

Phase III Malnutrition in Victorian Cancer Services: summary report

Learnings and recommendations from the
statewide health services projects 2016–2017

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Preferred citation

Loeliger J, Kiss N 2018, *Phase III 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 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.

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ISBN 978-1-76069-789-1 (pdf/online/MS word)

Available at <https://www2.health.vic.gov.au/about/health-strategies/cancer-care/cancer-projects/investigating-practices-relating-to-malnutrition-in-victorian-cancer-services>

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Executive summary

The **key points** from this report:

1. The Malnutrition in Victorian Cancer Services program of work to date has:
 - identified the extent of cancer malnutrition in Victorian hospitals
 - provided impetus, drive and initiatives targeting malnutrition within hospitals
 - created a range of evidence-based resources to support nutrition care, clinical governance and education in the acute health sector.
2. Cancer malnutrition remains a significant issue throughout the patient care continuum that requires ongoing attention and action.
3. The phase III program of work has focused on producing sustainable resources and has investigated newly identified areas of need in a number of vulnerable groups.
4. Further collaborative efforts need to be continued both within health services and beyond the hospital setting as outlined in the recommendations and future actions section in this report.

The supportive care needs of people with cancer must be identified early to deliver timely interventions to optimise patient outcomes. Nutrition is well recognised as playing a key role within multimodal cancer care.¹ However, cancer malnutrition remains a significant but potentially reversible health concern in Victoria (23 per cent of all hospital cancer patients are malnourished and 37 per cent malnourished in the inpatient setting) and is associated with poor clinical and functional outcomes and high healthcare costs.¹⁻⁴ It is essential that evidence-based nutrition care is provided by dietitians and multidisciplinary teams to optimise the health and wellbeing of people with cancer; guidelines exist to support this practice.⁵⁻⁸

A dietetic collaborative 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. Funded by the Cancer Strategy and Development Unit at the Victorian Department of Health and Human Services, the initiative resulted in a better understanding of the prevalence of cancer malnutrition and of the barriers and enablers to quality nutrition care. It also highlighted further areas of work required to address this supportive care need.⁹ The phase II Malnutrition in Victorian Cancer Services (MVCS) project, completed throughout 2013 and 2014, improved the clinical outcomes and experience of patients with cancer and enabled health services to pilot and embed new models of care and care pathways, thus increasing local awareness of cancer malnutrition.¹⁰

The phase III MVCS project in 2016 and 2017 comprised five collaborative statewide projects focused on sustainable outcomes. The scope of this phase of work enabled three existing resources/studies: the malnutrition e-learning packages, the malnutrition governance toolkit and the cancer malnutrition point prevalence study (PPS). The department aims to make these resources sustainable and to influence the health sector more broadly rather than focusing on a discrete group of health services or a particular clinical area. Exploring methods of identifying malnutrition among culturally diverse populations and in food service systems within health services enabled discovery within previously understudied areas. It is recognised that the scope of this phase of work could not include investigations of nutrition practices, cancer malnutrition prevalence or education needs around cancer malnutrition in the primary care sector and the impact of malnutrition awareness and transitional practices in/out of health services and the primary care sector, all of which is poorly understood. This remains an area to investigate further into the future.

Phase III of the MVCS program of work has achieved the following outcomes:

- It has demonstrated the large reach, uptake and knowledge transfer of the malnutrition e-learning packages and the malnutrition governance toolkit and taken these resources to the next step towards embedding them into usual care within health services. However, in the absence of mandatory indicators for cancer malnutrition (or malnutrition more generally) across the state, the impetus for health services to adhere to the recommendations of these resources remains an issue.
- It has established a sustainable methodology for the repeat cancer malnutrition PPS and created a 2016 dataset.
- It has explored the requirements to improve methods of identifying malnutrition among culturally diverse populations and is seeking funding to translate malnutrition screening tools into 10 community languages.
- It has evaluated patient food service models and identified three key food service domains of care that health services should meet to best support food provision and nutrition care for cancer patients.

