Boosting REcovery and Activity THrough Early WELLness (BREATHE WELL), A Prehabilitation program for Lung and Esophageal Cancer: A Study Protocol for a Nonrandomized Trial

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Abstract

Background: Cancer is the leading cause of death in Canada, responsible for 28.2% of all deaths. Based on surgical candidacy and disease status both lung and esophageal cancer are treated through surgical resection by a thoracic surgeon. Although surgery contributes to improved outcomes, patients experience risk of 30-day post-operative mortality as high as 10% and 2.8% respectively. Evidence has shown that prehabilitation is a way in which patients can have improved post-operative outcomes. Prehabilitation is multimodal, often including some form of movement, nutrition, stress management, and smoking cessation. Given the complexity of the healthcare system, pragmatic trials are important methodological tools to assess internal validity and improve current practice under real world conditions. Concurrently, using community resources is imperative to keep people active in their community and create sustainable programming.

Objective: The objective of Boosting REcovery and Activity THrough Early WELLness (BREATHE WELL) is to explore the feasibility, implementation, and preliminary effectiveness of a clinically integrated, community-based prehabilitation health coaching program, including nutrition, smoking cessation, sleep hygiene and movement for individuals scheduled to undergo surgery for lung or esophageal cancer.

Methods: This is a pilot, non-randomized, pragmatic, repeated measures, mixed methods trial. We will recruit 32 participants diagnosed with lung or esophageal cancer and are scheduled to undergo surgical resection into the prehabilitation program. Participants who agree will then go through an 8-week tailored prehabilitation program (in-person or online) covering movement, nutrition, stress management, nutrition, goal setting and smoking cessation. They will complete 6 sessions prior to surgery and then have 4 session, 1x/ week following surgery. Following the completion of the program, they will have 3 boosters session via phone or Zoom. The primary outcomes is feasibility i) recruitment feasibility: recruitment rate (# of participants referred per month), enrollment rate (# of enrolled participants / # of referred participants), reasons for declining, prehabilitation window (time between consent and surgery) and ii) intervention feasibility: adherence to the movement intervention, attrition, safety, study completion rate, and adverse events). Secondary outcomes include measures of preliminary effectiveness including patient reported outcomes including well-being as measured by the Functional Assessment of Cancer Therapy – Lung OR Esophageal and fatigue (Functional Assessment of Chronic Illness Therapy – Fatigue) and functional measures (stair climb, grip strength, 5x chair stand). All measures will be assessed pre, mid- and post prehabilitation program.

Results: This study has been funded by Dalhousie University, Department of Surgery. The protocol was approved by Nova Scotia Health Research Ethics Board (REB# 1030020). Enrollment is anticipated to begin in September 2024.

Conclusions: This study will inform feasibility, implementation, and preliminary effectiveness of a clinically integrated community-based prehabilitation program in Nova Scotia, Canada for people scheduled to undergo curative intent surgery for lung and esophageal cancer. Clinical Trial: NCT06354959

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ABSTRACT

Background. Cancer is the leading cause of death in Canada, responsible for 28.2% of all deaths. Based on surgical candidacy and disease status both lung and esophageal cancer are treated through surgical resection by a thoracic surgeon. Although surgery contributes to improved outcomes, patients experience risk of 30-day post-operative mortality as high as 10% and 2.8% respectively. Evidence has shown that prehabilitation is a way in which patients can have improved post-operative outcomes. Prehabilitation is multimodal, often including some form of movement, nutrition, stress management, and smoking cessation. Given the complexity of the healthcare system, pragmatic trials are important methodological tools to assess internal validity and improve current practice under real world conditions. Concurrently, using community resources is imperative to keep people active in their community and create sustainable programming.

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Results. This study has been funded by Dalhousie University, Department of Surgery. The protocol was approved by Nova Scotia Health Research Ethics Board (REB# 1030020). Enrollment is anticipated to begin in September 2024.

Conclusions. This study will inform feasibility, implementation, and preliminary effectiveness of a clinically integrated community-based prehabilitation program in Nova Scotia, Canada for people scheduled to undergo curative intent surgery for lung and esophageal cancer.

