

Phase II Malnutrition in Victorian Cancer Services: summary report

Learnings and recommendations from the
statewide and local health services projects
2013–2014

Phase II Malnutrition in Victorian Cancer Services: summary report

Learnings and recommendations from the statewide and
local health services projects 2013–2014

Preferred citation

Loeliger J, Kiss N. *Phase II Malnutrition in Victorian Cancer Services: summary report*. Department of Health and Human Services, State Government of Victoria, Melbourne.

To receive this publication in an accessible format, please phone (03) 9096 2136 using the National Relay Service 13 36 77 if required, or email cancerplanning@dhhs.vic.gov.au

Authorised and published by the Victorian Government, 1 Treasury Place, Melbourne.

© State of Victoria, June, 2015

This work is licensed under a Creative Commons Attribution 3.0 licence (creativecommons.org/licenses/by/3.0/au). It is a condition of this licence that you credit the State of Victoria as author.

Except where otherwise indicated, the images in this publication show models and illustrative settings only, and do not necessarily depict actual services, facilities or recipients of services. This publication may contain images of deceased Aboriginal and Torres Strait Islander peoples.

Available at www.health.vic.gov.au/cancer

Contents

Executive summary	6
Introduction	7
Background.....	7
Phase I Investigating Practices Relating to Malnutrition in Victorian Cancer Services project	7
Phase II Malnutrition in Victorian Cancer Services project	8
Cancer Malnutrition Point Prevalence Study 2014	9
Findings	9
Impact and implications for cancer care	10
Statewide project initiatives	11
Background.....	11
Cancer malnutrition eLearning packages	11
Malnutrition governance toolkit.....	12
Local health service projects	14
Background.....	14
The local health service projects	14
Outcomes, lessons, challenges and enablers	18
Point prevalence study	18
Engaging multidisciplinary staff	18
Models of care	18
Nutrition governance	18
Sustainability.....	18
Recommendations and future actions	19
Key learnings and recommendations	19
Outcomes for patients and health services	19
Future actions	20
Appendix 1: Summary of phase I projects	21
Appendix 2: Phase II Malnutrition in Victorian Cancer Services Governance Group	22
Appendix 3: Participating health services	23
References	24

Executive summary

The supportive care needs of people with cancer need to be identified early in order to deliver timely interventions to optimise patient outcomes. Malnutrition is a common supportive care need in patients with cancer and is associated with poor clinical and functional consequences. As the number of cancer diagnoses rises every year, it becomes increasingly essential to ensure evidence-based nutrition care is provided by dietitians and the multidisciplinary team to optimise the health and wellbeing of people with cancer. Eating well before, during and after cancer treatment can be challenging due to the cancer itself, intense and complex treatment regimens, personal circumstances and long recovery times.

The Phase I Investigating Practices Relating to Malnutrition in Victorian Cancer Services project began in 2011 to examine the magnitude and impact of cancer malnutrition and to highlight gaps in service delivery associated with cancer malnutrition in Victoria. The phase I project included a cancer malnutrition point prevalence study and clinician and organisational surveys of cancer malnutrition awareness and governance practices. This resulted in improved understanding of the prevalence of cancer malnutrition, barriers and enablers to quality nutrition care and highlighted that this supportive care need requires ongoing attention.

The Phase II Malnutrition in Victorian Cancer Services project, which was conducted throughout 2013 and 2014, involved a repeat point prevalence study, two statewide initiatives and 17 local health service-based initiatives targeting identified areas of need. These initiatives have improved the clinical outcomes of patients with cancer and enhanced the experience of patients and their families as they navigate their way through complex diagnostic and treatment services. Health professionals and clinical services have also benefited from this program of work through piloting and embedding new models of care and care pathways, enhanced focus on the nutritional needs of patients with cancer, and an improved awareness of cancer malnutrition.

This report summarises the phase II project outcomes and lessons learnt. The target audience for the report is policymakers, health service managers, health professionals, cancer-related organisations, primary care organisations and interested consumers. It is envisaged that the content and recommendations will be utilised to help reduce the burden and impact of malnutrition on people with cancer and equip health services to more effectively care for this patient group.

Introduction

Background

Malnutrition is common in patients receiving cancer treatment and is associated with reduced treatment tolerance, increased morbidity and mortality, and higher healthcare costs (Isenring et al. 2013). Appropriate nutrition care can improve the clinical outcomes of patients with cancer and enhance patient experience (Isenring et al. 2013; Tappenden et al. 2013).

The Malnutrition in Victorian Cancer Services Governance Group convened in 2011 and comprises representation from 15 Victorian health services across both public and private sectors (Appendix 1). This group undertook a number of initiatives in 2011 and 2012 to address cancer malnutrition, known as the Phase I Investigating Practices Relating to Malnutrition in Victorian Cancer Services project.

