

Case studies of existing prehabilitation sites in NSW

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Prehabilitation, or pre-operative rehabilitation, aims to enhance patients' physical and psychological functionality in the period before surgery, to support them to deal with surgical intervention.

Prehabilitation before major surgery can lead to:

- a faster recovery
- better patient experiences and outcomes
- savings for the healthcare system.

Prehabilitation enables people waiting for elective surgery to prepare for surgery through promoting healthy behaviours such as physical exercise, nutritional optimisation, and positive mindset. It also:

- empowers patients to become active participants in their care, maximising resilience to undergo surgery,
- increases patients' understanding of their coming healthcare journey
- improves long term health outcomes.¹

Concord Repatriation General Hospital, John Hunter Hospital and Nepean Hospital have implemented prehabilitation programs to improve the experience and outcomes of particular surgical patient groups. This report includes a summary of their programs and the lessons learnt.

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Concord Repatriation General Hospital

Concord's prehabilitation program supports colorectal and gastrointestinal cancer patients. The program includes review by a multidisciplinary team, that focuses on exercise, diet and enhancing overall patient wellbeing prior to surgery. Each patient is supported throughout the program by a colorectal cancer nurse specialist who is the patient's key point of contact. At the time of writing, 60 patients of 69 referrals had completed the prehabilitation program.

Introduction

In 2018, Concord hospital implemented a pilot study for a colorectal preoperative optimisation program (CPOP). Following the success of CPOP, the prehabilitation team extended their work to establish prehabilitation for gastrointestinal cancer surgery (the Prehab-GI program) in January 2020.

Prehab-GI is offered to patients waiting for elective colorectal and upper gastrointestinal cancer surgery with a curative intent at Concord Repatriation General Hospital.

Patient referrals come directly from hospital colorectal or upper gastrointestinal surgeons, oncologist, and multidisciplinary team (MDT) meetings or via referral from the surgical pre-admission clinic.

Once a referral is received, the patient is screened for eligibility by cancer nurses (upper gastrointestinal and colorectal) or the study coordinator (surgical dietitian). Any uncertainty surrounding eligibility is discussed at the following multidisciplinary team meeting.