BACKGROUND

Cancer is the leading cause of death in Canada, responsible for 28.2% of all deaths.[1] Among these cancers, lung cancer is the most frequently diagnosed in the country, resulting in 25% of cancer-related deaths.[2] Esophageal cancer, while less common, presents unique challenges due to its effect on patients' nutritional status, tendency to metastasize rapidly and, consequently, its poorer prognosis.[3] Based on surgical candidacy and disease stage, surgical resection by a thoracic surgeon is

a mainstay of treatment for lung and esophageal cancer. Although surgery contributes to improved outcomes, patients experience risk of 30-day post-operative mortality as high as 10% and 2.8% respectively[4,5]. Post-operative complications (e.g., pneumonia, pain) pose a significant risk to patients undergoing curative-intent lung and esophageal cancer surgeries.[6] These events not only increase length of hospital stay, they also negatively impact the patient experience, quality of life, and result in substantial financial burdens for healthcare.[7–10] Therefore, it has been proposed that completing a prehabilitation program prior to undergoing surgery may lead to improved post-operative outcomes for patients. Prehabilitation refers to assessments and interventions initiated prior to treatment to create a physiological and psychosocial buffer against anticipated deconditioning, complications and other co-morbidities that typically occur as a result of treatment.[11,12] Prehabilitation is multimodal, often including some form of movement, nutrition, stress management, and smoking cessation.

Previous research has found that older adults (70 years+, American Society of Anesthesiologist (ASA) score III/IV) who participated in prehabilitation experienced 50% less postoperative complications relative to the control group; this type of intervention was safe, feasible and showed cost-savings of up to 800 Euros per patient.[13] Although prehabilitation interventions have generally shown benefit,[14] there is still little uptake into standard of care. This could be due to a wide variety of factors, including the complexity of implementing programs in a healthcare setting. Therefore, there needs to be more consideration for clinical care pathways; delivery strategies, infrastructure and personnel for the local uptake of these programs.

Given the complexity of the healthcare system, pragmatic trials are important methodological tools to assess internal validity and improve current practice under real world conditions.[15] Concurrently, using community resources is imperative to keep people active in their community and create sustainable programming. Practice-based evidence is an emerging field that strives to ensure research is applicable to real-world settings.[16,17] Practice- based evidence is derived from implementation science research methods, that assess intervention effectiveness in real-world settings and provide insights into the system's capacity and preparatory needs for dissemination and scalability.[18] *The purpose of Boosting REcovery and Activity THrough Early WELLness (BREATHE WELL)is to explore the feasibility, implementation and preliminary effectiveness of a clinically integrated, community-based prehabilitation health coaching program, including nutrition, smoking cessation, sleep hygiene and movement for individuals scheduled to undergo surgery for lung or esophageal cancer.* Central to our research endeavor is the driving question: "How can a clinically integrated, community-based prehabilitation program be successfully implemented in the community, and can it lead to improved functional outcomes in patients undergoing surgery for lung or esophageal cancer?" This overarching question provides the study with its core focus and serves as a guiding force throughout the research process.

METHODS

Design.

This is a pilot, non-randomized, pragmatic, repeated measures, mixed methods trial to assess the feasibility, implementation, and effectiveness of a clinically integrated, community-based, multimodal prehabilitation program for lung and esophageal cancer patients in an urban academic health center in Halifax, Nova Scotia, Canada. Participant flow throughout the study is presented in *Figure 1*. The study has been approved by the NS Health Research Ethics Board (REB# 1030020)