Phase I Investigating Practices Relating to Malnutrition in Victorian Cancer Services project

The phase I project consisted of five initiatives summarised in Appendix 1, with leadership oversight provided by the Peter MacCallum Cancer Centre nutrition department. The project aimed to inform cancer reform policymakers, health service executives, Integrated Cancer Services, multidisciplinary cancer clinicians, dietitians and consumers to better understand the prevalence of cancer malnutrition across Victoria and identify areas for local improvement. Further details are available from the summary report 2012 and technical report 2012 available at www.health.vic.gov.au/cancer/cancer-projects/malnutrition.

Key findings from phase I included the following:

- The prevalence of cancer malnutrition was 31 per cent across all cancer treatment settings in Victorian health services.
- Malnutrition was observed in all tumour streams; however, it was more prevalent in patients with a cancer directly affecting the digestive tract including head and neck, lung, gastrointestinal and colorectal cancer.
- Significant service gaps were identified in nutrition care to malnourished patients, with almost half of all cancer patients with malnutrition not receiving nutrition care from a dietitian.
- Health services with strong governance practices provided more effective dietetic services for their malnourished patients.
- Clinicians working within cancer care are seeking further education and training, and access to evidence-based cancer malnutrition education resources are lacking.

Key recommendations from phase I included:

- Health services should ensure all patients with cancer are receiving timely malnutrition risk screening using a validated tool.
- Health services should have nutrition governance practices including executive sponsorship, a multidisciplinary nutrition committee, nutrition policy, quality activities and performance monitoring practices in place.
- Health services should have education resources available to multidisciplinary clinicians and cancer patients to improve awareness, recognition and understanding of malnutrition.
- Investigate the opportunity for enhanced nutrition screening and care in the primary care setting to enable early referrals for dietetic intervention.

Phase II Malnutrition in Victorian Cancer Services project

To address the key recommendations from phase I, the Malnutrition in Victorian Cancer Services Governance Group was funded by the Cancer Strategy and Development Unit (Department of Health & Human Services) to conduct phase II projects during 2013 and 2014. Leadership oversight was again provided by the Peter MacCallum Cancer Centre nutrition department. The phase II projects resulted in a repeat point prevalence study and two statewide and 17 local improvement projects to examine and address systemic and local barriers to providing timely and appropriate nutrition care for patients undergoing cancer treatment.

Cancer Malnutrition Point Prevalence Study 2014

A total of 21 health services across Victoria participated in the 2014 study, encompassing the 15 health services from the original 2012 point prevalence study together with a further six health services providing cancer care in Victoria (Appendix 2). The study was conducted over the two-week period 19–30 May 2014 and invited patients from the 21 health services to participate if they were receiving cancer treatment or related care as an inpatient or in the ambulatory chemotherapy or radiotherapy setting. Dietitians at each health service collected study data including participant demographics, cancer diagnosis and treatment, nutrition intervention and malnutrition risk (using the malnutrition screening tool). In those at risk, nutritional status was assessed using the patient-generated subjective global assessment (PG-SGA), which includes assessment of subcutaneous fat and muscle stores (Ferguson et al. 1999; Ottery 1996). Data on individual clinical outcomes were collected 30 days after the initial study day.

Findings

Overall 1,913 Victorian cancer patients participated in the point prevalence study. Of these, 48 per cent were male. The average age of participants was 62.5 years: 48 per cent were 65 years or older and 10 per cent were 80 years or older. The majority (62 per cent) were Melbourne residents, 39 per cent resided in regional and rural areas, and one per cent were from interstate. The majority of participants were being treated in an ambulatory setting (82 per cent) and receiving treatment with a curative intent (64 per cent).

Overall cancer malnutrition prevalence was 26 per cent

Malnutrition was present in patients with all types of cancers; however, it was more prevalent in certain cancer types.

Cancer types with the highest malnutrition prevalence

- Upper gastrointestinal (48 per cent)
- Head and neck (36 per cent)
- Lung (33 per cent)
- Gynaecological (27 per cent)
- Haematological (27 per cent)

While breast cancer patients had the lowest prevalence of malnutrition, the high number of patients with this diagnosis results in a similar number of malnourished patients as the highest risk cancer types. Malnutrition was more frequent in underweight participants (51 per cent); however, one in every six overweight or obese participant was malnourished, highlighting that muscle loss in this group can be masked by overweight or obesity. Malnutrition prevalence is higher in certain demographic groups.

Malnutrition is higher in patients who are

- Over 65 years of age
- Living in residential care or living alone
- Residing in metropolitan areas
- Receiving chemotherapy
- Receiving palliative treatment

Malnourished participants had higher 30-day mortality (7.7 per cent vs 1.3 per cent) and a greater number required admission or readmission within 30 days (18.2 per cent vs 10.1 per cent). Of concern, almost half the participants diagnosed as malnourished were not receiving care from a dietitian. The proportion of participants receiving tube or intravenous feeding was low (2.5 per cent), with the majority of participants reliant on oral nutrition to meet their needs.

Comparison with the 2012 findings

Of note is that cancer malnutrition prevalence had reduced from 31 per cent in 2012 to 26 per cent in 2014. There was a decrease in malnutrition prevalence in all cancer types, but there were a number of areas in which there were statistically significant improvements.

