehabilitation in Ontario Survey suggest that:

- The capacity in Ontario to provide PR services to people with COPD is limited.
- Although some increase in capacity has occurred since the last survey in 2005, PR resources in Ontario are insufficient to support clinical practice guideline recommendations.

DECISION DETERMINANTS

OHTAC has developed a decision-making framework that consists of 7 guiding principles for decision making and a decision determinants tool. When making a decision, OHTAC considers 4 explicit main criteria: overall clinical benefit, consistency with expected societal and ethical values, value for money, and feasibility of adoption into the health system. For more information on the decision-making framework, please refer to the *Decision Determinants Guidance* document available at: <http://www.hqontario.ca/evidence/evidence-process/evidence-review-process/decision-making-framework>.

Appendix 1 provides a summary of the decision determinants for these recommendations.

OHTAC RECOMMENDATIONS

- OHTAC reaffirms the recommendations it made in 2012, (4) namely:
 - ongoing access to existing pulmonary rehabilitation for the management of moderate to severe stable COPD, and
 - the use of pulmonary rehabilitation in patients following an acute exacerbation (within 1 month of hospital discharge).
- Further, based on a field evaluation study, OHTAC recommends increased availability of resources for pulmonary rehabilitation following discharge for patients who have had an acute exacerbation of COPD.

APPENDICES

Appendix 1: Decision Determinants

Table A1: Decision Determinants for Pulmonary Rehabilitation

Decision Criteria	Subcriteria	Decision Determinants Considerations
Overall clinical benefit How likely is the health technology/intervention to result in high, moderate, or low overall benefit?	Effectiveness How effective is the health technology/intervention likely to be (taking into account any variability)?	PR including at least 4 weeks of exercise training leads to clinically and statistically significant improvements in HRQOL in patients with COPD. PR also leads to a clinically and statistically significant improvement in functional exercise capacity (weighted mean difference, 54.83 m; 95% confidence interval, 35.63–74.03; $P < 0.001$).
	Safety How safe is the health technology/intervention likely to be?	No apparent safety issues.
	Burden of illness What is the likely size of the burden of illness pertaining to this health technology/intervention?	In 2006, the Canadian economic burden associated with the overall annual burden of COPD exacerbations was estimated to be \$646 million to \$736 million (Cdn). The 2011 Canadian census revealed that 3.8% of Canadians age 35 years and older reported receiving a diagnosis of chronic bronchitis, emphysema, or COPD by a health care professional in 2011/2012. This is likely an underestimate of prevalence of disease. A 2010 report by the Institute for Clinical Evaluative Sciences, using administrative data to estimate the prevalence of COPD, found a higher prevalence of 9.9% in Ontario. PR is indicated for individuals with moderate to severe COPD, who are estimated to be just over half of the population with COPD or about 380,000 people in Ontario.
	Need How large is the need for this health technology/intervention?	Estimated capacity in the province, based on the survey data, can provide a PR program for fewer than 5,000 individuals.
Consistency with expected societal and ethical values^a How likely is adoption of the health technology/intervention to be congruent with societal and ethical values?	Societal values How likely is the adoption of the health technology/intervention to be congruent with expected societal values?	Adoption of PR programs at more locations to expand capacity would be congruent with societal values associated with access to care and timeliness of care.
	Ethical values How likely is the adoption of the health technology/intervention to be congruent with expected ethical values?	Uncertain.
Value for money How efficient is the health technology likely to be?	Economic evaluation How efficient is the health technology/intervention likely to be?	For PR, the ICER was calculated to be \$17,938 per QALY, respectively. When the costs of PR were varied in a 1-way sensitivity analysis to reflect variation in resource utilization reported in the literature, the ICER increased to \$56,270 per QALY. (2)

Decision Criteria	Subcriteria	Decision Determinants Considerations
Feasibility of adoption into health system How feasible is it to adopt the health technology/intervention into the Ontario health care system?	Economic feasibility How economically feasible is the health technology/intervention? Organizational feasibility How organizationally feasible is it to implement the health technology/intervention?	In the previous PR cost analysis, the mean cost of an outpatient PR program (minimum, maximum) was estimated to be \$1,526.92 (\$665.58, \$2,388.26) for a mean duration of the program of 3.9 weeks (min., 1.7; max., 6.1). Currently, PR programs are available to less than 2% of the COPD population. Feasibility will depend on the increased capacity, infrastructure in hospitals, CHCs, and FHTs to improve access in Ontario.

Abbreviations: COPD, chronic obstructive pulmonary disease; HRQOL, health-related quality of life; ICER, incremental cost-effectiveness ratio; max, maximum; min, minimum; PR, pulmonary rehabilitation; QALY, quality-adjusted life-years.

^aThe anticipated or assumed common ethical and societal values held in regard to the target condition, target population, and/or treatment options. Unless there is evidence from scientific sources to corroborate the true nature of the ethical and societal values, the expected values are considered.

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