Patient pathway

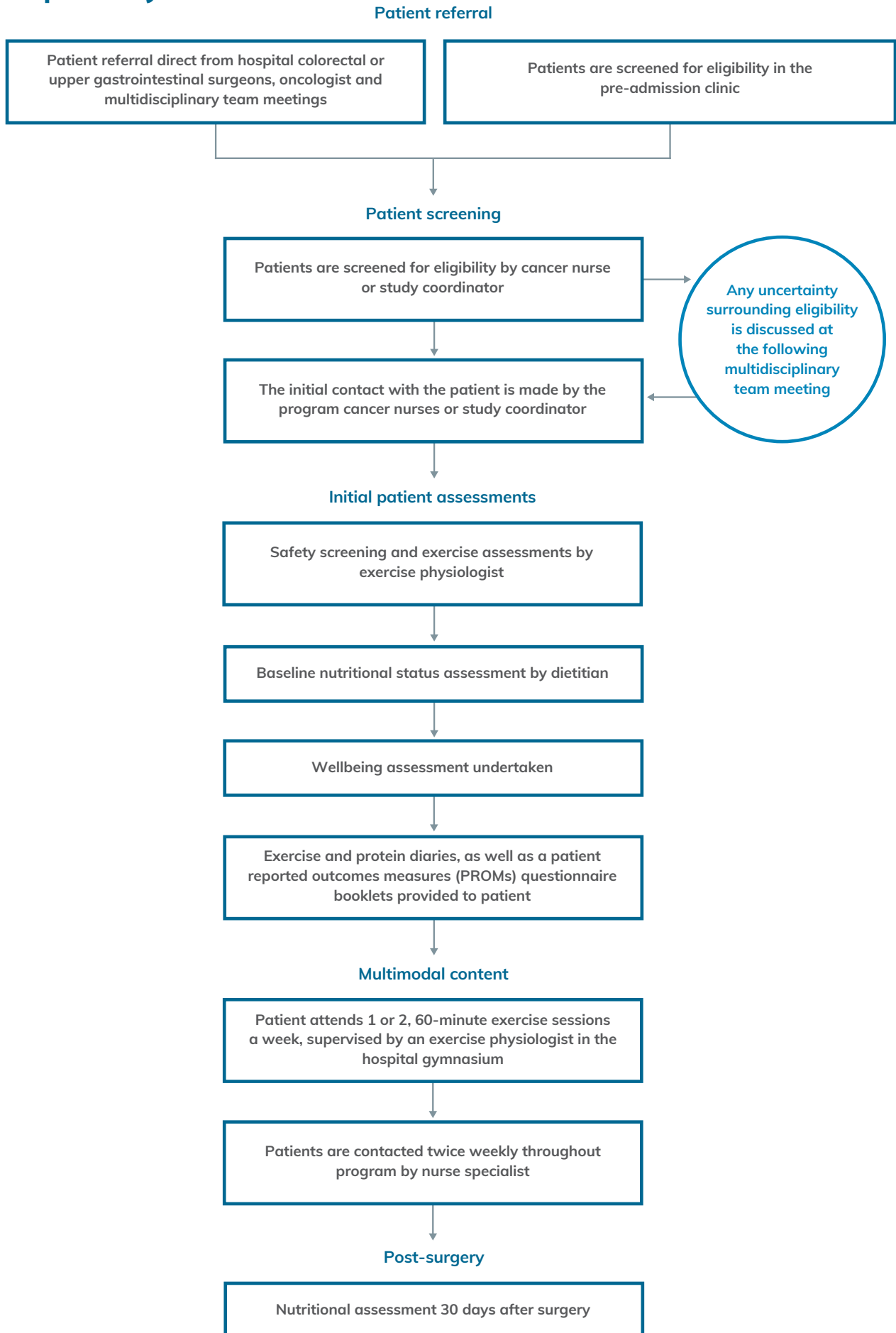


Table 1: Patient selection criteria

Patient inclusion criteria	Patient exclusion criteria
Aged at least 18 years	Unable to do exercise or take nutritional supplements for physical or medical reasons
Pre-operative clinical staging confirmed stage I-III colorectal or upper gastrointestinal (GI) cancer, or limited stage IV colorectal cancer (e.g., limited liver metastases planned for resection) or upper GI cancer that is potentially curable with surgery	Currently undergoing neoadjuvant chemotherapy or radiotherapy. Patients will be eligible for participation on completion of neoadjuvant chemo/radiotherapy providing there is at least 14 days (about 2 weeks) before surgery
Elective colorectal cancer or upper gastrointestinal resection scheduled >14 days (about 2 weeks) after time of referral to study and where baseline assessment can be started to allow a minimum of 10 days of the intervention prior to surgery	Unable to give informed consent or follow instructions due to cognitive difficulties
Medical clearance for exercise	Taking immunonutrition oral supplements during the intervention
Willing to attend supervised exercise sessions at the Sydney Cancer Survivorship Gym at the hospital or by telehealth (video) 1-2 times per week until surgery	
European Co-operative Oncology Group (ECOG) performance status of 0-2	
Willing to take prescribed high protein supplements until surgery	

Patients must also be willing to participate in the follow up elements of the program. This includes patient-reported outcomes measures questionnaires, exercise and diet logs, with follow up 30 days after surgery. The initial contact with the patient is made by the program cancer nurses (upper gastrointestinal and colorectal) or study coordinator (surgical dietitian) to discuss program details and recruit the patient to the program. Family members are encouraged to accompany or assist participants during the program. To encourage participation, a phone call, appointment card, or email reminders are used to remind patients of their appointments.

The team includes:

- a medical oncologist
- surgeons
- dietitian
- exercise physiologist
- nurse specialists
- geriatrician
- anaesthetist
- research assistant
- interpreters.

Initial patient assessments

An exercise safety screen is completed to identify patient activity levels and comorbidities. During this, peripheral oxygen saturation and blood pressure are monitored to identify unknown health risks. Patients are assessed for aerobic capacity using assessment tools such as:

- handgrip strength
- 30-second Chair Stand Test
- two-minute Step Test
- three-metre Up and Go test
- the six-minute walk test.

Exercise assessments require a dynamometer and online exercise program (PhysiTrack).

Nutritional status is assessed using many screening tools. For example, the Patient Generated Subjective Global Assessment (PG-SGA) tool and falls (SARC-F) questionnaire, the bioelectrical impedance analysis (BIA), and patients are asked for a 24-hour recall of dietary intake. Nutritional assessments require body composition, stadiometer, tape measures, and high protein nutritional supplements.

Patient wellbeing is assessed using these:

- Godin's Leisure Time Exercise Questionnaire (LTEQ)
- European Organisation for Research and Treatment of Cancer Quality of Life questionnaire (EORTC QLQ-C30)
- Functional Assessment of Chronic Illness Therapy – Fatigue (FACIT-F) Subscale
- Hospital Anxiety and Depression Scale (HADS)
- visual Distress Thermometer (DT).

PROMIS 29 is a valuable patient reported outcome measures tool that can be used as part of the Health Outcomes and Patient Experience (HOPE) platform for the collection of data, where appropriate.