Most significant changes compared with 2012

- ↓ in overall prevalence from 31 per cent to 26 per cent
- ↓ prevalence in ambulatory setting
- ↓ prevalence in upper gastrointestinal and colorectal cancers
- ↓ prevalence in participants over 65 years

Impact and implications for cancer care

- An overall decrease in the prevalence of cancer malnutrition was observed, particularly in patients with upper gastrointestinal and colorectal cancers who were receiving ambulatory chemotherapy, were aged over 65 years and were living in a regional area (from 2012 to 2014).
- The decreased prevalence may be related to increased health service awareness of malnutrition and improved nutrition governance practices arising from phase I of the project, as well as improvements to cancer services, particularly in regional areas, as part of broader service development initiatives.
- There was no improvement between 2012 and 2014 in the proportion of malnourished cancer patients receiving care from a dietitian, highlighting the need for workforce development and planning and innovative models of nutritional care to address this gap.
- The high proportion of cancer patients reliant on oral nutrition to meet their needs highlights the importance of the quality and nutritional content of hospital food.
- A commitment to continue regular periodic cancer malnutrition point prevalence studies within Victorian health services will facilitate continuing improvements in addressing this important supportive care need.

Statewide project initiatives

Background

The statewide projects completed within phase II of the project were designed to address two key recommendations from phase I that were applicable broadly across all health services. In the clinician survey completed for phase I, it became clear that, while awareness of cancer malnutrition was high, clinicians were seeking further education and training on malnutrition including access to evidence-based clinical guidelines. The survey also identified a lack of awareness that malnutrition is a multidisciplinary concern. Furthermore, phase I identified that health services with strong nutrition governance practices had a higher proportion of malnourished patients receiving nutrition care. While a number of health services operated a program of malnutrition screening, it was acknowledged that compliance is an issue, along with a lack of performance indicators and reporting measures in place to reinforce practice. The statewide projects were therefore proposed to address these specific areas.

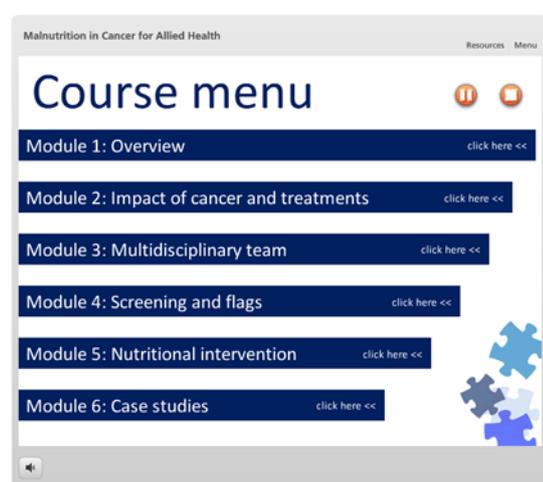
Cancer malnutrition eLearning packages

In order to address the education needs of a large number of clinicians across a broad range of disciplines and geographical areas a cancer malnutrition eLearning package was developed. The aims of the package are to:

- increase awareness and understanding of cancer malnutrition
- improve the knowledge of cancer clinicians using evidence-based information
- promote the importance of early intervention for cancer malnutrition.

Package development

The Peter MacCallum Cancer Centre project team, with input from a dietitian working group and multidisciplinary expert group, developed six eLearning modules to create a number of discipline-specific eLearning packages targeted at hospital-based medical and nursing staff, allied health clinicians, general practitioners and practice nurses. Focus groups and surveys with multidisciplinary clinicians, education and information technology experts, alongside a comprehensive literature review, were used to define the target audience, develop learning outcomes and inform the content of the packages. Professional groups were consulted to ensure continuing professional development requirements were met through the package for a range of professional groups.



There are six eLearning modules covering the topics listed to the left. Content includes patient vignettes or cases, and interviews with multidisciplinary clinicians. A wide variety of modalities were used to accommodate different learning styles to appeal to a broad range of learners. The package is housed on the EviQ website at <https://www.eviq.org.au/eviQEd/MalnutritioninCancer.as>

eviQ Cancer Treatments Online is a point-of-care clinical information resource that provides health professionals with current evidence-based, peer-reviewed, best practice cancer treatment protocols and information. eviQ is delivered by the Cancer Institute NSW.

Impact and implications for cancer care

The eLearning packages are available nationally and can be readily accessed by all clinicians working with people with cancer. The packages are an innovative approach to the significant issue of cancer malnutrition, with broad scope to achieve a positive impact on cancer care:

- The packages are housed on a well-known national website accessed by clinicians seeking information on evidence-based care.
- Four unique packages purposefully designed to suit the needs of the following disciplines are available: doctors, nurses, allied health professionals and community general and nurse practitioners.
- Comprehensive promotion of the packages through professional associations and cancer organisations will ensure widespread awareness of their availability.
- The packages create increased awareness of cancer malnutrition among cancer care clinicians.
- Using the packages leads to a consistent evidence-based approach to identifying and treating cancer malnutrition and a subsequent improvement in patient care.