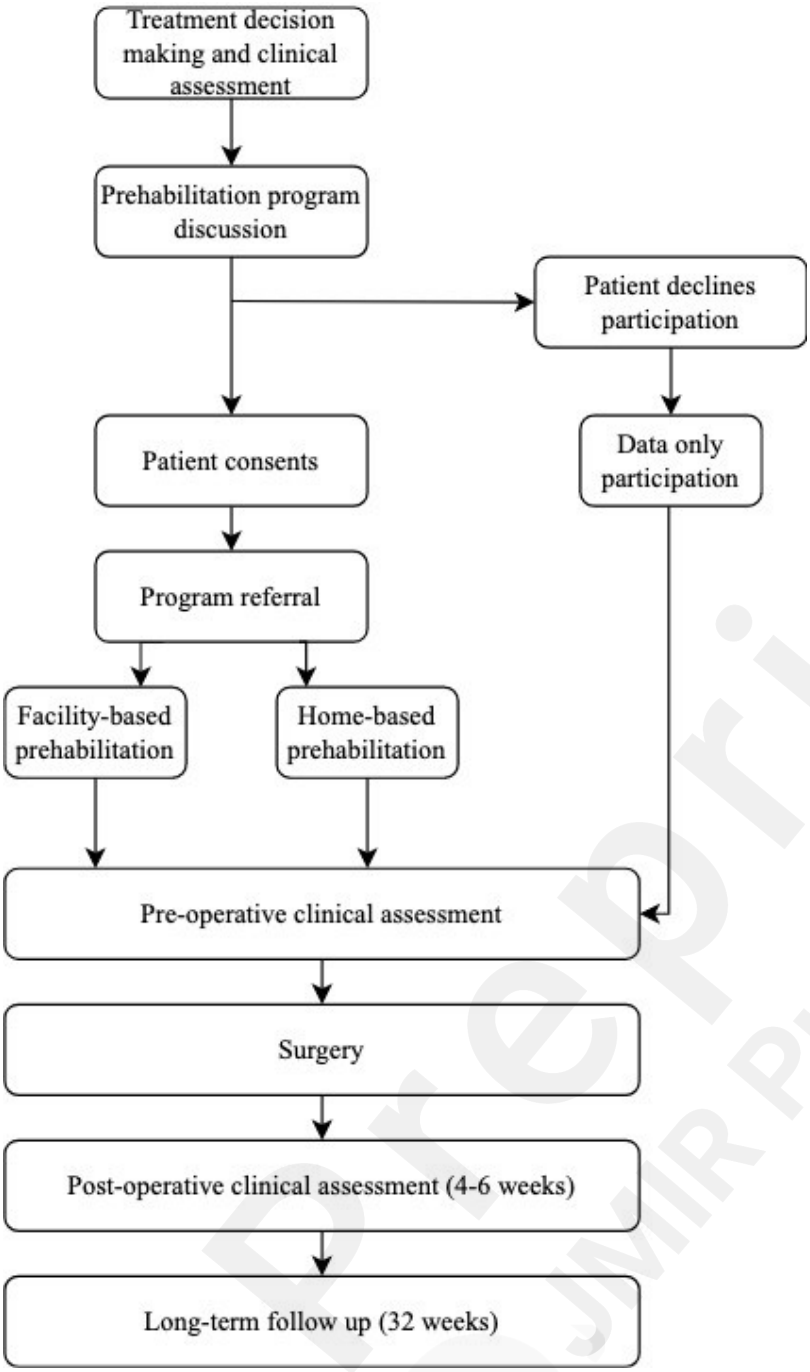

Figure 1. Participant flow.

Participants.

Based on a monthly surgical volume of 10 patients per month to the referring surgeon, assuming an enrollment rate of 25% while accounting for 20% attrition within a 16-month recruitment window, we will seek to recruit 64 (18+ year) diagnosed with lung or esophageal cancer (32 in program and 32 who decline). Participants will be identified based on the following inclusion criteria: 1) confirmed diagnosis of lung or esophageal cancer; 2) treatment plan includes surgery (at least 2 weeks from the time of consent[19]); 3) English fluency and; 4) surgical oncologist approval. Exclusion criteria include: 1) unstable or symptomatic cardiac disease, musculoskeletal injury or co-morbid disease that precludes ability to safely engage in physical activity or 2) significant cognitive limitations.

Enrolment & Assessment.

Each potential participant will go through an assessment with the surgeon, including height, weight, blood pressure, heart rate, pulmonary function tests, grip strength, and a stair climb test as part of their clinical assessment (see Supplementary File 1 for detailed assessment protocols). The thoracic surgeon will then raise the subject of prehabilitation with patients. At this point, patients will have the choice to participate in the prehabilitation program or not. If the participant does not agree to the study, they will continue with standard of care. If a participant agrees to participate, they will be referred to the research team and YMCA for immediate start of a prehabilitation program. Those that do not participate in prehabilitation, will be used as a comparison group, through a waiver of consent, only those as part of the circle of care will pull this de-identified data for the research team.

Intervention.

