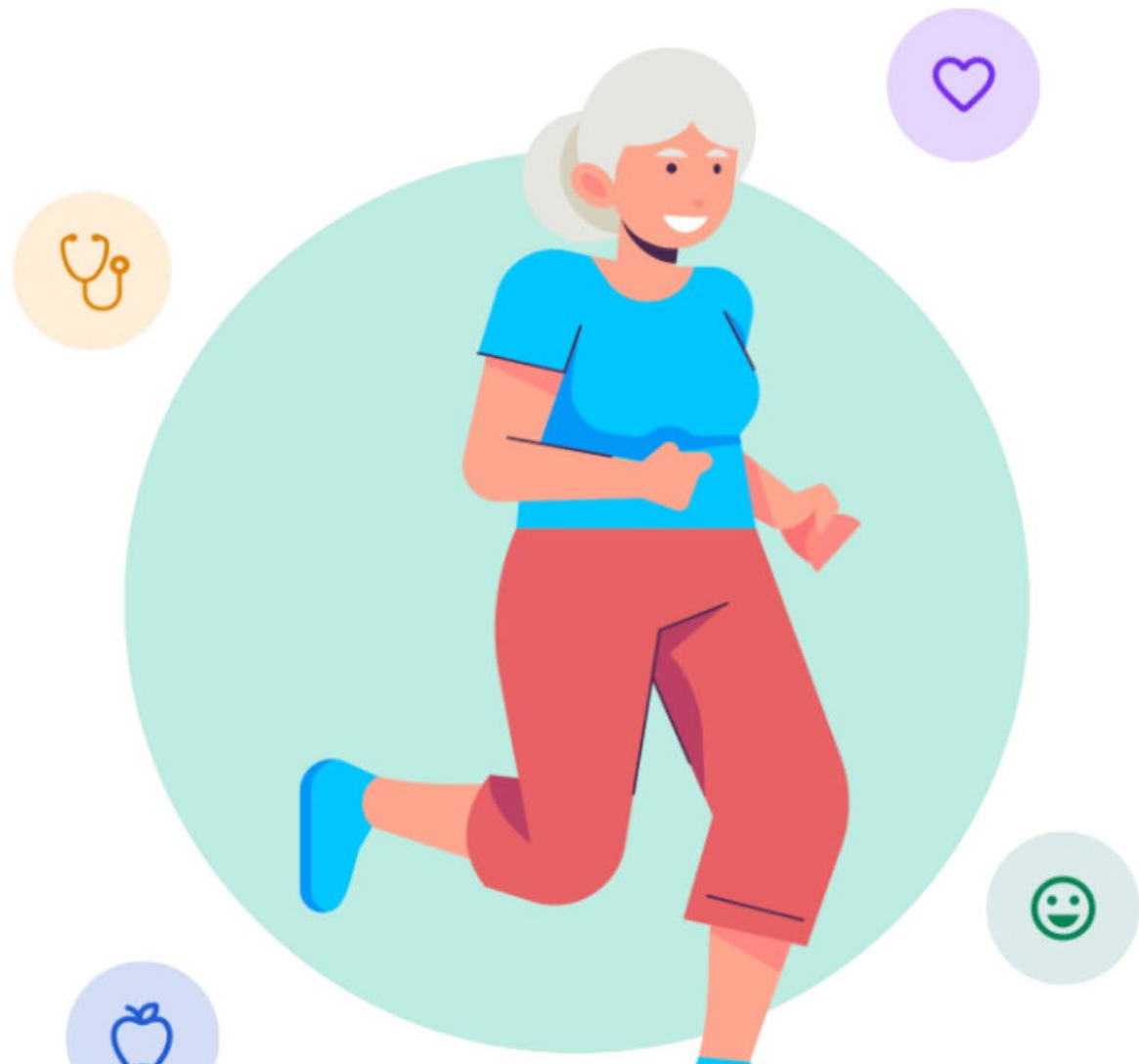


# Developing an evidence-based Toolkit for implementing Prehabilitation for Patients having Major Cancer Surgery.

## *The Prep-4-Cancer Surgery Toolkit.*

Final Project Report

June 2025





**PREP-4**  
**CANCER SURGERY**



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# Abbreviations

**CCV** – Cancer Council Victoria

**CoP** – Community of Practice

**DASI** - Duke Activity Status Index

**EMR** – Electronic Medical Record

**F4S** – Fit-4-Surgery

**GLIM** - Global Leadership Initiative on Malnutrition

**NWMPHN** - North Western Melbourne Primary Health Network

**Peter Mac** – Peter MacCallum Cancer Centre

**PG-SGA** - Patient-Generated Subjective Global Assessment

**PHQ-4** – Patient Health Questionnaire – 4 items

**PHQ-9** – Patient Health Questionnaire – 9 items

**TFA** – Theoretical Framework of Acceptability

**Toolkit** – Prep-4-Cancer Surgery Toolkit

**WCMICS** – Western & Central Melbourne Integrated Cancer Service

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# Main Messages

Peter Mac collaborated with consumers, Western Health, Bendigo Health, St Vincent's Hospital Melbourne, Mercy Health, The Women's Hospital, Cancer Council Victoria, North Western Melbourne Primary Health Network to develop an evidenced-based online toolkit for cancer surgery prehabilitation, "Prep-4-Cancer Surgery".

The Prep-4-Cancer Surgery website includes:

- Health-care service advice
- Clinician resources
- Patient and carer resources

The resource was then used to implement a multimodal prehabilitation program at Western Health, and the resource was evaluated across three health services including Western Health, Bendigo Health and St Vincent's Hospital Melbourne. Final toolkit edits were made based on the evaluation and expert feedback.

## Key messages and project outcomes

- Co-design by patients, carers, clinicians and key stakeholders is an effective way of creating acceptable resources
- The Prep-4-Cancer Surgery website is a first-of-its-kind resource providing access to key evidenced based information on establishing and delivering cancer surgery prehabilitation, along with providing patient facing resources. Evaluation of the Prep-4-Cancer Surgery website demonstrates:
  - High acceptability and usability: 79% (n=15/19) of respondents found the Toolkit acceptable and felt confident using it, with 84% (n=16/19) reporting a positive emotional response to the material.
  - Improved knowledge and confidence: A large majority (90%; n=17/19) reported increased knowledge in preparing patients for surgery, and 74% (14/19) felt more confident providing prehabilitation support after engaging with the Toolkit.
  - Perceived positive impact on patient outcomes: 94% (n=17/18) believed the Toolkit would have a positive effect on patient experiences and outcomes.
  - Toolkit resources are widely applicable: Respondents across all stages of program development indicated that the Toolkit's resources were or would have been helpful in setting up, delivering, and evaluating prehabilitation services.
  - Effectiveness perception is mixed: While most understood the Toolkit's purpose (74%, n=14/19), only 47% (n=8/17) believed it fully achieved its intended outcomes, highlighting an opportunity to enhance clarity or impact.
- Implementation of the resource to establish a new multi-modal prehabilitation program at Western Health was challenging due to a number of barriers including:
  - Lengthy ethics and governance processes impacting project timelines.
  - Operational and funding constraints of the services delivering the implementation pilot that resulted in narrow inclusion criteria.
- Development of a Community of Practice (CoP) relating to prehabilitation for patients undergoing surgery for gastrointestinal and gynaecological cancers.

## Future work

- Should further evaluate the patient and carer-facing resources of the Prep-4-Cancer Surgery website, given the limited consumer feedback and review to the evaluation.
- Consider development of multilingual resources for the patient-facing information.
- Ensure currency of the Toolkit guided by the sustainability plan.
- Maintain the CoP, offering ongoing professional development and network opportunities.
- Continue to broaden the reach, support uptake and assist health services in utilising the Toolkit to implement prehabilitation services in their setting.

# Executive Summary

## Introduction

Major cancer surgery is associated with significant physical and psychological challenges, with high rates of postoperative complications, particularly among patients with modifiable risk factors such as deconditioning, malnutrition, psychological distress, and comorbidities. Multimodal prehabilitation has been shown to improve surgical and functional outcomes, with Peter MacCallum Cancer Centre one of the few Australian tertiary centres to deliver a comprehensive, multidisciplinary prehabilitation program. Fit4Surgery (F4S) offers a stepped care approach including universal education, allied health interventions, and medical optimisation. Supported by Electronic Medical Record (EMR) based tracking and a weekly multidisciplinary team meeting, F4S has demonstrated strong evidence of clinical effectiveness, feasibility, safety, and patient acceptability. Despite the success of the Peter Mac program, access to such programs elsewhere remains limited secondary to a myriad of factors, notably workforce and resource constraints.

## Aims

The PREp-4-Cancer Surgery initiative aimed to co-design, develop and evaluate an evidence-based online Toolkit to support the development and implementation of prehabilitation services for those undergoing major upper and lower gastrointestinal and gynaecological surgery.

## Project objectives and strategies

Led by Peter MacCallum Cancer Centre in collaboration with consumers and partners including Western Health, St Vincent's Hospital Melbourne, Bendigo Health, Mercy Health, The Royal Women's Hospital, North Western Melbourne Primary Health Network, and Cancer Council Victoria, the project focused on improving outcomes for patients undergoing major upper and lower gastrointestinal, and gynaecological surgery.

The Toolkit was co-designed through three workshops involving healthcare workers, consumers, and key stakeholders. It includes:

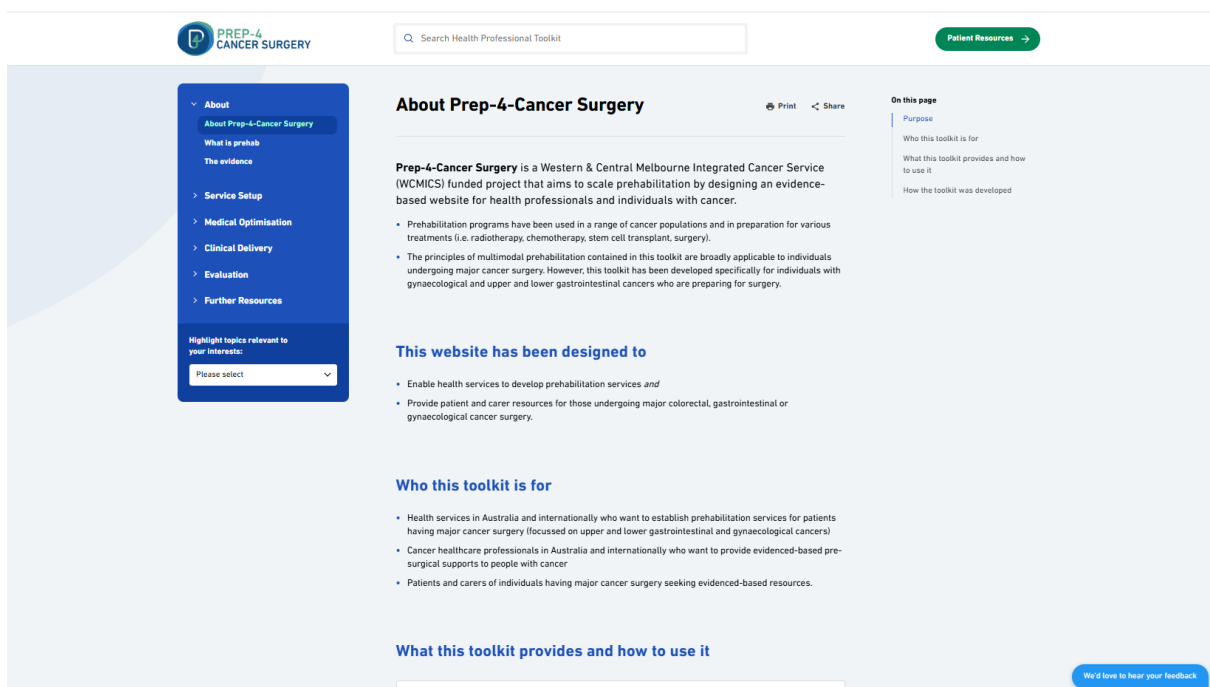
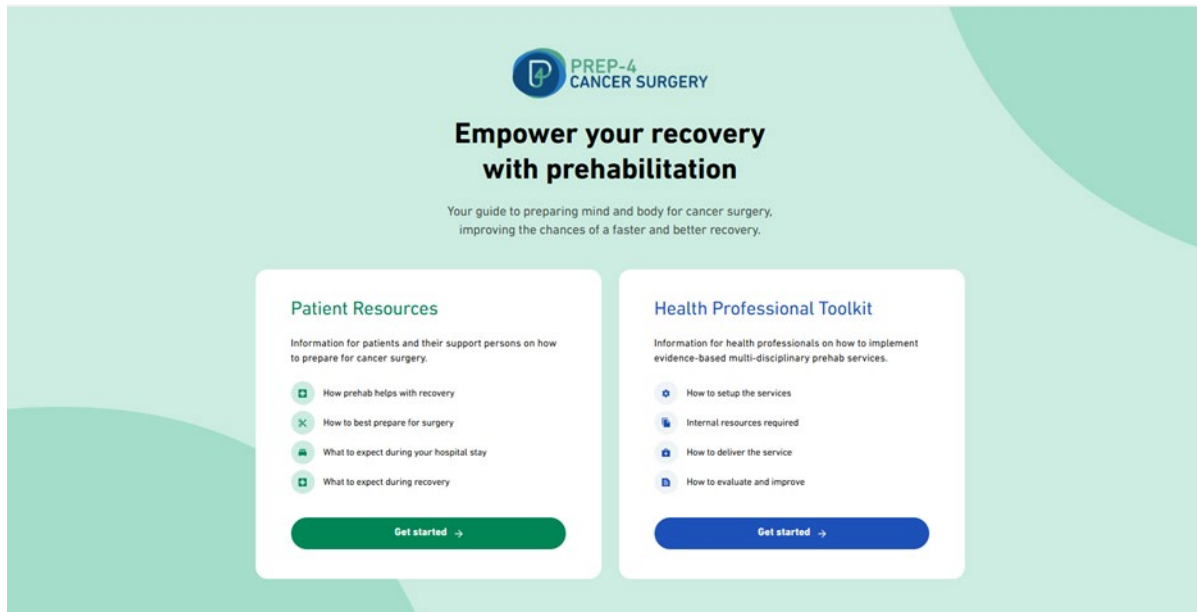
1. Health service guidance such as business case templates and funding advice to support service set up and implementation; and
2. Clinician-facing modules covering medical, nursing, physiotherapy, nutrition, and psychology content to support clinical delivery; and
3. Patient-facing education resources to support patients and their carers.