Malnutrition governance toolkit

A malnutrition governance toolkit was developed to help health services strengthen their nutrition governance practices and to implement nutrition quality and safety standards into clinical care. The aims of the toolkit are to:

- guide system-wide practice improvements to embed nutrition quality and safety standards into health services/systems, including identifying effective key performance indicators for malnutrition management
- reduce variation in nutrition care to malnourished patients with cancer through supporting and promoting evidence-based malnutrition practice
- raise awareness of the importance of nutrition quality and safety standards in improving nutrition care for patients
- identify current workforce models of nutrition/dietetic staffing for cancer care.

Toolkit development

The St Vincent's Hospital Melbourne project team, with input from a dietitian working group and multidisciplinary expert group, developed a malnutrition governance toolkit for health service clinicians and teams, particularly targeting nutrition/dietetic managers, dietitians and clinical governance and quality departments. Consultation and information sharing among the dietitian working group was used to shape the content of the toolkit. The multidisciplinary expert group was consulted to ensure the content was realistic and the context was appropriate for application into a range of healthcare settings.

Toolkit chapters:

1. Malnutrition governance
2. Key performance indicators for malnutrition care
3. Identification, prevention and management of cancer malnutrition
4. Nutrition service delivery models

There are four chapters in the toolkit, as indicated to the left. Piloting the toolkit with selected health services further developed the toolkit's content to enable it be practical and easily applicable depending on the needs of the health service. The toolkit is available at www.health.vic.gov.au/cancer/cancer-projects/malnutrition.

Impact and implications for cancer care

The toolkit can be applied to a variety of health service settings, and different sections can be tailored and applied depending on the needs of the health service. If embedded into health service practice, the toolkit can support:

- implementation of evidence-based malnutrition practice in clinical care
- the identification of key performance indicators for effective malnutrition management at health services and consistency across health services, allowing benchmarking/comparison to help drive patient and service improvements
- nutrition quality and safety standards being embedded into health services/systems
- raised awareness of the importance of nutrition quality and safety standards in improving nutrition care for patients and advocacy for a mandatory state or national standard
- the identification of current workforce models of nutrition/dietetic staffing for cancer care and enable the most effective nutrition care for patients through service redesign
- increased focus, resource allocation and system improvements for nutrition cancer care, leading to more effective, efficient and accessible nutrition clinical services.

Local health service projects

Background

The local health service projects

A total of 17 projects across 15 health services were funded within the phase II program of work. The project type and method varied and included piloting new models of care, specific tumour stream initiatives and implementing care pathways across a range of clinical settings and cancer populations. In order to increase the impact, the Malnutrition Governance Group aligned projects to three major areas addressing clinical and service gaps identified within the phase I project. These were:

- malnutrition practices in chemotherapy day units
- malnutrition practices in radiotherapy areas
- specific tumour streams projects (focus areas were haematology, lower and upper gastrointestinal cancer).

For a summary of the 17 projects refer to Table 1.

Table 1: Summary of the Phase II Malnutrition in Victorian Cancer Services local health service projects

Project	Objective	Impact
Setting: Chemotherapy day unit		
Ballarat Health Services: Developing a Multidisciplinary Approach to the Management of Nutrition Risk in Chemotherapy Day Unit	To facilitate identification of nutrition risk and referral to dietetic services for patients attending the chemotherapy day unit	<ul style="list-style-type: none"> • Significant improvements in malnutrition screening and subsequent referral to the dietetic service. • Engagement of the multidisciplinary team to improve processes for screening and referral. • Practice changes have been embedded into usual care and this work is being leveraged to drive further development and positive changes for nutrition services.
Eastern Health: Identifying, preventing and treating malnutrition in Eastern Health Oncology Services – the supersnack study	To demonstrate improved patient menu satisfaction and nutritional intake from the introduction of a 'supersnack' program in the chemotherapy day unit	<ul style="list-style-type: none"> • Introduction of the supersnacks resulted in significant improvements in protein and energy intakes for patients attending the chemotherapy day unit. • High level of organisational engagement and support. • Ongoing work is underway to embed the supersnack program into usual care. • For more information contact DietitiansBHH@easternhealth.org.au.
Goulburn Valley Health: Supportive Care Re-screening in Chemotherapy Day Patients	To pilot and evaluate supportive care rescreening, including malnutrition screening, in a regional chemotherapy day unit	<ul style="list-style-type: none"> • Introduction of an allied health assistant improved malnutrition rescreening rates for chemotherapy day unit patients. • This practice change resulted in the referral of all patients identified as at risk of malnutrition to the dietetic service for appropriate care. • Ongoing work to support sustainability is underway. • For more information contact wendy.swan@gvhealth.org.au.
Latrobe Regional Hospital: Improving	To develop, pilot and implement a program to	<ul style="list-style-type: none"> • Substantial improvements were achieved in malnutrition rescreening rates and proportion