Intervention

Exercise

The exercise component of Prehab-GI requires scheduled patients to attend one or two small group exercise sessions per week. These are supervised by an exercise physiologist in the hospital gym. The program is tailored to each individual and includes aerobic and resistance exercise training modalities. Resting heart rate and blood pressure are recorded prior to all sessions.

Aerobic exercise aims for a target intensity of 60-75% of heart rate reserve. Resistance exercise includes the use of multi-joint, large muscle group exercises using dumbbells, weighted pulleys, or body weight activities.

Perceived exertion ratings are recorded throughout each session. Participants are encouraged to engage in and record an additional three home-based aerobic exercise sessions each week.

Nurse-led engagement

Twice a week a colorectal cancer nurse specialist contacts participants by phone or sees them when they come to the gym. The nurse provides general support and encouragement. To facilitate face-to-face assessments or hospital gym sessions, specialty nurses coordinate transport via community services for patients where required. A standardised set of semi-structured questions are used to assess a participant's distress levels and coping ability during the program.

Diet

A dietitian completes nutritional assessments at baseline, pre-surgery and at 30 days after surgery as outlined in the initial patient assessments. Dietary education and counselling are provided, based on the Australian Guide to Healthy Eating. The dietitian highlights the importance of these aspect of healthy eating before surgery:

- the role of protein
- strategies to increase total protein intake
- approaches to address additional nutrition symptoms, for example, poor appetite and nausea.

The dietitian spends time teaching patients how to portion meals, using pictorials, food models and discussion to aid decision making.

Program outcomes

This program is currently operating under a research framework. As such, formal outcomes will not be made available until after the study concludes. The program intends to report on the following measures:

- attendance
- compliance
- functionality
- length of hospital stay
- post operative outcomes
- psychological status
- nutritional status
- anxiety
- depression.

Anecdotally, the prehabilitation team has noted positive outcomes throughout the program. These outcomes include improved family engagement and a positive change in organisational culture towards the concept of prehabilitation.

John Hunter Hospital

Prehabilitation was initiated at John Hunter Hospital following the successful implementation of Enhanced Recovery after Surgery (ERAS). The prehabilitation program supports patients waiting for elective upper gastrointestinal, major urology, major vascular and occasionally colorectal surgeries. It focuses on improving fitness, providing psychological support, and connecting patients to multidisciplinary support.

Prehabilitation is time sensitive for elective surgery and should be undertaken as soon as possible – preferably at the time of surgical referral. The program team report improved bed planning and a reduction in surgery cancellations as a result of prehabilitation, with increased focus on:

- patient-centered care
- shared decision making
- increased rapport of the multidisciplinary team.

John Hunter Hospital's prehabilitation is supported through cardiopulmonary exercise test (CPET) assessments – an assessment of cardiopulmonary function during incremental exercise. It can determine exercise capacity, causes of cardiopulmonary limitation to exercise, and evaluate results of therapeutic interventions. This program model aims to:

- create a recognised referral pathway to expert, high-risk perioperative assessment
- improve fitness for high-risk surgical patients
- embed multidisciplinary care into perioperative patient pathways
- provide psychological support.

To date the program prioritises based on clinical need and the time patients must wait for elective upper gastrointestinal, major urology, major vascular and occasionally colorectal surgeries. The program is made available to patients within the greater Newcastle area. Team members assist in linking eligible patients with their local services outside this area. Where local services are not available, efforts are made to provide at home support. Referrals are made by surgeons, anaesthetists or via the perioperative clinic.

Prehabilitation for elective major cancer surgery is time sensitive. Where required, patients may be fast-tracked to the prehab program to accommodate this. Patients included in prehabilitation program are:

- undergoing considerable risk surgery, for example, Ivor Lewis oesophagectomy
- considered to be high risk (generally but not always)
- undergoing neoadjuvant chemotherapy or radiotherapy (NACRT) and fulfills above criteria.