Partner organisations contributed to the project through participation in the project steering committee and review of materials to ensure broad applicability and relevance.

## Key findings and learnings

Firstly, a comprehensive, high-quality, evidenced based resource (i.e., the Toolkit) is the major deliverable of this project: [www.prep4cancersurgery.org](http://www.prep4cancersurgery.org)

Images of the website are included below:



Secondly, the evaluation of the resource found:

- General acceptability and confidence: 79% (n=15/19) of respondents found the Toolkit acceptable and felt confident using it.
- Understanding and purpose: 74% (n=14/19) understood the Toolkit's purpose.
- User experience: 68% (n=13/19) found the effort required to engage manageable; 84% (n=16/19) responded positively to the material.
- Perceived impact:
  - 94% (n=17/18) believed the Toolkit could positively impact patient outcomes.
  - 90% (n= 17/19) reported increased knowledge in preparing patients for surgery.
  - 74% (n=14/19) felt more confident in providing prehabilitation support after using the Toolkit.
- Website content: All sections were reported as helpful.
- Service context and relevance: Respondents were evenly split between those in established prehabilitation services and those in services without or developing programs.  
Across all stages of program development, about half had completed the recommended tasks.
- Resource usefulness: Nearly all respondents indicated that Toolkit resources were or would have been helpful for tasks across service setup, delivery, and evaluation.

However, the implementation of the resource to establish a new multi-modal prehabilitation program at Western Health proved more challenging than expected. Stakeholder engagement, combined with unforeseen changes to care pathways and narrow patient eligibility, hindered recruitment.

## Conclusion and recommendations

The Prep4Cancer Surgery Toolkit was co-designed and will be freely available at [www.prep4cancersurgery.org](http://www.prep4cancersurgery.org) following WCMICS approval and an official launch on Thursday August 28<sup>th</sup>, 2025. The project experienced several challenges across its multistage design, including managing extended timelines, coordinating part-time staff, and navigating burdensome sponsorship, ethics and governance processes despite the low-risk nature of the project. Initial evaluation of the resource is positive, and particularly robust from a clinician perspective. Future initiatives would benefit from clearer stakeholder engagement strategies, more adaptive project planning, and broader multidisciplinary and sector representation. Future work should consider further patient-focused evaluation, expansion to multilingual patient resources and broadening resources to include other cancer-surgery and treatment types.

# Project Report

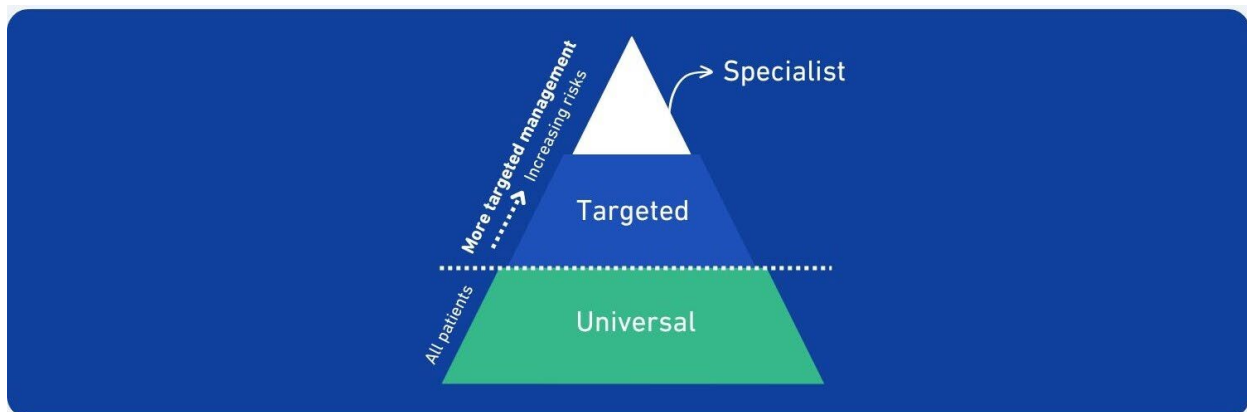
## Section 1: Background

### i. Context

#### **The problem:**

Major cancer surgery is physically and psychologically demanding and commonly associated with a high incidence of postoperative complications. To give a sense of the magnitude of the opportunity, approximately 12,000 patients underwent major colorectal cancer surgery alone in 2015 in Australia (Cancer Australia, 2017). Patients that present with modifiable risk factors, (deconditioning, malnutrition, psychological distress, and comorbid disease) have increased postoperative complications, with increased hospital length-of-stay, reduced ability to achieve timely adjuvant cancer therapy and increased mortality (Barberan-Garcia et al., 2018; Khuri et al., 2005). Multimodal prehabilitation aims to prepare and optimise patient health in the time between diagnosis and surgery. It improves surgical outcomes (in reduced complication rates) and improves patients functional and psychological outcomes (Barberan-Garcia et al., 2018; Gillis et al., 2018; Grimmer et al., 2022; McIsaac et al., 2022). The problem is that very few patients have access to such programs due to limited clinical expertise and resourcing.

Peter Mac Cancer Centre (Peter Mac) is one of the only known tertiary health services in Australia to operate a multidisciplinary prehabilitation program, collectively referred to as Fit4Surgery (F4S). The F4S program was awarded a Victorian Health Care Award in 2014. F4S was successfully piloted and now part of standard care at Peter Mac. The F4S program follows an established pathway to provide a stepped care (risk-stratified) service (Macmillan Cancer Support, 2019) including, universal education through surgery school for all patients (Waterland et al., 2021), referral to exercise classes, referral to a dietitian and to a psychologist via screening (Figure 1). These interventions target medical optimisation of comorbidities (e.g. iron deficiency anaemia), deconditioning (exercise, diet), malnutrition (diet), and anxiety/motivation (clinical psychology). A weekly multidisciplinary team meeting ensures service coordination. Service and clinical data are captured via an Electronic Medical Record (EMR). Evaluation of the F4S program has demonstrated improvements in patient and hospital outcomes (physical function and length of stay), feasibility (Waterland et al., 2021), safety (Waterland, McCourt, et al., 2021), and patient acceptability, with 93% of patients accepting a referral to the above-described allied health services (Waterland, Ismail, et al., 2021).



**Figure 1. Stepped prehabilitation**

This project aimed to scale prehabilitation by co-designing an evidence-based **‘Prep-4-Cancer Surgery Toolkit’** (hereafter called the **‘Toolkit’**), which can be used to support the development and implementation of prehabilitation services across Australia and internationally. This Toolkit will enable health services to develop prehabilitation services and lead to improved patient outcomes for those undergoing major upper and lower gastrointestinal and gynaecological surgery (Yamada et al., 2015), as supported by the WCMICS funding.

**The initiative:** Peter Mac has collaborated with consumers, Western Health, St Vincent’s Hospital Melbourne, Bendigo Health, Mercy Health, The Royal Women’s Hospital, North Western Melbourne Primary Health Network and the Cancer Council Victoria to 1) co-design a Prehabilitation Toolkit and 2) evaluate the utility and the ability to implement the Toolkit.

Three co-design workshops with consumers, health care workers and other key stakeholders were conducted. The Toolkit was intended to consist of:

- Clinician facing modules to cover topics spanning medicine, nursing, exercise, nutrition, and psychology. Guidance on how to implement and evaluate prehabilitation programs.
- Health service guidance such as business case templates and suggested funding sources that may be tailored for use within various health settings.
- Patient facing education resources including prehabilitation specific resources in psychology, nutrition and exercise.

Partners from Royal Women’s Hospital, Mercy Health, North Western Melbourne Primary Health Network, provided input into the project via representation on the steering committee.

## ii. Implications

### **Motivation and drive for the initiative:**

The primary drivers for this project were:

1. To improve quality of care. There is a robust evidence base highlighting the positive impacts of prehabilitation for patients and health care services. As discussed above, for patients’ prehabilitation leads to improved physical symptoms, improved mood and

adjustment, less time in hospital, reduced complications, and increased satisfaction with their care. Additionally, for health services, prehabilitation leads to overall reductions in hospital costs.

2. To improve equity of care. Despite these benefits very few patients have access to these programs especially in rural and remote access. The Toolkit will improve access to evidence-based care.
3. To share Peter Mac's expertise to benefit the greater community by sharing prehabilitation specific resources. Peter Mac is regularly sought out to share expertise with individual health services wanting to set up prehabilitation services. This necessitates a time impost on clinicians, so we sought to develop a more sustainable and efficient method of sharing our skills.
4. To carry out with the strategic directions of Peter Mac 2020-2025, namely providing the 'World's best cancer care'. This project aligns with this strategic pillar by delivering an evidence-based Toolkit that enables evidence-based practice to maximise patient quality of life and improve patient outcomes, including reducing post-operative complications. The Toolkit also aligns with our strategic pillar to provide a 'World-class cancer education' by proactively providing high-quality education to other health professionals, patients and carers. The partnerships that we have secured on this project support our strategic pillar of 'Networks, partnerships and enterprise' by cultivating these networks and investing in facilitating excellence in cancer care and education broadly across Victoria.
5. To leverage off other relevant programs of work. This includes the WCMICS collaboration with the Psychosocial Oncology Program at Peter Mac who developed Cancer Mind Care, a self-help online platform that provides Australia's first 'one-stop-shop' for tailored mental health support for people with cancer, their support persons, clinicians and First Nations peoples. In addition, work lead by Peter Mac on the CanEAT pathway in 2020-22 (with WCMICS support), provided a robust foundation of online resources on cancer nutrition. Both Cancer Mind Care and the CanEAT pathway do not have prehabilitation specific resources, however this project has built upon those resources already freely available and incorporated them.

### **Anticipated impacts/benefits:**

The end-product of an online, evidence-based, multidisciplinary Toolkit is anticipated to benefit health services, clinicians and patients.

For **health services**, it is anticipated that they will provide a more consistent offering, with a greater ability to compare outcomes at a system level.

For **clinicians**, having access to a Toolkit will improve the quality of the care delivered, save time in finding resources and build skills and confidence in delivering prehabilitation services.

For **patients**, it is anticipated that will improve access to evidence-based prehabilitation, improve satisfaction and experience of care and improve physical, functional and psychological outcomes.

## Section 2: Methodology

### i. Aim

This project aimed to:

1. Co-design an online multidisciplinary cancer surgery prehabilitation Toolkit (for patients with upper and lower gastrointestinal and gynaecological cancers).
2. Evaluate its acceptability and usefulness.

### ii. Objectives

The specific objectives of this project were:

1. To conduct up to three co-design workshops with key stakeholders within 10 months of the commencement of the project. These workshops will run in parallel with the content and prototype development.
2. To develop the prototype Toolkit iteratively and web platform by month 14.<sup>^</sup>
3. To assess the feasibility and acceptability, to patients, healthcare professionals and other key stakeholders, of a multimodal prehabilitation intervention at Western Health by month 26.\*
4. To assess the usefulness, preliminary effectiveness, adaptability, self-efficacy (for prehabilitation implementation) of the Toolkit amongst 18-20 clinicians from Bendigo Health and St Vincent's Hospital by month 26.\*
5. To conduct 2 focus groups with clinicians and other key stakeholders about their experience with the Toolkit by month 26<sup>#</sup> To conduct an analysis of the google analytics by month 26.\*
6. To consolidate and analyse findings and refine the Toolkit before making it publicly available by month 29.\*
7. To make recommendations for an expanded horizontal, bottom-up approach to service scale-up at other health services by month 30.\*
8. To form recommendations for vertical scaling to support the initiation and evaluation of external health service prehabilitation services by month 30.\*
9. To establish a collaborative cancer prehabilitation Community of Practice (CoP) as a forum to connect and share knowledge after project-end and to support future health service scale-up by month 30.\*

<sup>^</sup> Amended delivery window approved by WCMICS in November 2023

<sup>\*</sup>Amended delivery window approved by WCMICS with 3 months project extension in December 2024.

The project was extended by 3 months (March to June 2025).