Project	Objective	Impact
the Nutrition Care of Ambulatory Chemotherapy Patients at Latrobe Regional Hospital	address the high rate of malnutrition and high number of malnourished patients not seen by the dietitian, including weight monitoring, malnutrition screening and rescreening, and referral pathways	<p>of malnourished patients receiving dietetic care.</p> <ul style="list-style-type: none"> • The new model has been implemented into usual care, which includes the use of an allied health assistant. • Continuous improvement to ensure sustainability including regular audits, education and document updates.
Melbourne Health: Malnutrition Screening and Nutrition Support Program in Chemotherapy Day Unit at The Royal Melbourne Hospital	To pilot and evaluate a model of care based on proactive malnutrition screening, assessment and counselling for patients attending the chemotherapy day unit	<ul style="list-style-type: none"> • Introduction of the new model resulted in high completion of malnutrition screening and referral of malnourished patients for dietetic care. • Outcomes six weeks after the introduction of the model included increased patient satisfaction, a reduced proportion of malnourished patients and weight gain in patients under dietetic care. • Work is ongoing to support sustainability.
Monash Health: Establishing a Nutrition Nurse Champion Role in Oncology	To develop, pilot and evaluate a nutrition support program using a nutrition nurse champion model of care in the medical oncology and chemotherapy day unit at Monash Cancer Centre	<ul style="list-style-type: none"> • Introduction of the nurse champion role in the medical oncology ward and chemotherapy day unit resulted in improved malnutrition screening rates, improved nursing engagement in nutritional care and increased patient and staff satisfaction. • Change in practice has been sustainable and embedded into usual care.
St Vincent's Hospital Melbourne: St Vincent's Cancer Centre: Improving and Empowering the Patient Journey	To implement a new model of care to improve the identification and nutritional care of patients attending St Vincent's Cancer Centre	<ul style="list-style-type: none"> • Identified limitations in the current model of malnutrition screening and management. • Introduction of the new model resulted in large improvements in screening and rescreening, regular weighing, appropriate triaging of dietitian referrals and staff satisfaction. • Work is ongoing to support sustainability.
University Hospital Geelong: Malnutrition Screening and Dietetic Support for Day Chemotherapy patients in Andrew Love Cancer Centre	To implement and evaluate a pilot malnutrition screening program and improvements to food service in the chemotherapy day unit	<ul style="list-style-type: none"> • High rates of malnutrition screening, rescreening and referral of malnourished patients for dietetic care. • There was high overall patient satisfaction with the improvements to the food service. • Ongoing work continues to support the sustainability of the program, and additional dietetic resourcing for oncology services has been gained as a result.
Western Health: Investigation of the Effectiveness of Nutrition Intervention, in the Management of Malnutrition in Colorectal Patients Receiving Chemotherapy	To demonstrate that identification of malnutrition and individualised nutrition intervention will decrease levels of malnutrition in colorectal cancer patients receiving chemotherapy	<ul style="list-style-type: none"> • Trends towards improved nutritional and quality-of-life outcomes in patients who received the intensive nutrition intervention. • Improved integration and profile of the dietetic service within the chemotherapy day unit. • Ongoing work continues to improve nutritional management of this patient group. • For more information contact WHSeniorDietitians@wh.org.au.
Setting: Radiotherapy		
Bendigo Health: The Bendigo Health Malnutrition Strategy	To improve malnutrition screening practices and malnutrition identification in	<ul style="list-style-type: none"> • Identified large gaps in screening and referral processes, which led to standardised malnutrition screening, referral, triage and