The **key recommendations** derived from the phase III program of work are:

1. Cancer malnutrition is an issue throughout the care continuum and efforts need to be continued within health services in addition to being actioned beyond the hospital setting.
2. Promote the value of and support the inclusion of mandatory statewide cancer malnutrition and nutrition care indicators within an appropriate quality and risk framework for health services, primary care and community settings.
3. The resources developed within the MVCS program of work need ongoing focus and effort to enable sustainability and increase applicability and reach.
4. Support system-wide approaches to reduce the cancer malnutrition burden for vulnerable and high-risk groups.

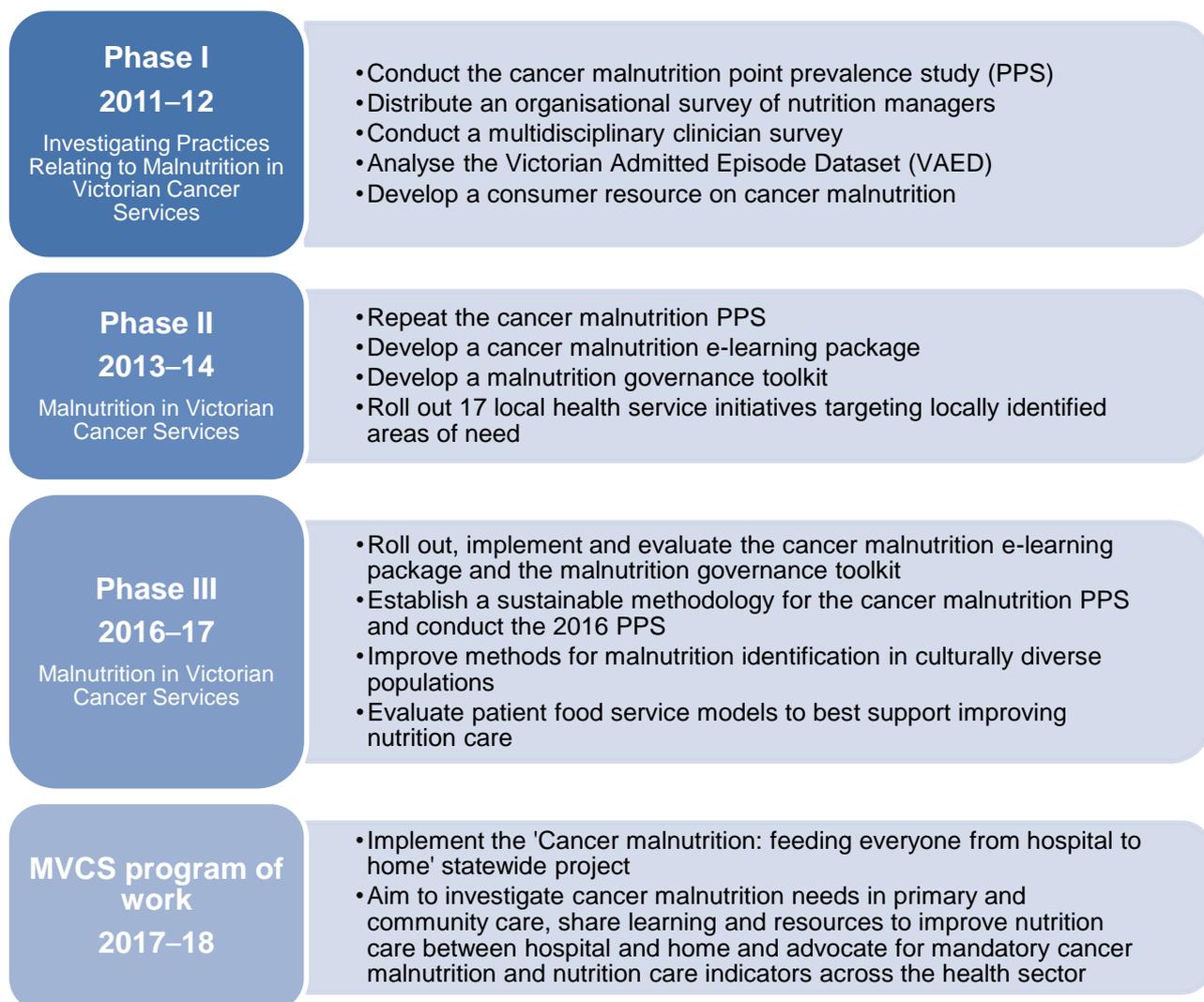
This report summarises the phase III project outcomes and lessons learnt. The target audience for the report is policymakers, health service managers, health professionals, cancer-related organisations, primary care organisations and interested consumers. The content and recommendations will be used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