Participants will first have an appointment with a community-based Qualified Exercise Professional (QEP) to discuss a tailored prehabilitation program. This will be dependent on a current functional fitness assessment (completed by the surgeon), goals of care and surgery date. Participants will receive a handbook that will guide them through this process. The handbook will include a calendar of events, a guide to prehabilitation modalities (e.g., movement, nutrition, sleep hygiene, stress management, smoking cessation), publicly available resources (e.g., Canada's Food Guide, CSEP 24-Hour Movement Guidelines, Smoking Cessation guidelines etc.) and helpful worksheets and other resources (Tobacco Free Nova Scotia Quit Line (TFNS), mindfulness webinars). Participants will have the choice of delivery modality: either at home, online via Zoom or at the nearest community-based YMCA. Both in-person and online programs will run in the same fashion. All participants will be given 2 resistance bands to assist with their at-home exercises. The intervention will last a total of ~8 weeks (see Figure 2 for participant flow), dependent on time to surgery and post-operative follow-up. The intervention follows a tailored design, whereby the first 2-3 weeks provide more support, followed by weekly support and then bi-weekly support. This approach will help contribute to autonomy with each patient. Following each counselling session, participants will engage in tailored movement sessions. Details for both health coaching and movement programming follow.

Week 8

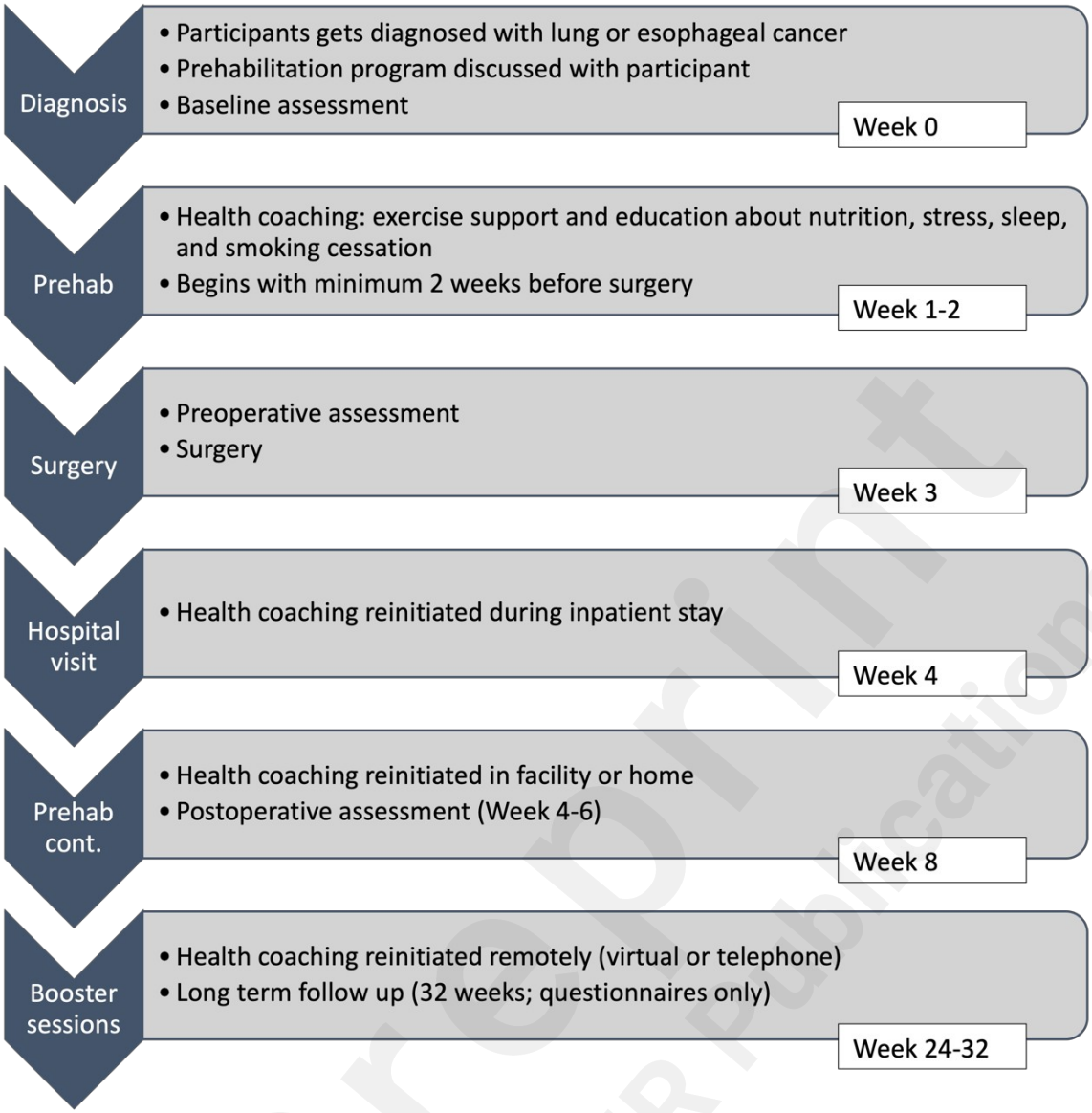

Figure 2. Timeline of Prehabilitation Intervention

Health Coaching

Participants will work with a QEP who is trained in motivational interviewing (MI) to promote positive lifestyle habits. Participants will meet virtually or in-person for counselling and movement sessions. Participants will receive 6 health coaching sessions prior to surgery (~3x/week), with 5 additional wellness sessions after surgery (1x/weekly in the first month, and a follow-up ~4-6-weeks post-surgery). Health coaching will last 10-15 minutes and the aim of these MI- informed behavioural counselling sessions is to develop personalized goals. Through MI techniques, QEP's will use a shared-decision making approach with participants to promote evidence-based lifestyle modification, while using publicly available evidence-informed resources to educate the participant on healthy/ positive lifestyle behaviours. Following health coaching the coach will lead the participant through a 15-45 minute movement routine. The booster sessions will provide health coaching over the phone or Zoom only. (Table 1 for overview of health coaching sessions)

Session	*Week*	*Topic*	*Goal of Session*
1	1	What to expect	Have a clear understanding of what to expect from the diagnosis, surgery and health coaching program. The QEP will work with the participant to create a list of questions to discuss with their surgeon prior to their next visit. The

			QEP will also start the process of what resources participants might need during their treatment, including Cancer Patient Pharmacare (which covers prescription cessation aids for example), Canadian Cancer Society patient supports (transportation supports) and other potential supportive services.