Project	Objective	Impact
for Cancer Patients	all cancer patients	<p>assessment practices being implemented, including the integration of the malnutrition screening tool (MST) into the supportive care screening tool.</p> <ul style="list-style-type: none"> • Ongoing audit to aid sustainability.
Latrobe Regional Hospital: Improving the Nutrition Care of Ambulatory Radiotherapy Patients at Latrobe Regional Hospital	To develop, pilot and implement a program to address the high rate of malnutrition and high number of malnourished patients not seen by the dietitian, including weight monitoring, malnutrition screening and rescreening, and referral pathways	<ul style="list-style-type: none"> • Positive impact on malnutrition screening (and rescreening) rates, the proportion of malnourished patients receiving dietetic care and staff satisfaction. • The new model has been implemented into usual care. • Continuous improvement to ensure sustainability including regular audits, education and document updates.
Peter MacCallum Cancer Centre: Peter Mac Malnutrition Radiotherapy Strategy	To pilot and evaluate the effectiveness of a new malnutrition screening, referral, assessment and treatment strategy for Peter Mac ambulatory radiotherapy patients	<ul style="list-style-type: none"> • Improvements in malnutrition screening rates, weighing practices of ambulatory radiotherapy patients, consistency in practices across campuses and increased awareness of malnutrition risk among staff. • The new strategy has been implemented into usual care across three radiotherapy campuses in a resource-neutral manner. • Quality and education plans implemented to support sustainability. • For more information contact <nutrition@petermac.org>.
Setting: specific tumour stream		
Alfred Health: Nutrition Management of Stem Cell Transplant Patients across the Continuum of Care: A Nutrition Service Needs Assessment and Gap Analysis	To investigate the nutritional care provided to patients undergoing stem cell transplant, by characterising nutrition management practices and service levels, and identifying gaps in nutrition service provision	<ul style="list-style-type: none"> • New evidence that highlights the high long-term nutritional needs for up to 12 months post stem cell transplant. • In addition, this study indicated large gaps in accessing the dietitian in the ambulatory setting. • Further studies to be undertaken in this area. • For more information contact <I.Nyulasi@alfred.org.au>.
Austin Health: Identifying and Managing Malnutrition in Upper Gastrointestinal Cancer Patients at Austin Health	To design, implement and evaluate a nutrition care pathway for upper gastrointestinal patients across Austin Health	<ul style="list-style-type: none"> • A new nutrition care pathway was implemented into usual care and was shown to reduce service and practice gaps. This enabled improvements for the patient including earlier access to the dietitian and improved education resources. • Project was positively received by the organisation and has increased the awareness and focus of resources to this patient group.
Bendigo Health: Nutrition Care Pathway for Lower Gastrointestinal Cancer Patients	To develop a nutrition care pathway for patients with colorectal cancers through their cancer care journey	<ul style="list-style-type: none"> • New nutrition care pathway implemented that included introducing malnutrition screening (previously absent) and increased access to the dietitian for patients. • Ongoing audits planned to evaluate adherence to the care pathway.
Cabrini Health: Cabrini Colorectal Tumour Stream Study	To identify the risk and prevalence of malnutrition in colorectal cancer patients from diagnosis to	<ul style="list-style-type: none"> • Confirmed high rates of malnutrition in colorectal patients at different stages of treatment and quantified service gaps in dietetic care for this group.

Project	Objective	Impact
	30 days after surgical intervention	<ul style="list-style-type: none"> • Further work is being conducted to improve malnutrition screening rates, dietitian intervention rates through care pathways and governance practices to support improved nutrition care.
Peninsula Health: Improving the Nutrition Care Experience for Patients with Colorectal Cancer	To improve malnutrition screening and nutrition services to the colorectal cancer patient group	<ul style="list-style-type: none"> • Project highlighted poor compliance/completion and awareness of malnutrition screening and key enabling points via a 'value stream map'. • Outcomes included implementing malnutrition screening into the supportive care screening tool in private surgeon rooms. • Audit and evaluation planned after 12 months.

For further information on projects without an email contact, call the nutrition department of the relevant health service through the health services primary contact number.

Outcomes, lessons, challenges and enablers

The phase II project included a point prevalence study, two statewide projects and 17 local health service projects of mixed project design, therefore direct comparisons have been difficult to make. Common limitations encountered within projects included limited project timeframes, low recruitment numbers and delays in obtaining ethics approval. These issues have had some impact on the scope, evaluation and outcomes demonstrated within individual projects. Outcomes, lessons, challenges and enablers for conducting similar nutrition studies and implementing new models of nutrition care into clinical practices are summarised here under themed headings.

Point prevalence study

Almost all projects used findings from the phase I point prevalence study to identify key areas for improvement. For some health services this was the first time data of this nature was available at a local level to support service development initiatives and workforce development. All health services have agreed that continued regular cancer malnutrition point prevalence studies will be of ongoing benefit to drive clinical service improvement.

Engaging multidisciplinary staff

A key theme from the local health service projects was the importance and value of early engagement of multidisciplinary cancer clinicians. All statewide and local projects enlisted support from the broader multidisciplinary team to strengthen the success of their initiatives and ensure any clinical or practice changes were realistic and sustainable. The outputs of the two statewide projects in the form of the cancer malnutrition eLearning modules and governance toolkit will further reinforce the multidisciplinary nature of addressing cancer malnutrition.

Models of care

A number of projects involved implementing new models of care or nutrition care pathways to introduce or enhance malnutrition screening practices, access to dietetic services and consistency in nutrition care. All projects employing these strategies demonstrated improved identification of malnourished patients and subsequently better access to nutritional care. Successful models of nutrition care incorporated triage based on malnutrition risk or a form of clinical prioritisation – interventions that benefited all or most patients, reconfiguration or reallocation of workforce resources and dedicated craft groups to conduct screening and act as dedicated nutrition champions.

Nutrition governance

The phase I project discovered that health services with strong nutrition governance practices provided more effective nutrition services to malnourished patients. The sustainability of many of the local health service projects will be supported by a quality improvement program to monitor ongoing outcomes, which will be informed by the governance toolkit. Further work is required to raise the importance of strong nutrition governance practices by including mandatory nutrition standards within the national accreditation program.