<sup>#</sup> Removed as an objective with WCMICS approval in March 2024

### iii. Expected Outcomes

**Table 1. Project deliverables and timeframes**

<b>Deliverables</b>	<b>Intended timeframe</b>	<b>Amended timeframe</b>
Project plan – to be ratified by the steering committee	Month 3	N/A
Completion of co-design workshops	Month 10	N/A
Interim project report 1	Month 14	N/A
Interim project report 2	Month 24	N/A
Toolkit – 3 core elements: 1. Clinician facing modules to cover medicine, nursing, exercise, nutrition, and psychology. Implementation and evaluation of prehabilitation programs will be included. 2. Health service guidance such as business case templates that may be tailored to various health settings. 3. Patient facing education resources.	Month 28	Month 33*
Communication/dissemination plan	Month 29	Month 33*
CoP established	Month 29	Month 33*
Final project report	Month 30	Month 33*

*\*Amended timeframe due to WCMICS-granted extension. The project was extended by 3 months (March to June 2025).*

### iv. Scope

#### Inclusions

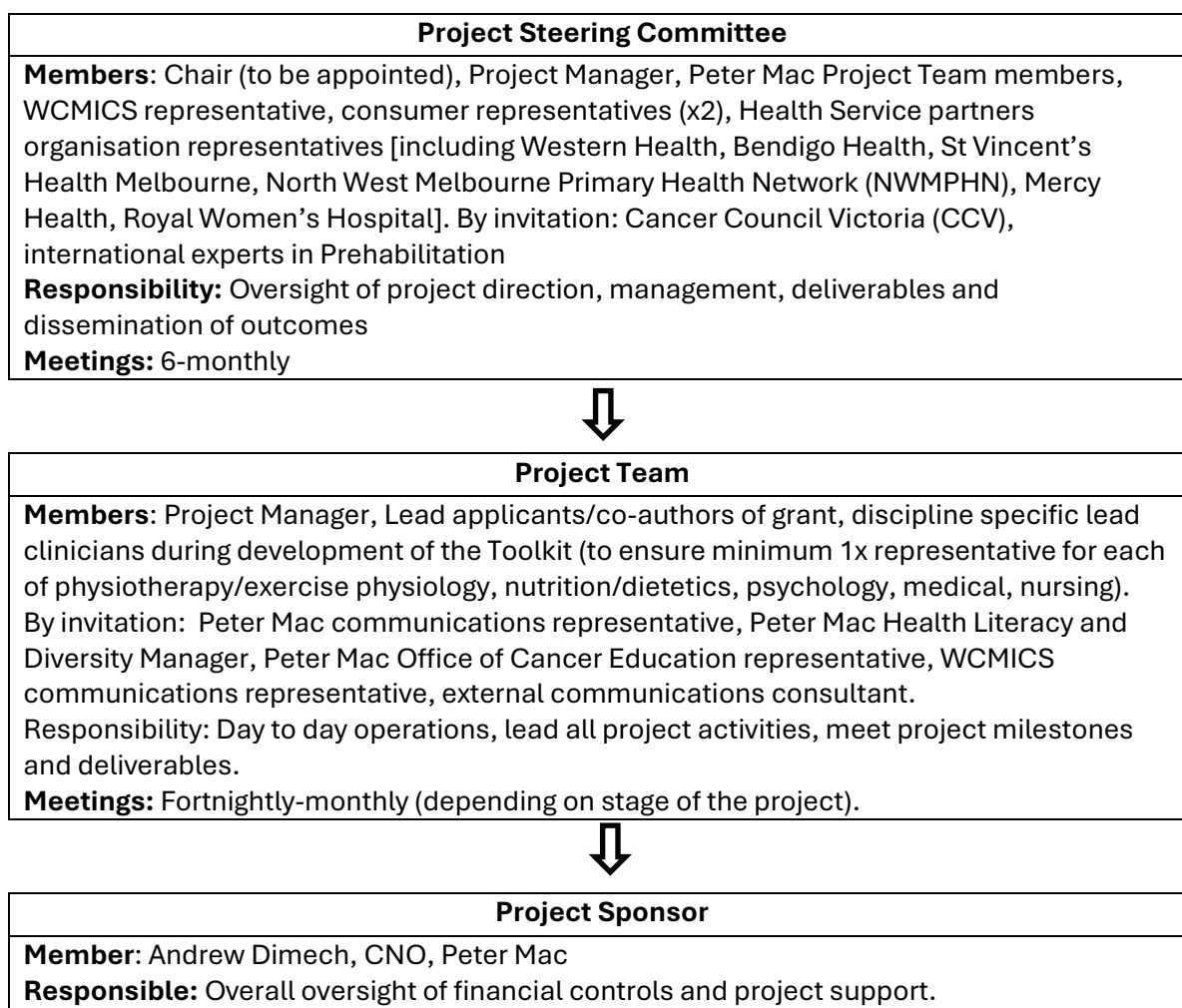
- A website-based Toolkit with 3 main elements:
  - a. Clinician facing resources.
  - b. Patient education resource. Resources will only be newly developed where they do not already exist specifically for prehabilitation (e.g. psychology, nutrition).
  - c. Health services guidance.
- CoP establishment.

#### Exclusions

- Patient education resources already in existence where they specifically address specific prehabilitation needs e.g. Physiotherapy and exercise, Multimodal Surgery School patient education videos. These existing resources will be included in the Toolkit.
- Development of new resources for Culturally and Linguistically Diverse patients and carers.
- Publications - these may occur post completion of the project.

## v. Governance

### Governance structure



**Figure 1. Project governance structure overview**

### Governance roles

**Table 2. Governance roles and responsibilities**

Who/project position	Responsibility
Lead applicants/co-authors of grant (in-kind)	To form the Peter Mac Project Team; members of the Project Steering Committee; to support the Project Manager; support engagement of/with consumers and partner organisations
Project Manager (paid project role)	To progress project activities and deliverables; member of Peter Mac Project Team and Project Steering Committee
Discipline specific lead clinicians (physiotherapy and/or exercise physiology, nutrition/dietetics, psychology,	To contribute content to the Toolkit and to the Peter Mac Project Team during development of the Toolkit (and as required)

medical, nursing) (paid project roles)	
Consumers (reimbursement available)	Members of Project Steering Committee; assist with engagement of consumers for relevant stages of the project; participate in relevant stages of the project.
Partner organisations (reimbursement available)	Members of Project Steering Committee (NB. Primary role of CCV is advocacy and dissemination); support Project Manager and Peter Mac Project Team with project activities and dissemination; participate in implementation and evaluation as stated in this Project Plan
WCMICS Directorate (funders)	Funders of project; member of Project Steering Committee; support Project Manager and Peter Mac Project Team with project activities and dissemination.

### i. Final budget and project expenditure

The project has been delivered within budget, noting a project extension and additional budget of \$15,000 was granted by WCMICS. See Table 3.

**Table 3. Final project budget, expenditure and variance**

Item	Description	Budgeted expense	Final Expenditure 30/6/25	Variance
<b>Salary</b>				
Project Leads	Alicia Martin: in-kind contribution	\$0	\$0	\$0
	Jenelle Loeliger: in-kind contribution	\$0	\$0	\$0
Project Manager	Christina Prickett	\$131,000	\$140,939.00	\$9,939.00
Additional Project Manager funds for extension (April to June 2025)	Christina Prickett	\$15,000.00	\$22,336.00	\$7,336.00
Content leads: Anaesthetics	Dr Raj Ahmed	\$40,000	\$40,000	\$0
Content leads: Nursing	Catherine Sinton	\$20,000	\$20,000	\$0
Content leads: Allied Health	Anna Beaumont	\$45,000	\$45,000	\$0
	Jess Crowe/Lisa Nguyen	\$40,000	\$40,000	\$0
	Dr Fiona Lynch	\$45,000	\$45,000	\$0
WCMICS communication hours	WCMICS Communications Officer	500 hrs in-kind	400 hrs completed, 100hrs to be used July/Aug 2025 to support dissemination plan	\$0
<b>Non-salary</b>				
Co-design workshop costs	Virtual workshops (no running costs)	\$0	\$0	\$0
Consumer remuneration	Consumer consultation fees to participate in co-design workshops	\$2,400	\$1,000	\$1,400.00
Sitting fees	Project steering committee sitting fees	\$4,800	\$2,840.00	\$1,960.00
Evaluation resources	Cost for external transcription	\$10,000	\$0	\$10,000.00
Implementation sites: WH, St V's and Bendigo	Lump payment per site	\$35,000	\$35,000	\$0
Resource development (e.g., video development and production)	Storyboard, production, video/audio production etc	\$20,000	\$0	\$20,000.00
Consultancy expense	Other expert consultation as required (e.g., Health economist, pharmacist)	\$6,000	\$0	\$6,000.00

Website build	Initial 50%	\$0	\$6,985	\$6,985
	Progress 30%	\$0	\$4,191	\$4,191
	Final 20%	\$0	\$2,540	\$2,540
	Maintenance (until Aug 2026)	\$0	\$6,000	\$6,000
Microsoft licence fee	Standard fee	\$0	\$1,080.00	\$1,080.00
<b>Total</b>		<b>415,000</b>	<b>\$413,611.00</b>	<b>\$1,289.00</b>

## Section 3: Implementation

### Phase 1 – Co-design workshops and Toolkit development

#### Co-design workshops

A summary of the co-design workshop process is provided below. The protocol for this phase of the project was approved by Peter MacCallum Cancer Centre Ethics Committee (HREC/91214/PMCC) in December 2022.

Three online co-design workshops with consumers and health professionals were conducted to iteratively develop the prehabilitation resources. The workshops allowed input into the functionality, content and structure of the website content.

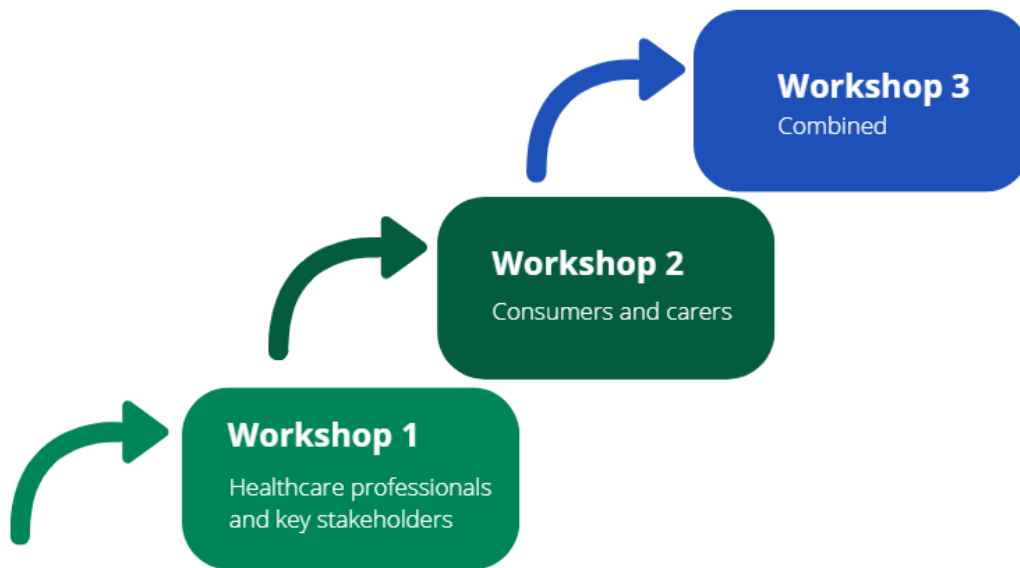
#### Participants

Participants were people with a lived experience of upper and lower gastrointestinal or gynaecological cancer managed surgically or their caregiver; or health professionals/hospital administrators working in a healthcare organisation with a strategic plan and organisation support to implement a cancer prehabilitation service; or relevant stakeholders. Further eligibility criteria were aged 18 years or older, able to read write and speak in English, able to attend two virtual workshops.

#### Recruitment

A purposive sample was recruited by contacting people with cancer who were eligible through Peter MacCallum Cancer Centre via prehabilitation team members as well as broader advertising (newsletters, email, social media) within consumer organisations i.e., Cancer Council and Peter Mac Consumer Registry. Healthcare professionals and other key stakeholders were recruited through convenience sampling through clinical networks of the research team. All participants were provided with a written explanatory statement and provided verbal informed consent.

## Workshops



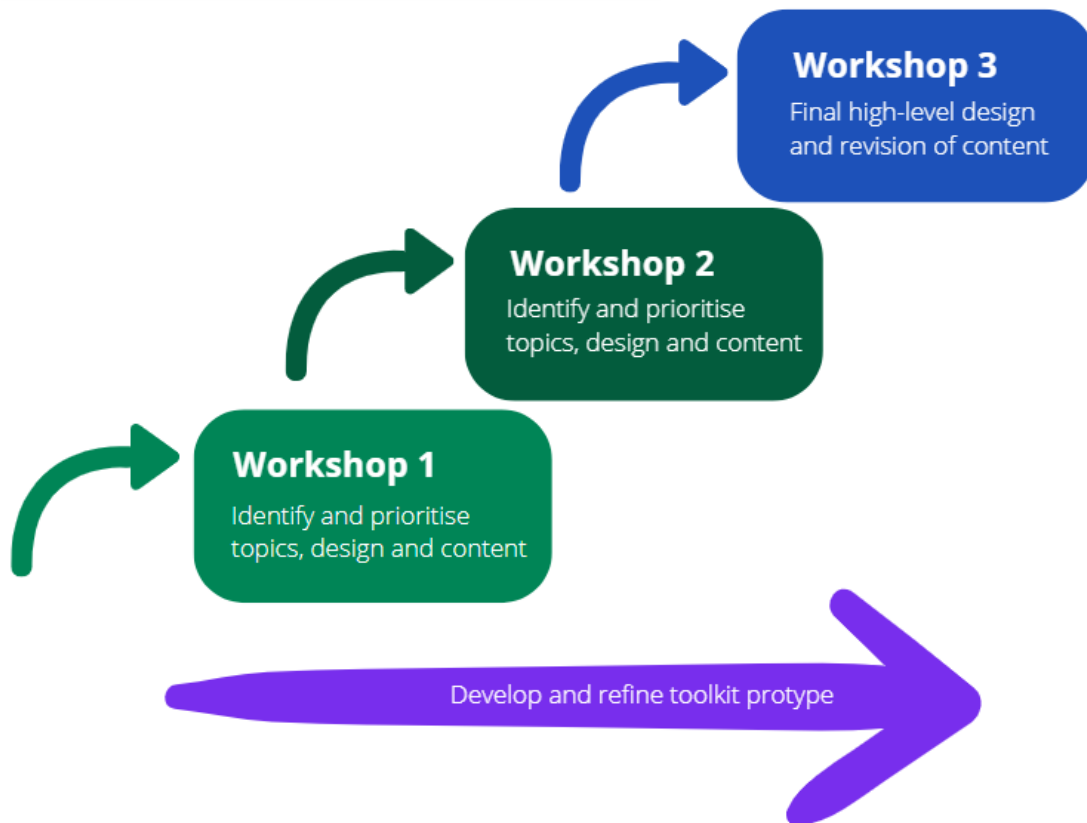
**Figure 2. Overview of co-design workshop participant involvement**

Three semi-structured online workshops were conducted including one with healthcare professionals and other key stakeholders, one with people with cancer or caregivers, and a final workshop with all participants. If participants were unable to attend the workshop, they were invited to complete a phone or video interview with a member of the research team to cover the same content and provide input and feedback.