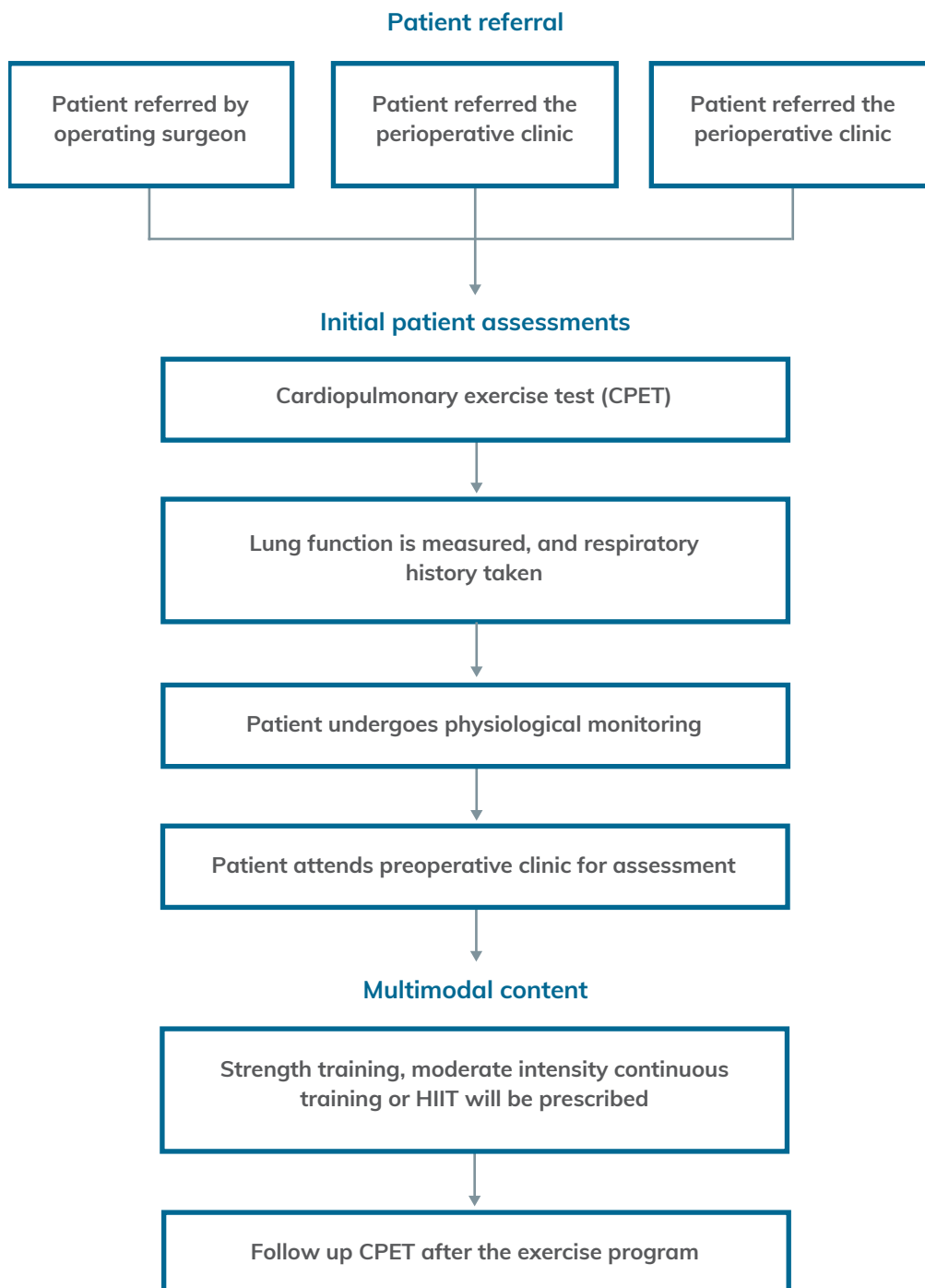
Fitness is a major objective measure prior to these surgeries. Prehabilitation can mitigate and improve fitness in this context.

Patients are contacted to obtain consent to participate in the program and arrange an appointment for the exercise component. Family members are welcomed to accompany and assist participants throughout the program.

The John Hunter Hospital multidisciplinary team includes:

- a respiratory scientist
- physiotherapist
- respiratory physician and registrars
- surgeons
- advanced nurse practitioner
- consultant anaesthetist
- intensivist.

Patient pathway



Initial patient assessments

A patient history is taken. This includes a respiratory history. Lung function is measured first by completing spirometry and gas exchange measurements. Physiological monitoring takes place continuously throughout rest, exercise, and recovery phases.

Baseline assessments inform the design of a high intensity interval training (HIIT) program suited to the individual patient. The assessments identify any abnormal physiological responses during exercise that may require further testing or optimisation prior to surgery or prehabilitation.

The patient also undergoes a formal perioperative assessment, where other aspects such as a social history, frailty, mobility, alcohol, and drug use are investigated. Plans for screening for psychological vulnerabilities are established.

Interventions

Exercise

Where the multidisciplinary team considers a patient's fitness should be optimised before surgery, HIIT will be prescribed, along with complementary general strength training.

Exercise targets are specifically tailored to the patient's abilities and needs and informed by a pilot trial.² The patient is instructed on the use of a stationary bike, treadmill, or skiing simulator to exercise for five-minute high and moderate intensity intervals repeated four to six times, three times a week. Physiological parameters including dyspnea and perceived exertion are monitored continuously.² On two of the days that the participants do not attend supervised exercise training, they are encouraged to walk for 20 minutes.