2	1	Understanding your body	The QEP will go through how participants know their body the best, and things to look for when doing more movement. Key concepts of this session will be rating of perceived exertion (RPE), use of our environment and history of physical activity.
3	1	Movement + Me	Participants will work with the QEP to better understand what movement looks like for them and what type of movement they enjoy. Finding movement enjoyable is key to successful long-term movement.
4	2	Smoking Cessation and/ or Sleep Hygiene	If participant reports current tobacco use, the QEP will help the participant to understand the importance of smoking cessation as they prepare for surgery. This will include providing information about Tobacco Free NS and assisting with steps to access appropriate cessation resources. As well, participants will discuss sleep quality and the importance of sleep in the preparation for and recovery from thoracic surgery.
5	2	Mindfulness	The QEP will go through basic mindfulness attitudes, including patience, acceptance, and trust. The QEP will review techniques for stress reduction and breathing.
6	2	Prepping for Surgery	The QEP will go through a reminder about things to bring with them to the hospital and talk about what to expect in the next few days. Participants will be reminded of the work they have done this far and be given a hospital date for their meet-up.
		Surgery	
7	3	How are you feeling now	The QEP and participant will discuss how they are feeling and what supports the QEP can offer to facilitate transition from hospital to home setting.
8	4	Movement @ Home	The QEP will assist the participant in better understanding movement at home and how they can make small movement as part of their everyday life. The focus of this session will be on doing small movement “snacks” and listening to their body.
9	5	Goal Setting	The QEP will go through SMART (Specific, measurable, attainable, realistic, time-orientated) goals with the participants. This will include long and short-term goals with an understanding of upcoming treatment and how that will affect goals.
10	6	Nutrition	The QEP will assist the participant in the understanding of food as a whole and how important nutrition is when undergoing treatments for cancer, this will include tips from Canada’s Food Guide. If needed, the QEP will also

			have resources for the food bank and how to access these types of services in their community.
11	8	Long term Planning, What's next?	The QEP will discuss the long-term plan for the participant to sustain healthy lifestyle habits. They will go through their movement notes together and find a movement plan that will work for this participant, whether that be at home, at a local gym or a more structured program.
Follow-up Appointment with Surgeon			
12	16	Booster Session: Where we are now	The QEP will discuss how the participant is feeling now and revisit goals. If participants requires further supports the QEP will also anything within their scope, and also refer to the Community Health Team (CHT) resources, which offer supports on many wellness topics and are free to all Nova Scotia residents.
13	24	Booster Session: Where we are now	The QEP will discuss how the participant is feeling now and revisit goals.
14	32	Booster Session: Where we are now	The QEP will discuss how the participant is feeling now and revisit goals.