The aim of workshop 1 with healthcare professionals and key stakeholders was to identify and prioritise topics, high level design and content of the Toolkit. Prior to workshop 1, the research team reviewed existing resources and current evidence regarding the efficacy of cancer prehabilitation to inform the workshops and toolkit prototype development.

The aim of workshop 2 with people with cancer and carers was to provide information on the Toolkit prototype #1 developed following workshop one, and to identify and prioritise additional topics, high-level re-design and revision of content with a particular focus on the resources of individuals with cancer and carers.

The aims of workshop 3 with all participants were to provide feedback on Toolkit prototype #2 developed and refined following the workshops 1 and 2 and identify final high-level re-design and revision of content for inclusion in the Toolkit.



**Figure 3. Overview of co-design workshop aims**

All workshops were facilitated by at least two members of the project team with experience in conducting co-design workshops and/or focus groups. Workshops were conducted virtually the using Microsoft Teams platform. Workshops and phone calls were video and audio-recorded and transcribed where possible. During the workshops, an observer also recorded decisions in real-time.

Principles and some elements of experience-based co-design, a type of participatory action research, were applied to guide the workshops and development of the Toolkit prototype (Australian Healthcare and Hospitals Association; Bate & Robert, 2006; Green et al., 2020; The Point of Care Foundation).

## **Website and content development**

### **Website development process**

As reported in Interim report 1, the draft website was due to be delivered in November 2023 according to the original timeline, but the delivery of this milestone was delayed with the support of the Steering Committee due to the move to an external website provider. The new Peter Mac website platform was introduced following the commencement of this project and was initially intended to house the Toolkit website. Due to the Peter Mac website functionality differing from what was initially anticipated, and the scale of the information included in the Toolkit resource, moving to an external website provider was recommended to the Steering Committee and endorsed in December 2023. At that time, it was anticipated that this change would not have a significant impact on overall

project timelines (i.e., to the commencement of the implementation phase). The external web-provider was engaged in December 2023, and work commenced on the web design in January 2024.

### **Content development process**

Clinical content leads – for Medical, Nursing, Physiotherapy, Nutrition and Psychology were employed to develop and draft content based on the co-design workshop process, the evidence, and their clinical expertise. These clinical content leads collaborated with a range of Peter Mac and other stakeholders to develop the draft version of the website, which was used for Phase 2 of the project.

## **Phase 2 – Implementation and Evaluation of resource**

The protocol for this phase of the project was approved by Peter MacCallum Cancer Centre Ethics Committee (HREC/108505/PMCC) in August 2024. Site approvals for the various implementation sites were obtained in January 2025 (Western Health), February 2025 (Bendigo Health) and April 2025 (St Vincent’s Hospital).

### **Implementation of resource**

A summary of the process undertaken with the resource implementation is provided below.

#### **Western Health**

Western Health aimed to recruit 20 patients to attend a multi-modal prehabilitation program in preparation for their cancer surgery. This implementation was intended to be evaluated using the RE-AIM framework (Glasgow et al., 2019) (including the domains of reach, effectiveness, adoption and implementation) including:

1. Referrals; proportion of eligible patients who were referred during the pilot period
2. Patient uptake of:
  - a. Screening
  - b. Multimodal prehabilitation
3. Retention data
4. Refusal data
5. Intervention fidelity (delivered as intended)
6. Compliance or adherence to the intervention
7. Estimate of staff resources to operationalise the intervention (including time to conduct screening and deliver prehabilitation)
8. Staff and patient/carer perception and acceptability surveys of the intervention
9. Patient impacts and outcomes will be measured by the change in scores on a range of validated measures i.e., 30 second sit to stand test, PHQ-9 (Patient Health Questionnaire-9), PG-SGA (Patient-Generated Subjective Global Assessment)

## **Formal evaluation of resource**

### **Western Health**

Clinicians involved in delivering the multimodal prehabilitation program using the Toolkit resource completed a survey about their experiences with both the Website and the Model of Care.

### **Bendigo Health and St Vincent's:**

At Bendigo Health and St Vincent's Hospital, the aim was to recruit 20 health professionals to engage with the online Toolkit (10 from each hospital respectively). The goal was to recruit a breadth of clinicians including nurses, allied health professionals, managers, surgeons and anaesthetists.

Participating health professionals were invited to complete a survey about their experiences with the website. The survey included items about the usefulness, effectiveness, adoptability, adaptability and ability to implement the Toolkit, including barriers and enablers. The survey questions were guided by the Theoretical Framework of Acceptability (TFA) (Sekhon et al., 2017). The framework comprises seven domains designed to assess acceptability elements (perceived effectiveness, self-efficacy, affective attitude, ethicality, burden, intervention coherence and opportunity costs).

Health professionals at Bendigo Health and St Vincent's Hospital also completed a Gap Analysis for their organisation. The Gap Analysis examined their services current implementation/performance of prehabilitation against the specified prehabilitation Toolkit recommendations. If service gaps were identified, participants would identify elements/resources from the Toolkit that could be used to address service gaps and improve the overall implementation of prehabilitation in their service. Participants were also invited to provide feedback about any omissions/gaps that exist in the Toolkit to allow for iterative improvements following the evaluation period.

### **Web analytics**

Web-based analytics (number of users, average session duration, page views, bounce rates, and downloads) were also collected through Google Analytics to evaluate engagement with the website.

### **Expert and Steering Committee feedback**

In addition to the formal evaluation, the website was sent to leading experts in cancer prehabilitation around the world. Responses were received from health service managers, doctors, exercise, nutrition and psychology experts. Feedback was also received from members of the project steering committee and Peter Mac colleagues.

### **Process measures**

In addition to the above measures, prior to the commencement of the project, the following metrics were selected to assess the success of the project:

1. Above 80% of consumers and staff invited to attend the co-design workshop attend and remain engaged for the duration of the development of the Toolkit

2. Development of an evidence-based Toolkit
3. A high proportion (70% or more) of patients referred to the prehabilitation program at Western Health accept the referral
4. 80% of patients who accept the program report satisfaction with the program
5. 80% of clinicians who are invited to take part in the Gap analysis agree to take part in the study
6. 60% of clinicians spend at least 20 minutes engaging with the Toolkit
7. 80% of staff complete the survey about their experience with the Toolkit
8. 70% of staff reported improved confidence and knowledge in implementing prehabilitation using the Toolkit in their organisation
9. 70% of staff can find resources within the Toolkit to progress their prehabilitation models of care.

### **Phase 3 – Incorporate feedback into Website**

Once the above data were analysed (results summarised in Results section below), final changes were made to the Toolkit by the original clinical content lead team. Both quantitative and qualitative feedback was used to inform these edits. These improvements addressed minor errors and omissions, along with improvements to functionality and presentation of the website and included content. Following the submission of this final report and the approval of WCMICS, the website will be made available to the public.

# Section 4: Results

## Project deliverables

**Table 4. Project deliverables, intended and actual timeframes**

Deliverables	Intended timeframe	Actual timeframe
Project plan – to be ratified by the steering committee	Month 3	Month 3
Completion of co-design workshops	Month 10	Month 11
Interim project report 1	Month 14	Month 14
Interim project report 2	Month 24	Month 25
Toolkit – 3 core elements: 1. Clinician facing modules to cover medicine, nursing, physiotherapy, nutrition, and psychology. Implementation and evaluation of prehabilitation programs will be included. 2. Health service guidance such as business case templates that may be tailored to various health settings. 3. Patient facing education resources.	Month 28	Month 33*
Communication/dissemination plan	Month 29	Month 33*
CoP established	Month 29	Month 33*
Final project report	Month 30	Month 33*

*\*Note 3 month project extension was granted by WCMICS in December 2024*

## Phase 1- Co-design workshops

### Recruitment

With the support of the project Steering Committee partners, consumer registries and Peter Mac clinical staff, a range of consumers, clinicians and key stakeholders were recruited to the co-design workshops. There were challenges in recruiting consumers, with this taking a lot more time to achieve than expected. However, high engagement was achieved from both healthcare worker and consumer populations.

### Participants

The 3 co-design workshops were successfully completed, with an additional 13 individual interviews conducted. Twenty-two consumers and health professionals attended the initial workshops (i.e., workshop 1 and 2), and 80% returned for a combined workshop where content areas of priority to include, functionality and structure of the website resources were endorsed.

**Table 5. Summary of co-design workshop participants**

Workshop	Participants	Minimum required	N	Comments
Workshop 1	Healthcare workers	8	13	All attended workshop
Workshop 2	Consumers	8	9	3 attended workshop 6 interviewed
Workshop 3 (combined)	Healthcare workers	80% of Workshop 1 attendees (i.e., 10)	10	7 attended workshop 3 interviewed 3 no response
	Consumers	80% of Workshop 2 attendees (i.e., 7)	8	4 attended workshop 4 interviewed

## Results

### Healthcare workers

Priority content areas for clinicians are summarised in Figure 4 below. Clinician preferences for website functionality included written and printable rather than video resources, mobile compatibility and key messages being highlighted to prompt identification of relevant information.



**Figure 4. Priority content areas of clinicians**

## Consumers

Priority content areas for patients and carers are summarised in Figure 5 below. Patient priorities for functionality were easy navigation, concise and simple language (no jargon), a combination of written/printable/video resources and that information be presented according to common surgical timelines.



**Figure 5. Priority content areas of consumers and carers**

## Phase 2 – Implementation (Western Health)

### Patient eligibility screening

The implementation phase of the project had aimed to recruit 20 patients for a multimodal prehabilitation program. However, over a 4-month recruitment period (January to May 2025), only 4 patients were eligible for the program based on the pre-determined eligibility criteria. An ethics amendment was made to expand eligibility once it was evident that recruitment was low, however this also did not yield significant changes.

**Table 6. Western Health patient recruitment summary.**

	<b>Number of patients</b>	<b>Reason for ineligibility:</b>
<b>Met eligibility criteria</b>	4, 3 recruited, 1 declined participation	
<b>Did not meet eligibility criteria</b>	190 (44 upper gastrointestinal, 146 lower gastrointestinal)	
	12	Non English Speaking Background (NESB)
	89	Went straight to surgery/had emergency surgery

	10	For chemo only pre-op
	45	Metastatic disease so not for surgery or neoadjuvant chemoradiotherapy
	17	Patients for chemoradiotherapy and surveillance rather than straight to surgery or just for surveillance rather than treatment
	18	Planned for definitive chemoradiotherapy (no surgery)
	2	Declined treatment
	1	Went private for treatment

## RE-AIM framework

Evaluation according to the RE-AIM framework not possible given the small patient numbers through the program.

## Model of care evaluation

All respondents described the model of care as “acceptable”. However, due to limited numbers of clinicians (n=2) and patients (n=1) responding to the model of care evaluation survey, further detailed findings will not be reported.

## Patient data

### Descriptives

- Four patients were eligible, 3 completed screening measures, 1 declined
- All had rectal cancer
- All were receiving radiotherapy and chemotherapy
- Average age: 53 years old
- One male, three females
- Average PHQ-4 score = 1.33 (Range:0-2)
  - No patients eligible for psychology based on screening criteria
- Average DASI = 35.7 (Range 32.2-42.7)
  - All 3 patients were eligible physiotherapy due to the revised protocol, however only 2 of 3 would have been eligible based on original criteria. Two were ultimately reviewed by physiotherapy due to the ability to include the patient within the project timeframe.

### Nutrition

- Three patients were seen by the dietitian
- Average number of nutrition reviews was n=3 (range: 2-4)
- The 3 patients included reported they accessed the Toolkit resources
- 3 were administered the GLIM pre- and post-intervention. N=2 (66%) participants were diagnosed with malnutrition according to GLIM criteria

- All patients (n=3) received nutrition therapy including education. Two patients also received oral nutritional supplements.

### **Physiotherapy**

- One patient was seen by the physiotherapist (4 appointments scheduled; 1 appointment attended). The remaining two eligible patients were uncontactable or unable to be seen within the study period.
- The 30 second sit to stand was administered at this 1 appointment for the patient seen.

## **Phase 2 – Evaluation (Western Health, Bendigo Health and St Vincent’s Hospital Melbourne)**

### **Descriptives**

All clinicians involved in the implementation delivery at Western Health were invited to respond to the evaluation survey. Ten clinicians at each Bendigo and St Vincent’s were invited to review the Toolkit and respond to the evaluation survey. Respondents were made up from a variety of medical, nursing and allied health professions.