Background

Malnutrition is a prevalent issue for patients with cancer. It is associated with lower treatment tolerance, increased morbidity/mortality and higher healthcare costs.³⁻⁶ Appropriate nutrition care can improve the clinical outcomes of patients with cancer and enhance their overall care experience.^{5,6} A number of evidence-based practice guidelines help raise awareness of malnutrition in cancer patients through highlighting its high prevalence and its adverse effects on clinical and health service outcomes, as well as providing recommendations for optimal nutrition care.⁵⁻⁸ Such guidelines and published calls for action help synthesise the available evidence and provide strategies to translate evidence into clinical practice.^{1,11,12} However, despite such guidelines and calls for action, translating evidence of malnutrition into practice remains low in the Victorian health sector.

The Malnutrition in Victorian Cancer Services (MVCS) collaborative group convened in 2011 and comprises representation from 15 Victorian health services across both public and private sectors (Appendix 1), with leadership and project oversight provided by the Peter MacCallum Cancer Centre nutrition department. This group has undertaken a number of initiatives to address cancer malnutrition completed across three project phases: phases I, II and III (Figure 1). The department's Cancer Strategy and Development Unit has provided funding for each project phase.

Figure 1: Phased approach to the Malnutrition in Victorian Cancer Services program of work



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

The phase I project consisted of five initiatives. 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. A summary of the phase I project (initiatives, key findings, recommendations) is provided in Appendix 2. Further details are available from the summary report 2012 and technical report 2012, which can be found on the [department's website](http://www.health.vic.gov.au/cancer/cancer-projects/malnutrition) <www.health.vic.gov.au/cancer/cancer-projects/malnutrition>. ^{9,13}

Phase II: Malnutrition in Victorian Cancer Services project

To address the key recommendations from phase I, the MVCS collaborative group was funded to conduct phase II projects during 2013 and 2014. Leadership and project oversight was again provided by the Peter MacCallum Cancer Centre nutrition department.

The phase II projects included a repeat cancer malnutrition PPS, two statewide and 17 local improvement projects that aimed to examine and address systemic and local barriers to providing timely and appropriate nutrition care for patients undergoing cancer treatment. The statewide initiatives

included developing the cancer malnutrition e-learning packages (free, online education modules aimed at health professionals) and the malnutrition governance toolkit (aimed at health services), which has improved the workforce's access to evidence-based resources to address cancer malnutrition. In addition, the repeat PPS has provided updated and comparison data from across the state and indicated a reduction in the statewide prevalence rate of cancer malnutrition from 31 per cent in 2012 to 26 per cent in 2014.

Supporting the statewide projects, the 17 local health service initiatives have helped improve the clinical outcomes and experience of patients with cancer as they navigate their way through complex diagnostic and treatment services. Health professionals and clinical services have benefited from this program of work through:

- piloting and embedding new models of care and care pathways
- an enhanced focus on the nutritional needs of patients with cancer
- an improved awareness of cancer malnutrition.