Table 1. Overview of Health Coaching sessions.

Movement Programming

All movement programming will be tailored to each individual participant's current health status, goals, interests, and abilities. Each one-on-one movement session is expected to last 15-45 minutes and will include time for both a warm-up and cool down. Participants will be instructed to begin at a light-to-moderate intensity (i.e., 3-6 on a 10-point Borg Scale), systematically progressed (i.e., periodized), combined aerobic and resistance training program for 15-45 minutes, 3 days/week. Should a participant feel that any movement is beyond their comfort level or ability, they will be instructed to inform the QEP so that the movement can be modified to better suit their needs. (See Table 2 for detailed movement plan).

	Frequency	Intensity	Type	Time
Warmup	All sessions begin with a 5-minute warmup to gently increase heart rate and mobilize major muscle groups (RPE 1-3/10).			
Aerobic	3-7x per week (3 supervised, 0-4 unsupervised)	MICT (3-6 RPE) or HIIT (7-9/10 RPE)	Rhythmic repetitive movements (e.g., walking, marching, cycling)	10-15 minutes
Resistance	3x per week	4-7/10 RPE	Targeting major muscle groups including: • Legs (e.g., sit to stand) • Back (e.g., horizontal row) • Chest (e.g., wall pushups)	2 sets of 6-15 reps; 10-15 minutes

			• Core (e.g., dead bug) • Shoulders/arms (e.g., shoulder press/bicep curl)	
Balance	3-7x per week (3 supervised, 0-4 unsupervised)	4-7/10 RPE	Examples include single leg balance and tandem stance	2x30 seconds; 5 minutes
Flexibility	3-7x per week (3 supervised, 0-4 unsupervised)	4-7/10 RPE	Examples include hip flexor/quad stretch, hamstring stretch, chest openers	2 x 20 seconds; 5 minutes
Locoregional	3-7x per week (3 supervised, 0-4 unsupervised)	4-7/10 RPE	Surgery-specific resistance and flexibility exercises (e.g., swallowing exercises for esophageal participants)	2 x 20 seconds; 3-5 minutes
Cooldown	All sessions will conclude with a 5-minute cooldown to gently return heart rate to resting values (RPE 1-3/10)			
Progression – Aerobic	Sessions will begin at the lower limit of the desired range (e.g., 3 sessions at 40% HRR) and progress to the upper limit of the desired range (e.g., 7 sessions at 70% HRR) as tolerated.			
Progression – Resistance, Balance, and Locoregional	Sessions will begin at the lower limit of the desired range (e.g., 4/10 RPE) and progress to the upper limit of the desired range (e.g., 7/10 RPE) by modifying repetitions, sets, or difficulty of exercises as tolerated.			

Abbreviations: HIIT; high intensity interval training; MICT, moderate intensity continuous training; RPE, rating of perceived exertion. Notes: All programs will be tailored to each individual based on their functional level and environment.

Table 2. Outline of a movement programming

QEP Training

Multiple YMCA QEP's will be trained in health coaching and MI to complete this study. This training will include 1) THRIVE exercise oncology training[20], an exercise oncology specific asynchronistic training module, 2) Health Coaching Certification,[21] an evidence based training that focusses on empowering health behaviour change, and 3) completion of a full day workshop on study protocol and MI techniques, including talks from experts in the field, individuals with lived experience of lung or esophageal cancer and other healthcare professionals. Each counselling session will have a checklist and protocol for QEPs to use outlining the targets and goals for each session. All QEPs will be overseen by the YMCA Clinical Exercise Physiologist (CEP) who will offer advice and guidance on movement programming and health coaching sessions.