When they complete the four-to-six week exercise program, the patient will sometimes undergo a repeat assessment to identify improvements in aerobic capacity and inspiratory strength. A repeat cardiopulmonary exercise test (CPET) might be performed to identify if exercise capacity has improved from baseline.

“Improved team collaboration is hugely beneficial for patient planning.” **CLINICIAN**

Program outcomes

In two years, 50 patients were recommended to engage with the HIIT prehabilitation program. Of those, 45 engaged with the program and five patients were unable to complete the intervention. Over the same period, a further 65 patients were recommended for prehabilitation but not for HIIT. Prehabilitation delivery was facilitated using a Team Care Arrangement, this involved using Medicare funding for five sessions per year, where possible.

The multidisciplinary team has noted anecdotal outcomes of the program including:

- better planning around the need for intensive care beds
- reduced day-of-surgery cancellations because of better intensive care bed planning
- improved recognition of realistic post operative outcomes
- provision of a patient-centered service with shared-decision making as a focus
- increased rapport in a multidisciplinary team
- upskilling of health professionals
- patients gained connection with other people in similar situations, for example, survivorship support.

Nepean Hospital

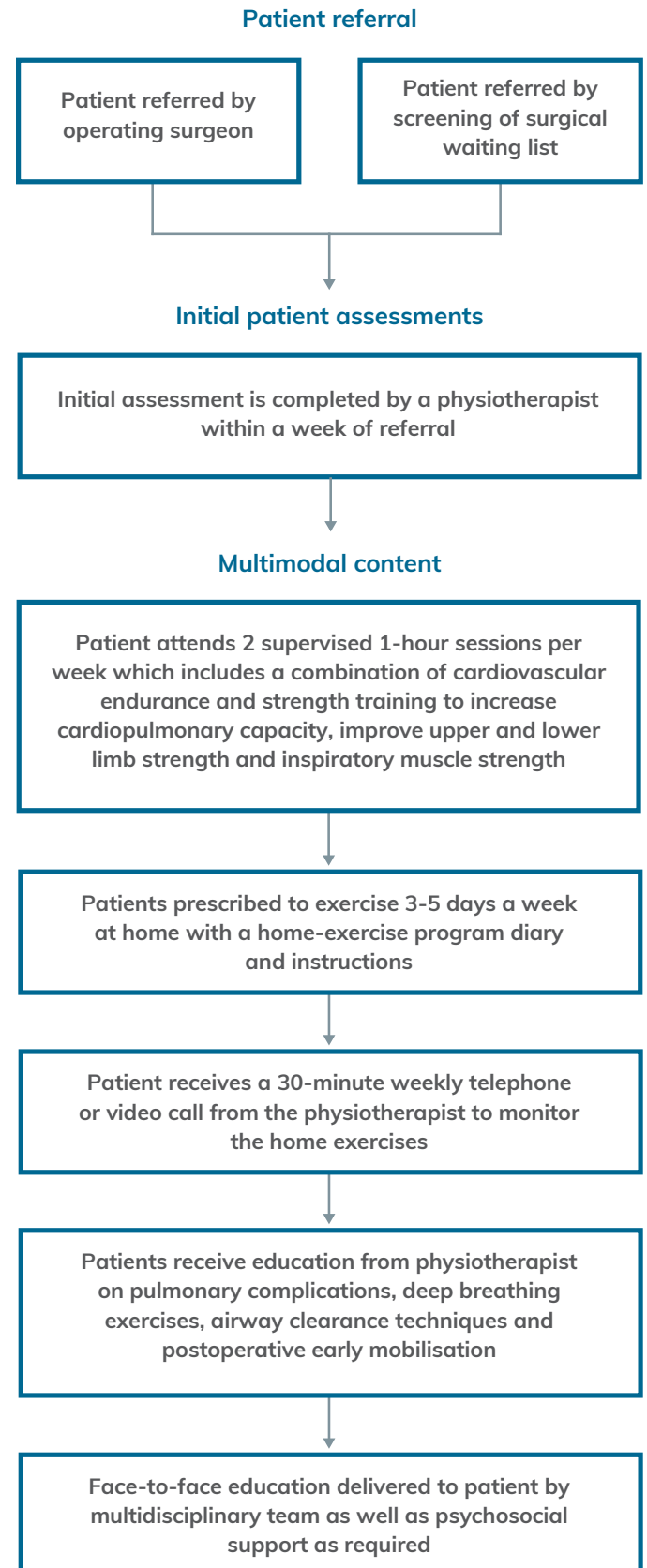
The Nepean Hospital prehabilitation program supports patients waiting for thoracic, major upper gastrointestinal or open colorectal surgery through education and exercise. The program achieved:

- a reduction in hospital length of stay
- a lower readmission rate
- positive patient-reported measures.