Sustainability

A significant challenge for many health services was maintaining a new model of care in the absence of additional workforce resources. An important lesson learnt was that project sustainability options must be explored thoroughly during the project planning stage. These options may include redesigning current clinical services or reallocating or redistributing current resources, which should be thought through in order to shape the type and direction of the project. The utilisation of tools and resources in existence,

such as the eLearning packages and governance toolkit, were seen as valuable in order to support sustainability.

Recommendations and future actions

Key learnings and recommendations

- Strong clinical leadership, project management and/or research skills are essential for effectively delivering projects on time, on budget and with consideration of optimal outcome measures.
- Engagement and support from key stakeholders early in the project is essential.
- Barriers and enablers when implementing new models of care are complex, but the result must be flexible, adaptable and applicable to the patient population and healthcare setting.
- To optimise the use of project resources towards sustainable initiatives, sustainability should be considered at the project planning phase.
- Sustainable projects that have been successfully embedded into usual care share some key enablers:
 - The long-term allocation or re-allocation of resources is considered.
 - The timing of nutrition screening and interventions have been well thought out and are implemented where they have the greatest impact and ability to enhance patient care.
 - Nutrition care models or system changes have been designed to benefit all or most patients (rather than a subgroup of high-risk patients only) in order to reduce the risk or the progression of malnutrition more broadly.
 - Quality measures are incorporated as part of the model or service including regular communication of audit and key performance indicator data to key stakeholders.
 - Appropriate workforce education is integrated to ensure staff knowledge and skills are maintained or improved.
 - The projects are adaptable to changes in the healthcare setting.

Outcomes for patients and health services

Patients have benefited from the phase II projects in a number of ways:

- increased identification of malnutrition risk throughout the patient journey, enabling increased access to a dietitian and to appropriate nutrition care
- improved access to knowledgeable cancer care staff and helpful cancer nutrition resources
- heightened awareness of the issue of cancer malnutrition in health services to improve patient access to appropriate nutrition care and support at the right time.

In turn, outcomes for health services from the phase II projects include:

- improved engagement and awareness of the prevalence of cancer malnutrition in many health services, leading to a raised focus on improving nutrition services
- a reduction in 30-day mortality for malnourished patients (of the patients deceased at 30 days 81 per cent were malnourished in 2012, while 68 per cent were malnourished in 2014)
- a reduction in unplanned admissions for malnourished patients (of the patients requiring an unplanned admission within 30 days of the prevalence study 49 per cent were malnourished in 2012, while 40 per cent were malnourished in 2014)
- collaboration across health services has provided greater evidence in support of a national nutrition standard

- excellent reach, exposure and dissemination of phase II project outcomes including 20 oral and 12 poster presentations at national and international conferences from across all health services as well as presentations at a number of local health service events
- identification of new areas of clinical need for future projects to address
- the opportunity to redesign clinical services, processes and resource allocation to areas of highest need
- the implementation of many successful, efficient and effective models of care that enhance the patient experience.

Future actions

Addressing the issue of cancer malnutrition is a work in progress. There is now considerable momentum within health services to further improve nutrition services to enhance the care provided to people with cancer. Future actions could focus on:

- broadly promoting phase II statewide projects to enhance uptake, access and use of the malnutrition eLearning packages and governance toolkit resources
- health services continuing to focus on local improvements that support effective and efficient models of care and evidence-based nutrition pathways to be implemented into practice utilising the above resources
- evaluating statewide projects to ensure ongoing relevance and currency of content
- generating evidence to support a national nutrition standard within the accreditation program
- ongoing point prevalence studies using a sustainable methodology to further inform progress in addressing the issue of malnutrition and monitor areas of need for people with cancer
- further collaborative statewide work that will enhance the patient experience and best support people with cancer, for example:
 - developing innovative and translatable nutrition care workforce models
 - investigating malnutrition screening for disadvantaged patient groups including culturally and linguistically diverse populations
 - establishing the most appropriate food service systems and models of care for cancer settings and services
- enhancing links between acute cancer health service providers and primary care including community health, general practitioners and practice nurses
- establishing a cancer malnutrition community of practice to enable ongoing information sharing and a collaborative approach to addressing the issue of cancer malnutrition.

Appendix 1: Summary of phase I projects

Project	Objective	Impact
Malnutrition point prevalence study 2012	To determine the proportion of adult cancer patients who have malnutrition and to identify areas for improvement in managing and treating malnutrition in Victorian cancer services	<ul style="list-style-type: none"> • Largest cancer malnutrition PPS across all tumour types, treatment settings and modalities in the world to date. • Evidence quantifying the prevalence of cancer malnutrition in Victorian health services and associated clinical outcomes.
Organisational survey of nutrition managers	To identify and understand practices relating to malnutrition within Victorian cancer services	<ul style="list-style-type: none"> • Health services with strong nutrition governance practices (policy, multidisciplinary nutrition committee and regular auditing) had improved dietetic care to malnourished patients.
Multidisciplinary clinician survey	To identify and understand the attitudes, knowledge and practices of multidisciplinary cancer clinicians relating to malnutrition	<ul style="list-style-type: none"> • Multidisciplinary awareness, recognition and understanding of cancer malnutrition is poor. • Clinicians are seeking further education and training on cancer malnutrition.
Victorian Admitted Episode Dataset (VAED)	To determine the rate of malnutrition coded in the multi-stay, adult cancer patient population in Victoria	<ul style="list-style-type: none"> • Rates of coded malnutrition in health services for inpatients are poor. • Practice tips and recommendations were produced to assist health services.
Development of a consumer resource on cancer malnutrition	To develop a cancer malnutrition resource to be made readily available for consumers	<ul style="list-style-type: none"> • A new consumer resource was developed and made available through the Better Health Channel, Cancer Council Victoria and local health services.