**Table 7. Resource evaluation clinician recruitment summary**

<b>Health Service</b>	<b>Invited (n)</b>	<b>Responded (n)</b>
Western Health	3	3
Bendigo Health	10	8
St Vincent’s Hospital	10	8
Unidentified/partial responses		3
<b>Total responses</b>		<b>22</b>
<b>Total responses included in analysis</b>		<b>19*</b>

\*The 3 unidentified and partial responses were excluded from the analysis

**Table 8. Clinician respondents by profession**

<b>Profession</b>	<b>Responded (N)</b>
Clinical Psychologist	1
Dietitian	3
Doctor ( <i>including Radiation Oncologist, Perioperative Medicine Physician, Anaesthetic and Surgical Fellow</i> )	4
Nurse ( <i>including Nurse Unit Manager, Registered Nurse and Stomal Therapist</i> )	4
Physiotherapist	3
Social Worker	1
Speech Pathologist	2
Unreported	1

<b>Total</b>	<b>19</b>
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**Time worked in healthcare**

Clinicians who reviewed the resource had worked in healthcare for an average of 18 years (range: 5 to 35 years).

**Time spent reviewing resource**

Clinicians who reviewed the resource as part of the evaluation reported they spent an average of 2 hours (range 1 – 3.5 hours) engaging with the resource.

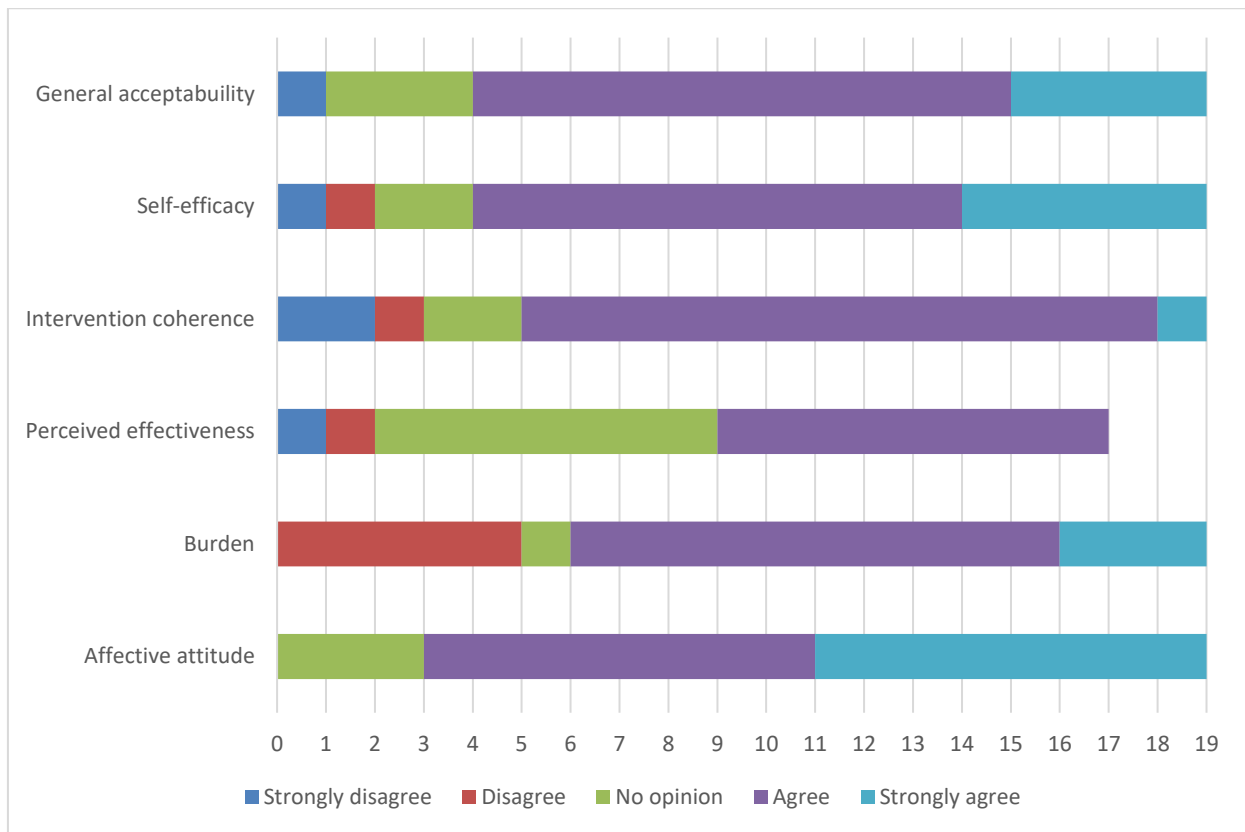
**Evaluation survey**

The evaluation survey included questions about the usefulness, effectiveness, and impact of the toolkit on confidence and knowledge. Questions aligned to the Theoretical Framework of Acceptability (TFA) questionnaire (Sekhon et al., 2022) were also incorporated.

**Acceptability**

The TFA is an adaptable tool that can be used to measure intervention or treatment acceptability across a range of healthcare settings. Domains assessed include: Affective Attitude (how an individual feels about the intervention), Burden (amount of effort required to participate in intervention), Perceived Effectiveness (the extent the intervention has achieved its intended purpose), Intervention Coherence (the extent to which the participant understands how the intervention works), Self-Efficacy (participants confidence they can engage with the intervention) and General Acceptability (overall acceptability of the intervention).

Overall, 79% of respondents thought the Toolkit was acceptable (rating ‘agree’ or ‘strongly agree’; General Acceptability). Similarly, 79% of respondents reported confidence engaging with the Toolkit (Self efficacy). The majority of respondents (74%) reported understanding the intention of the toolkit (coherence). Approximately half of respondents, 47%, thought the Toolkit achieved its intended purpose (effectiveness). The amount of effort required to engage with the toolkit (Burden), and positive responses to the material (Affective Attitude) were reported by 68% and 84% of respondents, respectively. Findings from the TFA are summarised in Figure 6 below.

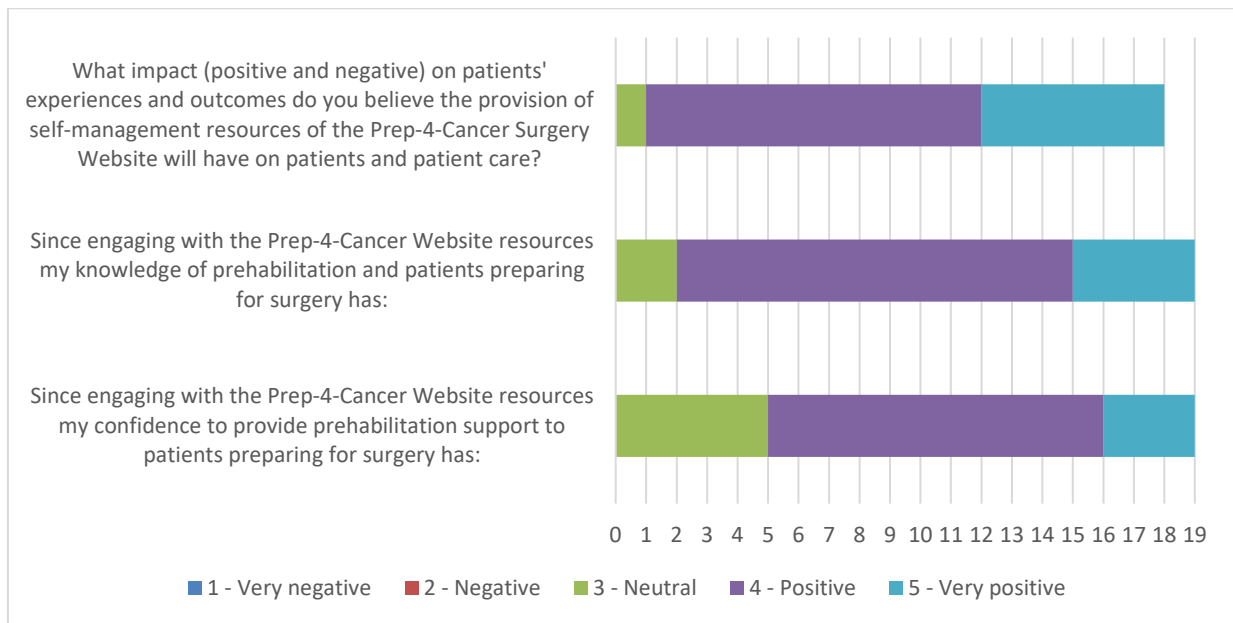


X axis = number of participants

**Figure 6. Results from questions aligned with the Theoretical Framework of Acceptability**

### Confidence, knowledge and impact

Ninety-four percent of respondents thought the Toolkit resources would have a positive impact on patient experiences and outcomes. Ninety percent reported engaging with the Toolkit increased their knowledge in preparing patients for surgery. Seventy-four percent reported increased confidence in providing prehabilitation support following engaging with the Toolkit. Findings are summarised in Figure 7 below.

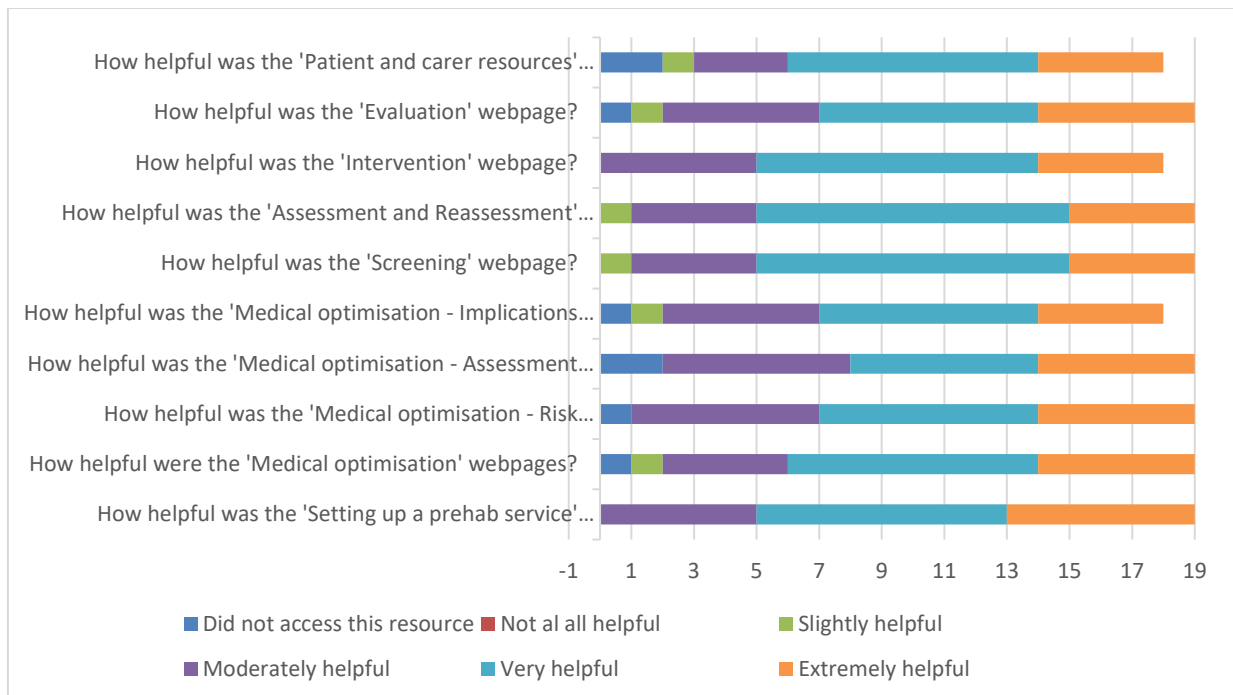


X axis = number of participants

**Figure 7. Results from questions relating to confidence, knowledge and impact of the Toolkit**

### Usefulness

All sections of the website were reported to be helpful by respondents. Findings relating to usefulness are summarised in Figure 8 below.