Prehabilitation was introduced at Nepean Hospital in January 2018, initially as a quality improvement project focused on providing education and exercise to patients waiting for elective surgery. The Preoperative Education and Prehabilitation Program (PrEPP) has now grown into an established program of care. Currently PrEPP is offered to patients waiting for elective upper gastrointestinal, colorectal, thoracic, and head and neck surgery within the local health district.

Referrals are received directly from surgeons or are generated by manually screening the surgical waiting list for appropriate patients. Referrals may be received two to four weeks prior to planned surgery.

Patient pathway



Patient eligibility is limited to those who are:

- aged at least 18 years and waiting for thoracic, major upper gastrointestinal or open colorectal surgery
- aged at least 70 years and waiting for a laparoscopic colorectal resection, laparoscopic cholecystectomy, or large incisional hernia repairs.

An average of 125 patients per year participate in prehabilitation. The coordinating physiotherapist screens the waiting list against patient selection criteria and makes an initial contact with the patient. Details such as PrePP requirements and expectations, as well as informed consent are discussed before the patient is enrolled into the program. Family members are encouraged to accompany the patient during the program.

At Nepean Hospital the multidisciplinary team includes a:

- physiotherapist
- dietitian
- social worker
- pain nurse specialist
- surgeon
- geriatrician
- allied health assistant.

Initial patient assessment

An initial assessment is completed by a physiotherapist and generally completed face to face. Or if this can't be done, the assessment is completed using email, videoconferencing or a telephone call. A detailed medical, surgical, social, and smoking history is obtained. Baseline measures of anthropometric, exercise tolerance and quality of life are recorded. Exercise tolerance is measured using a six-minute walk test (6MWT). Quality of life is assessed using a self-assessed health questionnaire (EQ-5D) that records the patient's self-rated health.

Intervention

Exercise

Each patient is given an individualised exercise regime that considers premorbid fitness, musculoskeletal limitations, and medical comorbidities. They attend two supervised one-hour sessions per week, using a stationary bike for aerobic exercise. The duration of prehabilitation in those waiting for cancer surgery is generally two to four weeks. Components of the exercise program include a combination of cardiovascular endurance and strength training to:

- increase cardiopulmonary capacity
- improve upper and lower limb strength
- improve inspiratory muscle strength.

Patients are also encouraged to exercise at home three to five days a week. A home exercise program diary is provided, including instructions for simple exercises. A weekly telephone or video call by the physiotherapist helps to monitor the home exercises.

Patient education

All patients receive education from the physiotherapist on:

- pulmonary complications of surgery
- deep breathing exercises
- airway clearance techniques
- postoperative early mobilisation.

In addition, face-to-face education is delivered by a multidisciplinary team consisting of a pain clinical nurse consultant, dietitian and pharmacist who focus on various aspects of surgery. Psychosocial support is provided to those experiencing preoperative anxiety, depression, and other acute stressors related to their upcoming surgery. For those who were unable to attend in person, telehealth education is provided. All patients receive a comprehensive prehabilitation handbook.

Program outcomes

Approximately 370 patients have completed the PrEPP prehabilitation program at the time of writing. Of the participants, 90% remained compliant with the interventions throughout the program. Attrition has been attributed to patients living too remotely to attend, and time constraints limiting availability to participate.

PrEPP has achieved:

- a reduction in hospital length of stay by on average 1.8 days
- reduced 28-day readmission rates
- reduced number of days receiving mechanical ventilation
- positive patient-reported measures.

PrEPP has won several awards as an innovative model of care, including recognition at the local and state level for achievements in improving patient care and outcomes.

“I never imagined this level of collaboration in the Nepean team. Everyone wants better patient outcomes.” **CLINICIAN**

Lessons learned from the case studies

Enablers

Prehabilitation is a complex intervention that varies across sites and patient cohorts. However, all three case study sites demonstrate common elements to their success.

Support from all levels

Many clinicians involved in establishing prehabilitation programs had prior experience of delivering prehabilitation and saw first-hand, the positive effects it had on patient, surgical and hospital system outcomes.

Passionate clinicians with strong beliefs in the benefits of prehabilitation were essential to create and establish programs in the workplaces. In addition, all sites had the support and encouragement from senior and executive management who could provide leadership and influence. All sites had done previous work relating to prehabilitation, making the establishment of a formal program much easier to embed into practice.

Contains essential components

No one model for prehabilitation exists in NSW. However, five broad models of prehabilitation are identified in the literature:

- exercise based
- nutrition based
- psychological
- educational
- multimodal.

All sites included an exercise component aimed at improving aerobic capacity or muscle strength or both. One site added a nutritional focus, another provided additional educational goals, making their programs more multimodal in design.