Outcome Measures:

Feasibility (primary outcome) will include i) recruitment feasibility: recruitment rate (# of participants referred per month), enrollment rate (# of enrolled participants / # of referred

participants), reasons for declining, prehabilitation window (time between consent and surgery) and ii) intervention feasibility: adherence to the movement intervention, attrition, safety, study completion rate, and adverse events). The feasibility target for recruitment is a 25% enrollment rate. The feasibility target for adherence is 70% or more, measured by attendance to movement sessions with the QEP. The feasibility target for attrition is 20% or less.[22] A timeline of feasibility measures is available in the supplemental material (Table S1).

Participant outcome measures will include demographic information (age, sex, gender, socioeconomic status, race, marital status) and anthropometric measurements (height, weight, BMI), medical information (surgery type, diagnosis, date of diagnosis, treatment status, other chronic conditions) and patient-reported outcomes that include quality of life (Functional Assessment of Cancer Therapy – Lung *OR* Esophageal)[23,24] and fatigue (Functional Assessment of Chronic Illness Therapy – Fatigue).[25] Both the FACT-L/ FACT-E and FACIT-F have been extensively validated and are reliable and widely used tools in the oncology setting.[26] Participants will have the option of completing surveys using the web-based (REDcap) database or using a pen and paper-based survey. A comprehensive assessment of functionality will be conducted in-person in clinic by the surgeon. Functional assessments are based on the Canadian Society of Exercise Physiology's Physical Activity Training for Health Protocol (CSEP-PATH) and include, height, weight, resting heartrate and blood pressure, 5x chair sit-stand, stair climbing test and grip strength. As part of standard of care, participants will undergo pulmonary function tests, these measures include tidal volume, forced vital capacity, vital capacity and functional residual capacity.

Pre-Post Interviews. Participants will be interviewed prior to commencement of the program to better understand their perception of prehabilitation health coaching and to better understand their history with movement and healthy lifestyle behaviours. This will include questions that are based on past behaviours and future goals. This interview will be audio-recorded and transcribed verbatim. A content analysis will be done using the Behaviour Change Wheel (BCW) and Theoretical Domains Frameworks (TDF).[27,28] This will aid to better understand the behaviour and barriers/ facilitators to engage in the behaviour. For sustained behaviour change, participants need to have the Capability, Opportunity and Motivation (COM-B) to perform the behaviour.[28] Participants will also be interviewed at the end of the program to better understand their satisfaction with the program. This will also aid in understanding participants perception of where they are regarding long-term behaviour change. Post interviews will be conducted to better understand their perspective on the program and how/ if they found the program beneficial, these interviews will probe understanding of sustained health behaviour change and program satisfaction.

Postoperative outcomes include length of hospital stay and postoperative complications. Severity of complications will be graded according to Clavien-Dindo classification.[29,30] Return to emergency room within ninety-days post-op and ninety-day mortality will also be assessed.

Analyses.

The statistical analysis for this trial will be conducted with (R Foundation for Statistical Computing, Vienna, Austria). Participant characteristics will be summarized using descriptive statistics (mean ± SD, frequency, percentage). We will report reasons for exclusion, attrition, and adverse events with frequency and percentages for each group. Safety will be determined by examining the total number of adverse events that occur over the duration of the program. Adherence to movement sessions will be summarized as a percentage (number of movement sessions attended / number of available movement sessions).

Baseline demographic and disease-related variables will be compared between prehabilitation and data-only participants using one-way ANOVA for continuous variables and Chi-square test for categorical variables. The effectiveness analysis will include a linear mixed model to assess the difference in physical fitness and patient reported outcomes (PROs) from baseline (T0) to the preoperative (T1), post- operative

(T2), 4-6 weeks postoperative (T3), and 32 week long-term follow up (PROs only) where the time point is the fixed effect and individual subject is the random effect. A sensitivity analysis will be performed adjusting for sex, surgical type, and age. Linear mixed effect models will also be used to determine between group differences. An alpha of 0.05 will be considered statistically significant. Point estimates and 95% confidence intervals will be calculated for changes in the physical function and PROs at each timepoint and will also be used to provide important information for future sample size calculations. A Poisson regression will be used to estimate differences between groups for postoperative outcomes (i.e., length of hospital stay, postoperative complications, return to emergency room, and mortality). Missing outcome data will be imputed using multiple imputation effects. Conclusions will be drawn using comparisons of each time point relative to baseline.