X axis = number of participants

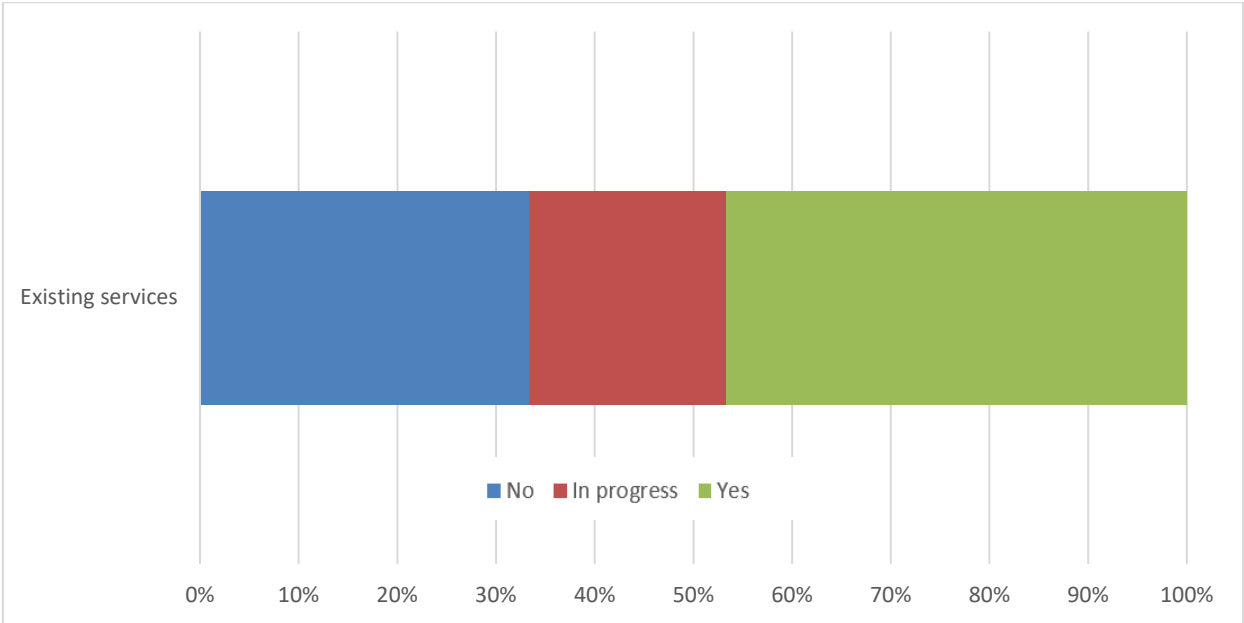
**Figure 8. Results from questions relating to usefulness of toolkit materials**

### Gap Analysis

Health professionals from Bendigo Health and St Vincent's Hospital (n=16) also completed a Gap Analysis questionnaire. These questions ascertained whether they worked in services with

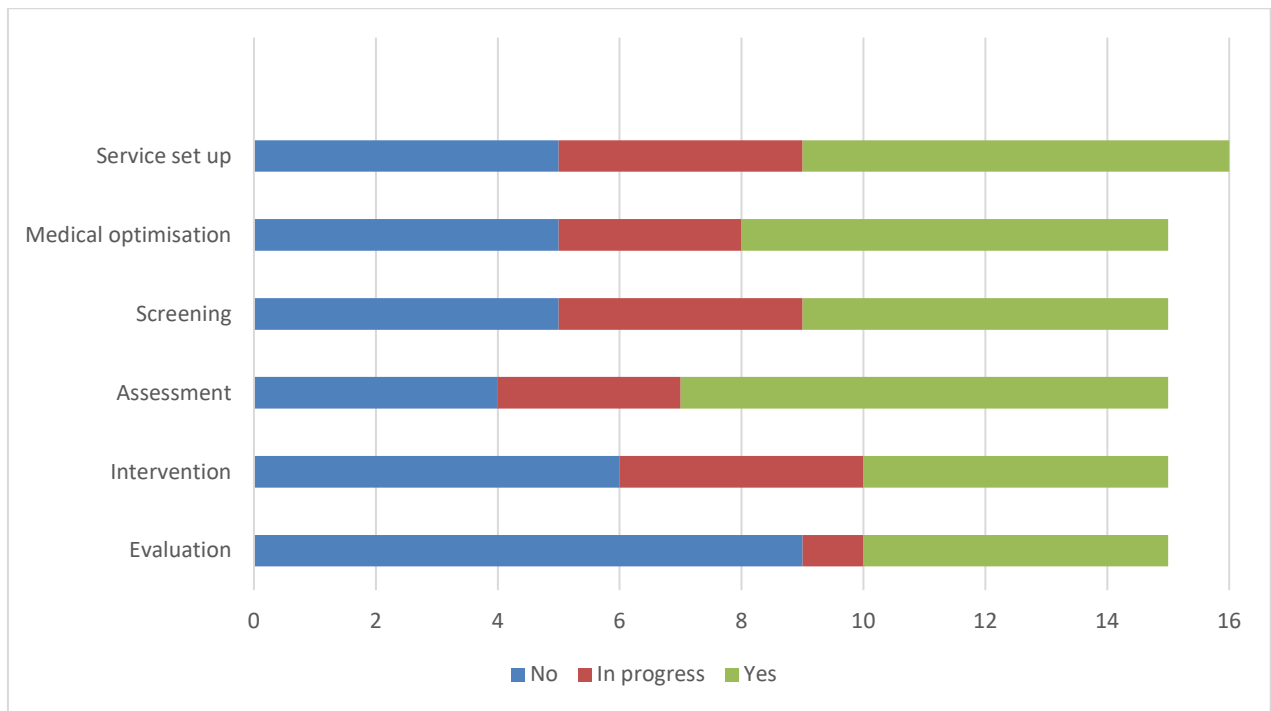
established, developing or no prehabilitation programs. Health professionals reported on the extent their current service has implemented the specific recommendation of the different areas of the toolkit resource. These findings are summarised below.

Approximately half of respondents worked in services with prehabilitation programs already established. The other half either had no programs or programs in development. Findings are summarised in Figure 9 below.



**Figure 9. Percentage of respondents working in service with established prehabilitation services**

These findings were similar for the various stages of program development, with approximately half of respondents reporting tasks recommended in the Toolkit for each phase had been completed. Findings are summarised in Figure 10 below.

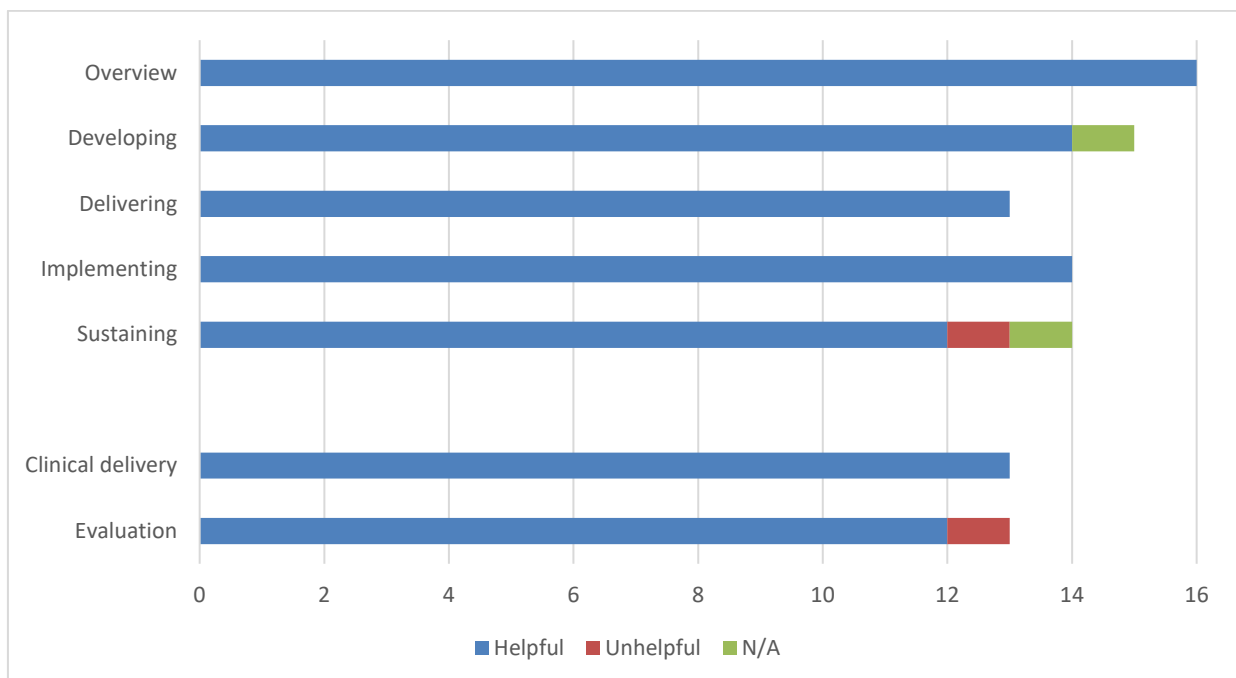


X axis = number of participants

**Figure 10. Number of respondents where tasks recommended in the Toolkit have been completed (by section of Toolkit)**

### Perceived usefulness

As part of this gap analysis, participants were asked whether the specific toolkit resources in each of these sections would be/would have been helpful for their service when undertaking each recommended task. Almost all respondents reported the resources would be/would have been helpful for all tasks involved in prehabilitation service set up, delivery and evaluation. Findings are summarised in Figure 11 below.



X axis = number of participants

**Figure 11. Perceived usefulness of resources by section of the toolkit**

**Omissions/gaps**

Participants were also invited to provide feedback about any omissions/gaps that exist in the Toolkit. This feedback was reviewed comment by comment and informed the iterative improvements of the toolkit (where possible) following the evaluation phase. Feedback around the following key themes emerged:

- Functionality, volume and presentation of information
- Framing resources so they are applicable to smaller services (e.g., regional and remote, community and private settings)
- Desire for multilingual resources for patients


**Web Analytics**

A variety of web metrics were captured by Google analytics between January and May 2025 when the evaluation period was active. These findings are summarised in Appendix 1. These metrics will largely be used to help establish the sustainability phase of the toolkit, specifically to monitor reach and engagement with the site in the future.

**Process measures**

Prior to commencement of the project, the metrics outlined were selected to assess the success of the project. Table 9 summarises evaluation against each of the process measures.

**Table 9. Process measures outcomes**

			Achieved	Not achieved
No.	Process measure			Outcome
1.	Above 80% of consumers and staff invited to attend the co-design workshop attend and remain engaged for the duration of the development of the Toolkit			Achieved. 80% of consumers and staff attended and remained engaged throughout the process.
2.	Development of an evidence-based Toolkit			Achieved.
3.	A high proportion (70% or more) of patients referred to the prehabilitation program at Western Health accept the referral			Achieved. 75% of patients referred (3 of 4) accepted the referral.
4.	80% of patients who accept the Western Health Prehab program report satisfaction with the program			Feedback surveys were sent to the patients who attended the Western Health Program, but only one survey was returned.
5.	80% of clinicians who are invited to take part in the Gap analysis agree to take part in the study			Achieved. 80% of clinicians invited took part in the study.

6.	60% of clinicians spend at least 20 minutes engaging with the Toolkit	Achieved. All clinicians reported they spent at least 1 hour engaging with the toolkit.
7.	80% of staff complete the survey about their experience with the Toolkit	Achieved. 83% (19/23) of clinicians invited completed the toolkit evaluation survey.
8.	70% of staff reported improved confidence and knowledge in implementing prehabilitation using the Toolkit in their organisation	Achieved. 74% (14/19) of responses received for this question indicated improved confidence.
9.	70% of staff can find the resources within the Toolkit to progress their prehabilitation models of care	90-100% of respondents reported the resource would be or would have been helpful in progressing their prehabilitation programs.

## Informal evaluation and feedback

In addition to the formal evaluation, the website was sent to leading experts in prehabilitation around the world. The survey was sent to 12 international experts, and detailed responses were received from 6. Respondents represented a range of discipline expertise including management, medical, exercise, nutrition, psychology and behaviour change.

Feedback was also received from members of the project steering committee and Peter Mac colleagues across the course of the website development and evaluation process.

A summary of their feedback is provided below. A total of 7 experts including international experts, steering committee members and consumers responded to a formal survey on the content.

### Summary of feedback

#### **Accuracy of content**

Respondents rated the accuracy of the content as 9.57 out of 10 (1=poor, 10=excellent). Qualitative comments included:

*“Content was well backed up by evidence”*

#### **Volume of content**

Respondents rated the volume of the content as 7.71 out of 10 (1=too little, 10=too much). Qualitative comments included:

*“At first seems overwhelming, however there is a lot of information to cover. I liked the menu designed so that you can move back and forth through the resource”*

*“Comprehensive but not overwhelming”*

*“A tricky balance to strike, but I wonder if there might be opportunities to reduce quantity of text in some areas, particularly introductory sections.”*

### **Usefulness of content**

Respondents rated the usefulness of the content as 9.14 out of 10 (1=not useful, 10=extremely useful). Qualitative comments included:

*“All areas included are very applicable”*

*“I think this would be a very helpful guide for anyone considering setting up/modifying an existing service. Also could be applicable in other spaces”*

*“Gives the user the ability to get more information if they wish”*

### **Acceptability of content**

Respondents rated the acceptability of the content as 9.57 out of 10 (1= not acceptable, 10=very acceptable). Qualitative comments included:

*“I felt it gave good options for the practicalities of setting up the program along with the implementation. In some cases clinicians may feel that they already have much of the information- but I felt that there was always new information available and for newer clinicians it will be very helpful”*

### **Feedback informed toolkit refinement**


Once the above data was collated, discipline summaries were created and reviews of this feedback was conducted with relevant representatives from the project team (Project leads – overall and service set-up feedback, medical and nursing, exercise, nutrition and psychology). The discipline specific feedback was discussed and agreed course of action established. Both quantitative and qualitative feedback was used to inform these discussions. The final changes to the Toolkit were then actioned by the original clinical content lead team. These improvements addressed minor errors and omissions, along with improvements to functionality and presentation of the website and included content.

## Section 5: Discussion

### i. Summary of Key Findings

The following table summarised the key findings against the original objectives and timeframes.

**Table 10. Key project outcomes and timeframes**

			Achieved	Not achieved
No.	Objective	Outcome	Intended timeframe	Actual timeframe
1	To conduct up to three co-design workshops with key stakeholders.	Complete	Month 10	Month 11
2	To develop the prototype Toolkit iteratively and web platform	Complete	Month 14	Month 24
3	To assess the feasibility and acceptability, to patients, healthcare professionals and other key stakeholders, of a multimodal prehabilitation intervention at Western Health.	Inconclusive. Feasibility was unsuccessful, particularly with current inclusion criteria. However, limited data suggests that clinicians and patients viewed the model of care as acceptable.	Month 26	Month 32
4	To assess the usefulness, preliminary effectiveness, adaptability, self-efficacy (for prehabilitation implementation) of the Toolkit amongst clinicians from Bendigo Health and St Vincent's Hospital	Complete	Month 26	Month 32
5	To conduct 2 focus groups with clinicians and other key stakeholders about their experience with the Toolkit	Removed from evaluation protocol	Month 26	Amendment approved March 2024
6	To conduct an analysis of the google analytics	Complete	Month 26	Month 32
7	To consolidate and analyse findings and refine the Toolkit before making it publicly available	Complete. Toolkit to be made public following final approval from WCMICS	Month 29	Month 32 and 33
8	To make recommendations for an expanded horizontal, bottom-up approach to service scale-up at other health services	Complete. See 'Recommendations' section.	Month 30	Month 33

9	To form recommendations for vertical scaling to support the initiation and evaluation of external health service prehabilitation services	Complete. See 'Recommendations' section.	Month 30	Month 33
10	To establish a collaborative cancer prehabilitation CoP as a forum to connect and share knowledge after project-end and to support future health service scale-up	In progress. Initial CoP event and survey conducted in September 2024 to coincide with evaluation launch. CoP event and website launch to be held in conjunction in August 2025 following WCMICS project sign off.	Month 30	Month 24

## ii. Issues & Challenges

### Overall project plan/design and project management

- Scope and multistage nature project, with one stage relying on the delivery of another:
  - The iterative and step-wise nature of the project meant that the realisation of key directions and the best methodological approach to the latter stages of the project were only made clear following the completion of the earlier stages. Some embedded flexibility in the project plan may have been beneficial to allow these learning to inform to scope and focus of the subsequent stages.
- Part time project manager supporting part time staff on workdays that didn't overlap with each other and were not directly reportable to project manager.