Appendix 2: Phase II Malnutrition in Victorian Cancer Services Governance Group

Health service or agency	Name
Alfred Health	Ibolya Nyulasi Susannah King
Austin Health	Leonie Pearce Sophie Modulon Kate Kaegi Brooke Chapman
Ballarat Health Services	Meredith Atkinson Rebecca Nunes
Bendigo Health	Virginia Fox Lauren Ballantyne
Cabrini Health	Libby Kent Marlene Gojanovic
Cancer Council Victoria	Anna Boltong
Department of Health & Human Services	Kathryn Whitfield (chair)
Eastern Health	Anita Wilton Emma Venn
Goulburn Valley Health	Wendy Swan Deanna Cook
Integrated Cancer Services	Louise Cristofaro Heather Davis
Latrobe Regional Hospital	Lee Bell Emily Metcalf
Melbourne Health	Michele Hughes Jacqueline Osborne
Monash Health	Maryanne Silvers June Savva
Peninsula Health	Karen Edis Jenna Riley Renee Dowie
Peter MacCallum Cancer Centre	Jenelle Loeliger Nicole Kiss Amber Kelaart Kathryn Marshall
St Vincent's Health	Natalie Simmance Rebecca McIntosh Jillian Chin
University Hospital Geelong	Roy Hoevenaars Carolyn Hall
Western Health	Kathryn Pierce Holly Bevans

Appendix 3: Participating health services

Barwon South Western Regional Integrated Cancer Services (BSWRICS)

- University Hospital Geelong – including radiotherapy services

Hume Regional Integrated Cancer Services (Hume RICS)

- Goulbourn Valley Health – Shepparton
- Albury Wodonga Health

Gippsland Regional Integrated Cancer Services (GRICS)

- Latrobe Regional Hospital, Traralgon – including radiotherapy services
- Southern Gippsland Health Service – Leongatha/Korumburra
- West Gippsland Health Service – Warrigal
- Bairnsdale Regional Health Service – Bairnsdale

Grampians Integrated Cancer Services (GICS)

- Ballarat Health Services – Ballarat Hospital and Ballarat Austin Radiation Oncology Service

Loddon Mallee Integrated Cancer Services (LMICS)

- Bendigo Health – Bendigo Hospital, including Peter Mac radiotherapy services

North Eastern Metropolitan Integrated Cancer Services (NEMICS)

- Austin Health – Austin Hospital including radiotherapy services
- Eastern Health – Box Hill including Peter Mac radiotherapy services, Maroondah and *Yarra Ranges*
- *Northern Health – Epping and Craigieburn*

Southern Melbourne Integrated Cancer Services (SMICS)

- Alfred Health – The Alfred, including radiotherapy services
- Cabrini Health – Malvern
- Peninsula Health – Frankston
- Monash Health – Moorabbin, including Peter Mac radiotherapy services, *Clayton and Dandenong*

Western and Central Melbourne Integrated Cancer Services (WCMICS)

- Melbourne Health – City Campus, Parkville
- Peter MacCallum Cancer Centre – East Melbourne
- St Vincent's Health – Fitzroy
- *The Royal Women's Hospital – Parkville*
- Western Health – Footscray and Sunshine, including Peter Mac radiotherapy services

Site names in italics participated in the point prevalence study component only.

References

Ferguson M, Capra S, Bauer J, Banks M 1999, 'Development of a valid and reliable malnutrition screening tool for adult acute hospital patients', *Nutrition*, vol, 15, no. 6, pp. 458–464.

Isenring E, Zabel R, Bannister M, Brown T, Findlay M, Kiss N, et al. 2013, 'Updated evidence-based practice guidelines for the nutritional management of patients receiving radiation therapy and/or chemotherapy', *Nutrition & Dietetics*, vol. 70, no. 4, pp. 312–324.

Ottery F 1996, 'Definition of standardized nutritional assessment and interventional pathways in oncology', *Nutrition*, vol. 12, no. 1 (supplement): S15–S9.

Tappenden KA, Quatrara B, Parkhurst ML, Malone AM, Fanjiang G, Ziegler TR 2013, 'Critical role of nutrition in improving quality of care: an interdisciplinary call to action to address adult hospital malnutrition', *Journal of the Academy of Nutrition and Dietetics*, vol. 113, no. 9, pp. 1219–1237.