All sites were aware of emerging evidence surrounding the benefits of prehabilitation and the universally accepted conclusion that fit and healthy patients have improved surgical outcomes when compared to patients with comorbidities, limited exercise tolerance and greater than recommended body mass index.

“We can see the program leads to success in patient care.” **CLINICIAN**

Short-term prehabilitation programs of two to six weeks duration have been shown to have a positive impact, based on feedback from case study sites. Sites agreed that programs should be four weeks duration as a minimum but acknowledged that their program often had to be flexible to accommodate patients requiring time sensitive surgeries. One site that used a combination of nutrition and exercise plans was confident that they could achieve results in as little as two weeks. Sites also recognised that if the program could be extended to six weeks, they would extend it, especially if the patient needed to recover after neoadjuvant therapy.

Embeds baseline patient assessments

At the start of the program, an initial patient assessment is crucial to gain baseline knowledge of a patient’s physical and psychosocial situation. These parameters were used to estimate if any changes had occurred following a period of prehabilitation. For example, positive changes that would improve the health status of the patient prior to surgery and consequently improve patient outcomes after surgery.

Exercise physiotherapists, exercise physiologists, dieticians, social workers and/or psychologists incorporated inquiry into the following parameters as part of their initial patient assessments:

- past medical history
- basic anthropometric measures
- aerobic capacity
- muscle strength
- nutritional status
- dietary intake
- psychosocial history.

There are a wide range of validated screening tools available for clinicians to use. All sites used screening tools with a focus on assessing for:

- mobility
- malnutrition
- frailty
- depression.

To a less extent, the sites also screened for psychosocial vulnerabilities. Two of the three sites included patient-reported measures as part of their data collection, with the third site recognising the importance of doing so.

Patient centred and culturally safe

Prehabilitation offers an opportunity for clinicians and consumers, including family, partners or carers, to make health decisions together. All sites designed interventions for patients based on clinical need as well as patient capabilities. They also incorporated a patient- and family-centred approach by encouraging family or loved ones to accompany patients to prehabilitation. This is apparent through consumer participation in program design and delivery, inviting consumers to evaluate their experiences of prehabilitation.

Assessment of social and wellbeing factors is undertaken by all sites. The inclusion of family members or carers in the patient's prehabilitation program is strongly encouraged. Efforts are also made to link regional and rural patients to community physiotherapists or other health professionals, so prehabilitation can occur at home or closer to it. Regional and rural patients often include Aboriginal people who can then be linked with Aboriginal health workers and services in their area, where appropriate.

Notably, one site demonstrated that the inclusion of an interpreter, who can be contacted easily, has the potential to:

- introduce prehabilitation services to a wider set of patients
- facilitate completion of the program
- promote the program among culturally and linguistically diverse (CALD) communities.

Access to human, physical and educational resources

Prehabilitation patient assessment cannot take place without equipment such as:

- tape measures and stadiometer to take body measures
- peripheral oxygen saturation monitors
- non-invasive blood pressure machine to measure vital signs
- resuscitation equipment for emergency situations.

Facilities require access to an in-house gym and associated equipment, additional office space and office equipment for educational or other assessments to take place, and documentation of the patient's progress.

The provision of patient resources to optimise program participation and compliance was highlighted by all sites as necessary. Patients need items such as:

- handbooks
- digital information resources
- inspiratory muscle trainer (IMT)
- diaries
- nutritional supplements.

All sites used a multidisciplinary team for their prehabilitation programs. Each site also highlighted additional staffing requirements, with further clinical and administrative capacity recommended to enhance their programs. All sites provided some form of additional training to the multidisciplinary team to support them in effectively delivering prehabilitation.

Opportunities for development

Five areas were identified for further development and refinement of local prehabilitation models.

Establish referral pathways

Establishing clear referral pathways that are easily accessible to all clinicians, streamlines the referral process and reduces the labour required for individual patient review. Integrating patient referral mechanisms with established electronic systems should be considered whenever possible.

Patient inclusion and exclusion criterion should be built into the mechanism of referral to ensure consistency and improve identification of patients who may benefit from prehabilitation.

Coordination of patient linkages to other services should be undertaken where appropriate. Clinicians should consider:

- referral to other health professionals, especially for patients who have complex health conditions, multiple co-morbidities and are of high risk for surgery
- linking patients with general practitioners pre, and post program
- engaging with interpreters or Aboriginal health liaison officers.

Measure outcomes and success

All case study site would like to further develop monitoring and evaluation of the prehabilitation program. Data collected as part of the program should:

- capture the baseline, preoperative and outcome measures of the prehabilitation program, including patient-reported measures of outcome and experience
- be managed in a coordinated, safe manner with appropriate governance
- capitalise on existing clinical and administrative data sources to reduce duplication of effort
- be regularly reviewed and analysed to report on program progress and outcomes, informing further refinement of the service.