Qualitative description is used to describe rather than interpret phenomena. Content analysis, the process of making sense of the meaning in the data will also be used during our thematic analysis. The research assistant will work with an experienced qualitative researcher to conduct multiple reviews of the transcripts and tapes (Step 1) to familiarize themselves with the data. Analysis will be initiated as soon as the first interview is completed and continued concurrently with data collection. The analysis will examine what individual, structural, cultural, and institutional contexts are hypothesized to affect success. Additional codes will emerge to develop a thematic framework (Step 2) that reflects the language and experiences of participants. An audit trail will be used to document decision-making process. Sections of the transcripts will be charted into themes (Step 3). Codes will be combined into themes during a series of research team meetings in which the relationships between behaviour and the patient's capability, opportunity, and motivation to do said behaviour will be explored and summarized. Analysts will review the codes and associated themes multiple times to check for potential biases, to ensure they reflect participants' words, and improve and validate the interpretation (Step 4) of the interviews. Additional interviews may be added when new themes emerge. Initial findings will be shared with a group of participants to help with interpretation and generate meaning from the data.

DISCUSSION

Current standard of care for surgical cancer patients does not include prehabilitation, albeit multiple RCT's have shown the efficacy of these programs.[9,10,19,31] Evidence is growing for the use of prehabilitation in standard of care yet its implementation into clinical settings is still limited. BREATHE WELL will inform clinicians and knowledge users how structured prehabilitation programming utilizing community settings and resources can bridge the gap from healthcare to community. To maximize care pathways, it is imperative that those suited for community programs are triaged accordingly. Further, it is important to ensure community-based resources are well-equipped and trained to work with prehabilitation patients to allowed for sustained health behaviour change and safe movement programming. Individuals living with and beyond cancer during and post treatment benefit from engaging in movement, however, often lack the knowledge, resources and guidance on how to do so safely and effectively.[32–36] By using an "exercise and educate" model focussed on MI and health coaching, the emphasis will be on empowering participants to see the long-term benefits of behaviour change and increase overall well-being for individuals. As well, previous community-based physical activity interventions with individuals living with and beyond cancer, do see a longer term increase in physical activity.[11] This could be due to familiarity with the environment, this could be due to having increased support upfront which can lead to better physical activity adherence. This study builds on previous evidence that prehabilitation is efficacious, yet its uptake into standard of care is still lacking.[37]

There are several strengths to this study, 1) a pragmatic design allows for a deeper understanding of implementation and feasibility which will aid in further understanding of prehabilitation in real-world settings, 2) the use of community-based facilities allows for a strong likelihood of not only system level sustainability, but greater confidence for individuals to adhere to physical activity upon completion of the prehabilitation program, and 3) the use of a standard of care

comparator group allows for preliminary effect estimates to understand if prehabilitation improves quality of care. However, this study is not without limitations. Firstly, we have limited our sample to thoracic surgery patients, which may not be generalizable to other cancer populations. Secondly, the prehabilitation window is short (2-3 weeks) which preclude physiological changes. However, with continued support after the surgery, participants will be supported to create long-term positive lifestyle changes and habits. Finally, this is a nonrandomized trial, which may decrease internal validity. However, the focus of this study is pragmatic in nature and the primary outcome is feasibility.

CONCLUSIONS

Prehabilitation is a key health intervention for those undergoing cancer surgery, with growing efficacy in the literature, yet the implementation of prehabilitation in real-world settings is lacking. BREATHE WELL will contribute to implementation science regarding approaches to support prehabilitation for surgical patients in a sustainable way that leverages the strengths of the healthcare and community setting.

DATA AVALIABILITY STATEMENT

The original contributions presented in the study are included in the article. Any further inquiries can be directed to the corresponding author.

ETHICS STATEMENT

The study has obtained ethics approval through the NS Health Research Ethics Board (REB# 1030020). Patients and participants will provide written informed consent to participate in the study, or, when necessary, sign release forms for personal health data to be used.

PATIENT AND PUBLIC INVOLVEMENT

The research team is focussed on integrated knowledge translation, and has used key support from patient partners (SS) and knowledge users (J.C, J.P. & L.H) in the design, implementation and dissemination of the study.

FUNDING

Department of Surgery, Dalhousie University

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Supplementary Files