### Phase 1 – Co-design and website development

#### Co-design

- In trying to meet project deadlines, the ethics submission was completed before the project manager commenced. However, this subsequently required multiple amendments to align with realities of delivery of the co-design workshops.
- Barriers to recruitment, particularly difficulty with getting consumers to participate in workshops. This meant considerable time was spent interviewing consumers individually.

#### Website development

- Pivoting from Peter Mac website to an external developer.
- Managing multiple stakeholders and contributors and aligning views on content and delivery.
- Challenges negotiating access to existing resources to allow them onto the website.
- Project management challenges relating to working in a busy clinical environment and managing part-time non-overlapping content lead team, and challenges in reliable clinician access to protected time in some instances.

## Phase 2 – Implementation and evaluation of resource

### Implementation of resource

- Significant sponsorship, ethics and governance approval delays.
- Engagement and barriers to implementation at Western Health:
  - Delays in finalising involvement, protocol and ethics submission. This was due to non-project related events including hiring freezes that were imposed on Western Health during the project engagement negotiations.
  - Recruitment barriers due to narrow inclusion criteria and changes in patient throughput that were not anticipated (discussed further below). For the project to progress with the three disciplines of physiotherapy, nutrition and psychology involved, the agreement was that patients would need to be undergoing radiotherapy to be included. This was linked to the existing service setup, employment and funding models.
  - Amendment submitted (March 2025) to automatically refer all patients to physiotherapy with the aim of improving recruitment numbers however this did not have a significant impact.

### *Unanticipated recruitment barriers*

Prior to finalising implementation protocol, a scoping exercise was conducted to determine expected patient numbers through the project based on the inclusion criteria. This scoping exercise in late 2024 estimated approximately 1-2 patients per week would meet eligibility criteria. This following factors are thought to have contributed to the lower than anticipated eligibility rates:

- Significant higher number of colon and lower than usual number of rectal cancer diagnoses being presented at the Multidisciplinary meetings. Colon cancer patients tend to go straight to surgery whereas rectal cancer patients have neoadjuvant chemoradiotherapy.
- NESB patients who would have otherwise been eligible.
- A higher than usual proportion of Squamous cell carcinoma oesophageal cancer patients (rather than adenocarcinoma) who were planned for definitive chemoradiotherapy instead of neoadjuvant chemoradiotherapy.
- Recent evidence supporting a change in treatment protocol for patients with adenocarcinoma of the oesophagus to have only neoadjuvant chemotherapy rather than CROSS protocol (Chemoradiotherapy for Oesophageal Cancer Followed by Surgery) i.e., chemoradiotherapy before surgery.
- An emerging change in practice for young rectal cancer patients where they administer chemoradiotherapy and then surveillance rather than progressing straight to surgery.

### Evaluation of resource

- Multisite ethics and governance processes and delays.
- Survey response rates and engagements at evaluation sites (Bendigo and St Vincent's), with this hampered by very reduced response windows due to significant delays in processing of the multisite ethics and governance processes at Peter Mac and all other sites.

A summary of official change/amendment requests (to WCMICS) is summarised in Table 11 below.

**Table 11. Summary of project amendment requests to WCMICS**

No.	Change Description	Added Cost (if applicable)	Resolution Date	Status
1.	Website platform – decision to move to external website provider. This will result in likely delay in delivery of website build, but minor delays in the overall project timeline	N/A – Costs absorbed with reallocation of existing budget	Dec 2023	Approved
2	Removal of focus group from evaluation protocol	N/A	March 2024	Approved
3	Website user engagement/expert external review to occur concurrently with formal evaluation	N/A	March 2024	Approved
4	Appointment of Jenelle Loeliger to Joint Project Lead	N/A	March 2024	Approved
5	Discussion with WCMICS regarding amending scope of the implementation phase due to significant delays associated with the project	Nil anticipated, but potential for extension highlighted	August 2024	WCMICS preference was to persevere for real world data to inform the evaluation
6	Extension to project	Cost of 3-month extension of project manager	December 2024	Approved

### iii. Lessons Learnt

#### Overall project plan/design and project management

##### Project Duration and Complexity

The multi-phase nature of the project, which included resource development, implementation, and evaluation, resulted in a complex project that required more time and planning than initially anticipated. Future projects would benefit from clearer separation of these stages, with distinct timelines and deliverables for each phase.

##### Challenges of Part-Time Project Staffing

Coordinating multiple part-time staff across different clinicals teams and working days created logistical challenges, including inconsistent availability, communication delays, and reduced continuity. Where possible, clearer overlapping availability, and project management involvement in this process, may improve efficiency in future initiatives.

## **Ethics and Governance Burden for Low-Risk Projects**

Ethics and governance approval processes were disproportionately burdensome relative to the low-risk nature of the project. Streamlined processes for low-risk, implementation-focused work would support timely innovation without compromising oversight.

## **Design Oversight: Missed Opportunity for Local Co-Design**

A key missed step was enabling Western Health to use the Toolkit to design their own prehabilitation model of care. Including this stage may have fostered deeper engagement, enhanced ownership, and provided richer evaluation data on Toolkit application in practice.

## **Phase 1 – Co-design and website development**

### **Co-design**

Recruiting for co-design workshops is hard. Flexibility is key, including willingness to follow-up participants individually but this is inefficient. Where possible, planning as far in advance with multiple options is preferable. Additionally, narrow scope of eligible consumers (i.e., only GI and gynae surgery patients) made it difficult. There were many more willing participants outside the tumour streams specific remit of this project (i.e., gastrointestinal and gynaecological cancers). This may be a worthwhile consideration when designing future projects requiring consumer engagement.

### **Website development**

The biggest challenge related to this component of the project was that Peter Mac was transitioning to a new website during the project. This meant that a true assessment of its suitability for housing the content was not possible. However, given the nature and scale of the content, it as be suggested that websites to the scale of this are not suitable to be housed within the Peter Mac website – which does not have to capacity to provide navigation options and levels of content that is required for something such as this project. While the decision to move to an external provider ultimately proved the right choice, there were ramifications for the timeline of the project, including delays to implementation. There were however benefits, meaning more time was able to be spent on the content development and design which ultimately contributed to the quality of the resource.

## **Phase 2 – Implementation and evaluation of resource**

### **Implementation of resource**

During the implementation phase, the project aimed to recruit 20 patients over four months for a multimodal prehabilitation program; however only four eligible patients were identified due to narrow inclusion criteria and unexpected changes in patient throughput. Despite submitting an ethics amendment to broaden eligibility, recruitment remained low. Significant delays were encountered in ethics and governance processes, compounded by external challenges at the implementation site (Western Health), including hiring freezes and delays in finalising protocols and ethics submissions. Additionally, the requirement that patients be undergoing radiotherapy, linked to existing service structures and funding models, further limited eligibility. A subsequent amendment in March 2025 to refer all patients to physiotherapy aimed to address low recruitment but had minimal impact.

## **Stakeholder engagement**

The project faced challenges in maintaining stakeholder engagement throughout its extended timeline. Factors such as lengthy project duration, staffing changes, leave, and competing clinical, research, and operational priorities contributed to periods of reduced engagement. Additionally, implementing the project at an external site without direct project oversight further impacted stakeholder involvement. A clearly defined stakeholder engagement plan with scheduled reassessments of methodology and progress is recommended for future projects. While Allied Health engagement was strong at Western Health, broader multidisciplinary involvement, particularly sustained surgical engagement, could have enhanced recruitment efforts and overall support.

## **Recruitment hurdles**

Recruitment was significantly constrained by narrow eligibility criteria and unexpected changes in clinical pathways that affected patient throughput. Despite initial scoping, these factors limited patient numbers more than anticipated. Greater clarity around eligibility criteria and flexibility in recruitment parameters are important considerations for future initiatives to improve patient enrolment.

## **Evaluation of resource**

Inclusion of community health and rehabilitation settings in the evaluation would have provided additional valuable insights, although practitioners from these sectors were involved at certain sites. Project delays and shortened timelines limited the time participants had to review the resource. Nevertheless, proactive efforts by site principal investigators helped ensure meaningful clinician feedback. To enhance future Toolkit development, expanded implementation guidance is recommended to better support community, primary care, and acute care settings, focusing on practical integration of prehabilitation across diverse healthcare environments.

## **iv. Conclusion**

The PREp-4-Cancer Surgery Toolkit project has made a valuable contribution to the growing field of cancer prehabilitation, delivering a high-quality, evidence-based resource co-designed with consumers and clinicians. Despite some challenges, the project largely met its deliverables, supported by strong interdepartmental collaboration, effective project governance, and a committed team of clinical leads.

Phase 1 successfully engaged stakeholders in the co-design process and produced a comprehensive online Toolkit for health professionals, services, and patients. The resource has been well received and is publicly available to support future service development.

Phase 2, implementation faced notable barriers, particularly related to narrow eligibility criteria, unanticipated service delivery changes, and protracted ethics and governance processes. While patient recruitment was lower than planned, feedback from clinicians and stakeholders has affirmed the resource's utility, particularly for those seeking to establish or refine prehabilitation services. Though formal evaluation of implementation outcomes was limited, the Toolkit stands as a promising platform to support future uptake, expansion, and innovation in cancer prehabilitation both locally and internationally.

Phase 2, evaluation of the Toolkit demonstrated high acceptability and usability among health professionals. Those who engaged with the resource also reported improved confidence and

knowledge to successfully deliver prehabilitation. Finally, almost all respondents believed that the Toolkit would have a positive effect on patient experiences and outcomes.

# Section 6: Future Directions

## i. Sustainability

### 1. Toolkit maintenance and monitoring

- a. Once the Toolkit has been developed, the Peter Mac and the Project Steering Committee commit to an annual Toolkit update
- b. Maintaining toolkit currency (i.e., feedback mechanism via toolkit webpages, updating content)
- c. Monitoring of reach and uptake of toolkit (i.e., web data analytics) on a six-monthly basis
- d. Explore and advocate for further funding to refine, expand and embed the resource

### 2. Promotion

- a. Peter Mac commits to promoting the Toolkit in an ongoing manner, including in partnership with other organisations, peak bodies, health services government agencies and tertiary sector as appropriate.
  - i. CCV will provide final review to ensure alignment to the Optimal Care Pathways, advising on our 'scale-up' strategy and supporting promotion of the Toolkit once it goes live.
  - ii. Explore further integration into systems and pathways, such as linked in policies, procedures, or local systems (e.g., links on intranet or EMR)

### 3. Education and capacity building

- a. Convening an ongoing CoP specifically focused on cancer prehabilitation.
- b. The first CoP event will couple as a launch for the website, alongside an educational event for cancer prehabilitation

## ii. Recommendations

### Toolkit refinement and evaluation

Further development of the Toolkit should prioritise:

- Expanded consumer evaluation, with a focus on improving health literacy and usability.
- Broadening the scope to formally include additional tumour streams and treatment modalities such as radiotherapy, stem cell transplants, and CAR-T therapies, would enhance its applicability, as much of the content is relevant across cancer types.
- Investment in multilingual patient resources is strongly recommended. Feedback from co-design, implementation, and evaluation phases consistently highlighted the need for culturally adapted and translated materials. Leveraging web analytics to identify the most

frequently accessed patient resources can guide future targeted translation efforts to maximise impact.

## **Sustainability and ongoing review**

To ensure the Toolkit remains current and effective, a structured sustainability plan is essential. This should include:

- Website content reviews every 2 years with a clear framework distinguishing between minor updates and major revisions.
- Comprehensive handover documentation to ensure Project leads have ongoing access to relevant platforms necessary to maintaining and evaluating the website following the completion of the project and the project managers employment.
- The integration of a feedback mechanism directly within the website will facilitate continuous improvement informed by end-user input.

## **Dissemination and communication**

An ongoing dissemination strategy is critical to maintaining momentum beyond the project's lifespan. Establishing a CoP will foster collaboration, knowledge-sharing, and support for services implementing prehabilitation programs across diverse settings.

## **Implementation support**

Insights gained from the Western Health implementation highlighted challenges in supporting real-world adoption. In response, targeted additions have been made to the Toolkit website to better assist sites with implementation. Continued monitoring and review of the website will inform iterative improvements, ensuring it remains a practical and user-friendly resource.