Enlist an adequate workforce

A common challenge for all sites is recruiting and retaining clinicians with the skills required to deliver a comprehensive multimodal prehabilitation program. Clinicians often offer their services in addition to their normal workload or in their own time. Few clinicians have been specifically employed in a prehabilitation role. Often grants or trust funds have been used to provide at minimum, a co-ordinator position that concurrently provides a clinical role.

To enhance the available workforce, one case study uses skilled and appropriately trained multidisciplinary team members to engage allied health and medical students in providing interventions. In return, senior staff are given the opportunity to develop mentoring skills. The same case study site has plans to partner with educational institutions in this way to access an ongoing pool of health professional students.

Pursue virtual opportunities

There is an increasing demand to offer prehabilitation in a virtual format to those living in regional or rural regions, or who are unable to travel, or are socially isolated. Digital solutions such as My Virtual Care or applications such as PhysiTrack can assist in delivering prehabilitation interventions in an online environment. This increases the number of eligible patients who can participate and reduces on-site resourcing requirements.

Strive for sustainability

Passionate and influential clinicians have led to the development of prehabilitation in all three sites. However, all sites acknowledge that to ensure continuity of the programs they have helped to create, a governance structure and ways to promote cultural change need to be in place. It is important to establish formal governance structures for clinical programs to:

- support the delivery of safe, high quality clinical care
- identify risks, opportunities and relationships between services
- preserve and strengthen stakeholder confidence
- ensure programs can improve and adapt to a changing healthcare environment.

Prehabilitation is a relatively new approach to providing preoperative care to surgical patients. Hospital cultures must change to keep pace with new concepts, especially if they are supported by evidence. Expressing, modelling, and reinforcing change to support implementation of a prehabilitation program allows a system to continually improve.

Acknowledgements

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- Concord Repatriation General Hospital
- John Hunter Hospital Newcastle
- Kaden Centre, Newcastle
- Nepean Hospital.

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Appendix 1: Method of case study development

A case study framework

To explore how prehabilitation can be offered in NSW, case studies of existing sites were conducted. A case study is an in-depth, detailed examination of a particular case within a real-world context. The purpose of the case studies in this instance were to produce key principles that underpin the provision of prehabilitation for patients requiring elective surgery and a toolkit of resources to assist with prehabilitation delivery.

This was achieved by:

- investigating and describing in detail the elements of three existing NSW prehabilitation programs
- reviewing the effectiveness of each program in achieving its intended outcomes, including lessons learned of how success was achieved, and challenges met along the way
- identifying areas for improvement and growth including those that may influence the scalability and feasibility of the program.

Scoping survey and preliminary discussions

Two sites were identified through a scoping survey in January 2021 as currently implementing prehabilitation. A third and final site was identified through preliminary discussions with the first two sites. Sites were screened for initial scope fit and followed up by a phone call to clarify that the program fulfilled the scope criteria.

Inclusion and exclusion criteria for including a prehabilitation program as a case study site.

Scope for case studies	
Inclusions	<ul style="list-style-type: none"> • Prehabilitation programs for adults (18 years old and over) including frail, older people who consent to participate • Prehabilitation programs for patients waiting for an elective surgical intervention in a public hospital in NSW • Public facilities delivering elective surgical services • Facilities with established pre-admission clinic • Facilities with the executive support and desire to establish prehabilitation programs • Facilities with access to an in-house gym
Exclusions	<ul style="list-style-type: none"> • Prehabilitation programs for children (less than 18 years old), emergency, obstetric and transplant patients • Private facilities in NSW • Facilities that do not deliver surgical services or have established pre-admission clinics • Facilities that do not have executive support and desire to establish prehabilitation programs • Facilities without access to an in-house gym

Other parameters that influenced site selection were geographical location, if the program was established enough to learn from, and if an evaluation of the program had occurred.

Method of investigation

Process mapping, visualising the patient journey through prehabilitation, and consideration of potential implementation led to the creation of a set of questions to ask each case study site. Questions were asked through both a Quality Audit Reporting System (QARS) survey and a virtual interview.

As many of the multidisciplinary team members as possible were invited to the virtual interview to gain an in depth and comprehensive understanding of each prehabilitation program.

Comparison matrix and qualitative analysis

Survey results and interview notes from three sites were used to create a comparison matrix. A comparison matrix is a tool used to visualise similarities and differences between services. The matrix helped to organise and classify elements to discover how sites were successful in achieving their aims, and what challenges were experienced. The lessons learnt are presented in this document.

Qualitative analysis occurred by theming and presenting common findings together, from which key principles could be extrapolated.