## **Horizontal and vertical scaling**

### **Horizontal scaling**

The toolkit is designed to support horizontal, bottom-up scale-up of prehabilitation services across diverse health settings. The communication and dissemination plan, developed with the support of our steering committee partners has recommendations for engaging key stakeholders such as:

- The Department of Health
- Cancer Australia
- Planned surgery reform blueprints initiatives
- Cancer Australia Optimal Care Pathways (that include relevant surgical pathways)
- Disseminating the resource to other services, inclusive of public health, community health and the private sector

Facilitate dissemination to through these various stakeholders will provide opportunities for workforce strengthening, networking, and expansion of virtual care delivery (all of which are provided in the Toolkit).

However, the ability to expand horizontally does depend on local health service structures, available professions, and funding opportunities. Our resource however was developed with this in

mind, to provide flexible resources that can be adjusted and applied in a range of settings at various stage of the service development process.

### **Vertical scaling**

Vertical scaling, involving whole-system policy change, dedicated funding models, and integration into cancer plans at state and federal levels, remains challenging due to tight fiscal constraints but may be supported by emerging Local Health Service Networks. The following warrants further consideration:

- While community health services were not directly engaged in this project, they represent promising avenues for further expansion.
- Private sector adoption of the Toolkit, incentivised by generating new revenue streams.

Overall however, it is anticipated scaling will occur predominantly after the release of the Toolkit, for example, Medibank and Chris O'Brien Lifehouse have expressed a desire to have the Toolkit presented to their organisations once publicly available. A presentation to the 'Agency for Clinical Innovation- NSW Government' has also been requested. Additionally, the project team have been contacted by services in Ballarat and Gippsland who wish to access the resource to support their service development.

## **Section 7: Overview of Project Impact**

### **i. Impact of Project**

This project has highlighted a strong and widespread interest in prehabilitation resources across the healthcare sector. Key themes that developed include:

#### **Benefits for multiple stakeholder groups**

There is clear recognition of the value of prehabilitation in improving outcomes for patients, supporting clinicians in delivering best-practice care, and offering tangible guidance for health services to develop and implement evidence-based models of care.

#### **Collaborative and evidence-based design**

The Toolkit reflects the contributions of diverse clinical and academic stakeholders and is grounded in the latest evidence. This has enhanced its credibility, relevance, and practical utility.

#### **Support for service development and expansion**

The Toolkit is a resource designed to guide, support, and scale the development of prehabilitation services. It is hoped it will be particularly valuable in services that are newly emerging or under development.

#### **Improving quality and equity of care**

There is strong optimism that the Toolkit will contribute to increasing the amount, quality, and accessibility of prehabilitation care for patients across the health sector.

## ii. Summary of Key Learnings

The multi-phase nature of the project, from co-design, website development, implementation, and evaluation, was more complex and time-consuming than initially anticipated. Key learnings included:

- Co-ordinating part-time staff across multiple teams.
- Navigating burdensome ethics and governance processes despite the low-risk nature of the work.
- Leveraging the multidisciplinary expertise of the broader Peter Mac prehabilitation team including senior medical, nursing, allied health and research staff to develop, review and revise content to deliver the most robust resource possible.
- A missed opportunity to involve Western Health in designing their own prehabilitation model.
- Recruitment for both co-design and patient participation was hindered by narrow eligibility criteria and unanticipated changes in clinical pathways. While flexibility helped, a broader and more inclusive engagement strategy may have improved outcomes.
- Additionally, transitioning to an external website provider introduced delays but ultimately enhanced the functionality and quality of the resource.
- During implementation low patient recruitment, compounded by staffing constraints and external disruptions, limited evaluation opportunities.
- Stakeholder engagement at implementation sites may have benefited from a structured engagement plan, broader multidisciplinary involvement (particularly surgical input and senior leadership), and periodic project reviews.
- While resource evaluation yielded positive clinician engagement, shortened review timeframes may have impacted depth of feedback. Future initiatives would benefit from clearer planning across phases, broader inclusion criteria, stronger local ownership, and strategies to better support implementation across diverse care settings, including community and primary care.

## iii. Recommendations

Further development of the Toolkit should focus on:

- Expanding consumer evaluation, particularly to improve health literacy and usability
- Broadening its scope to formally include additional tumour streams and treatment modalities such as radiotherapy, stem cell transplants, and CAR-T therapies.
- Investment in multilingual and culturally adapted patient resources is also essential, with web analytics to guide targeted translation efforts to maximise reach.
- To ensure long-term relevance, a structured sustainability plan with regular reviews, comprehensive documentation, and integrated user feedback mechanisms is critical.
- Ongoing dissemination through a CoP will support collaboration and maintain momentum beyond the project lifespan.

Implementation insights from Western Health have informed targeted additions to enhance real-world adoption, with continuous monitoring planned for iterative improvement.

The Toolkit is designed to enable horizontal scale-up across diverse health services and therefore success is now reliant on the ability for local health services to engage with the Toolkit and to consider their own local integration including examination of service structures and funding. Vertical scaling through policy integration and dedicated funding remains challenging but may be enhanced by engaging with key stakeholders such as the Department of Health and Cancer Australia and considering the role of Local Health Service Networks. Expansion into community health and private sectors offers promising opportunities for broader impact and to support sustainability.

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# Appendices

Appendix 1 - Website analytics summary (evaluation period)

Appendix 2 - Project Plan (including GANTT chart) [WCMICS.ScaleSpread.Project.Plan.220722.pdf](#)

Appendix 3 – GANTT chart [P4CDS.GANTT.chart.final.20250626.xlsx](#)

Appendix 4 - Sustainability Plan [Sustainability.plan.20250626.docx](#)

Appendix 5 - Communications and Engagement Plan [Communication & SE strategy\\_19.05.22.docx](#)

Appendix 6 - Budget expenditure excel spreadsheet [Final budget 20250612.xlsx](#)

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# Appendix 1 – Google Analytics

## Active users

Active users are defined as the number of users who have engaged with the website within a specified date range. This includes users who have had an engaged session or are in their first session. Essentially, active users represent those who have interacted with your content, providing insights into user engagement over time. There were 447 active users that accessed the content during the evaluation period.

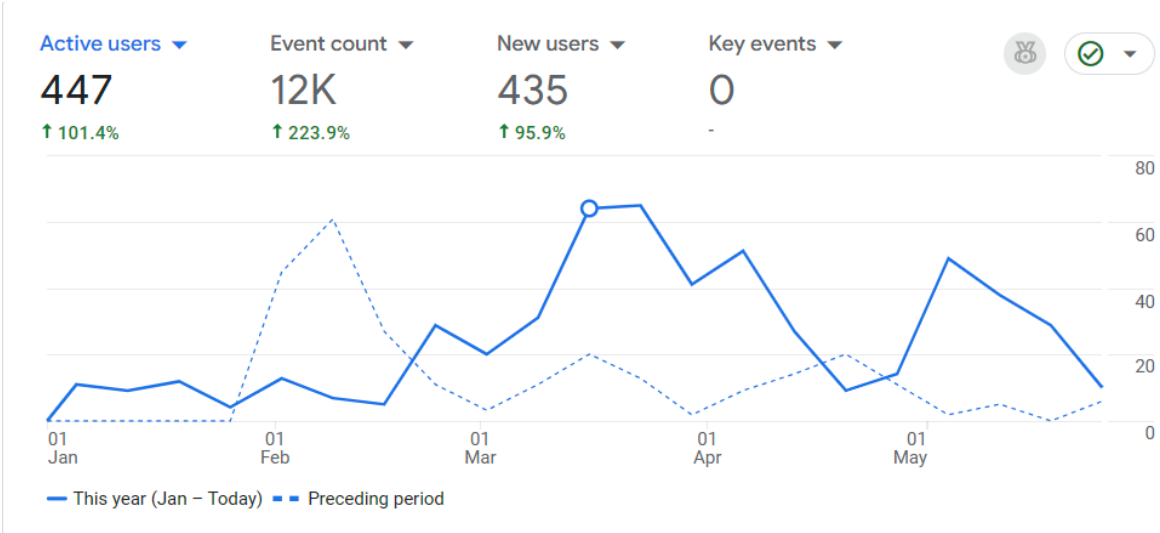


Figure 1. Users January to May 2025

## Event count

Event Count refers to the number of times a specific action or interaction has been recorded on a website. It measures how frequently users engage with particular elements or processes, such as button clicks, form submissions, video plays, or page views. There were over 12,000 interactions with the website in the evaluation period.

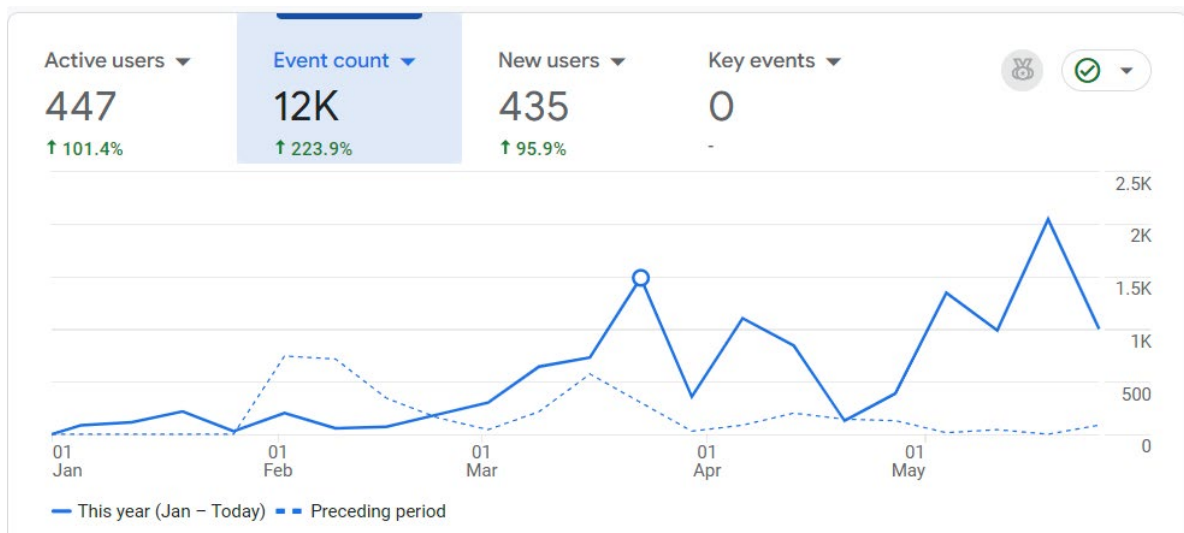


Figure 2. Event count January to May 2025

### Average engagement time

Average engagement time measures the average duration users actively engage with a website. During the evaluation period, this average was six and a half minutes.

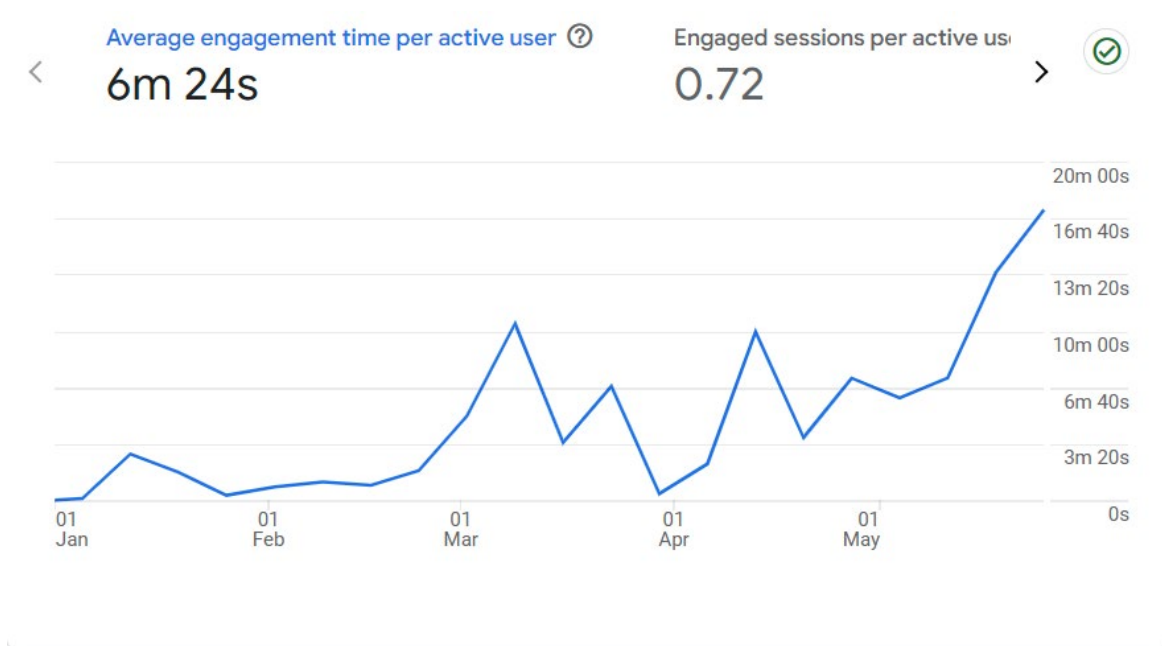


Figure 3. Average engagement time January to May 2025

### Bounce rates

The Prep-4-Cancer Surgery landing page had a bounce rate of 38.29%. A bounce rate is the percentage of visitors to a particular website who navigate away from the site after viewing only one page. A “good” bounce rate is considered anything under 40%.

### Downloads

Between January and May 2025, 229 files were downloaded from the Prep-4-Cancer Surgery website. This represented 47 different users and an average of 4.9 file downloads per active user.

### Country of access

The website was accessed in more than 7 different countries including Australia, United States, Canada, United Kingdom, Germany, Poland and China.

Active users  by Country



Figure 4. Access by Country January to May 2025

# Endorsement

**Project sponsor:** Andrew Dimech

I fully endorse this report and its content:



Signature .....

**Name:** Andrew Dimech

**Position:** Chief Nursing Officer