A summary of the phase II projects (initiatives, key findings, recommendations) is provided in Appendix 3. Further details are available from the [summary report 2015](https://www2.health.vic.gov.au/about/health-strategies/cancer-care) <<https://www2.health.vic.gov.au/about/health-strategies/cancer-care>>. ¹⁰

Phase III: Malnutrition in Victorian Cancer Services project

The phase III projects were conducted during 2016 and 2017 and consisted of five statewide initiatives (see Table 1). Leadership and project oversight was again provided by the Peter MacCallum Cancer Centre nutrition department.

Table 1: List of phase III projects completed

Project no.	Project name
Project 1a	Roll out, and implement and evaluate the cancer malnutrition e-learning package <i>Lead: Lauren Atkins, Peter MacCallum Cancer Centre</i>
Project 1b	Roll out, implement and evaluate the malnutrition governance toolkit <i>Lead: Rebecca McIntosh, St Vincent's Hospital</i>
Project 2	Establish a sustainable methodology for the repeat cancer malnutrition point prevalence study <i>Lead: Belinda Steer, Peter MacCallum Cancer Centre</i>
Project 3	Improve methods for malnutrition identification in culturally diverse populations <i>Lead: Jane Stewart, Alfred Health</i>
Project 4	Evaluate patient food service models to best support improving nutrition care <i>Lead: Elizabeth Doyle, St Vincent's Hospital</i>

This report provides an overview of the phase III MVCS projects and a summation of the findings, project impact and recommendations for future action.

Project 1a: Roll out, implement and evaluate the cancer malnutrition e-learning package

Background

A cancer malnutrition e-learning program was developed for multidisciplinary clinicians in 2014 as part of the MVCS program of work to address clinician education needs identified in the phase I project. The e-learning program is freely available through the [eviQEd website](https://education.eviq.org.au/courses/malnutrition-in-cancer) <<https://education.eviq.org.au/courses/malnutrition-in-cancer>>.



Aims

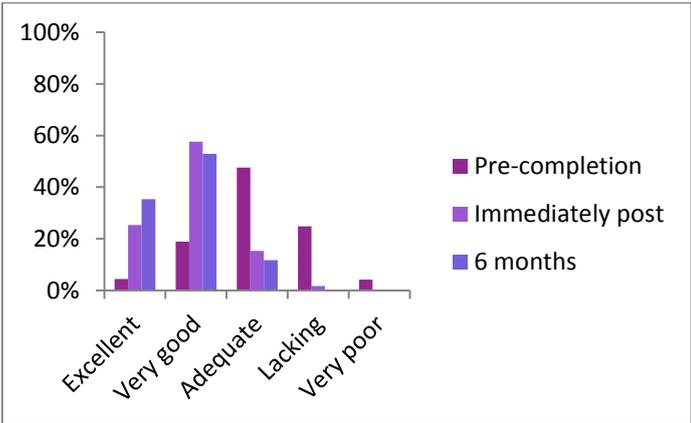
This project aimed to evaluate the effectiveness of the cancer malnutrition e-learning program in improving clinician knowledge and to promote program uptake.

Surveys were embedded in the e-learning program at three time-points – pre-completion, immediately following ('post-completion') and six months following completion – to measure change and retention of user knowledge and practice relating to malnutrition. Key stakeholders developed a plan to promote uptake of the e-learning program among clinicians.

Outcomes and impact

- The evaluation indicated there were 205 national and international registered users, of whom 55 per cent were dietitians, 38 per cent were nurses 3 per cent were radiation therapists and 7 per cent who did not designate a specific discipline.
- Following completion of the program, the proportion of participants reporting very good or excellent knowledge of cancer malnutrition increased by 63 per cent (from 26 per cent pre- to 89 per cent post-completion) and was retained after six months (Figure 2).

Figure 2: How would you rate your knowledge of malnutrition and oncology patients now that you have completed the malnutrition in cancer e-learning resource?



- Participant familiarity with malnutrition screening tools improved from pre-completion to immediately post-completion and this knowledge further improved at six months post-completion (65 per cent, 87 per cent and 94 per cent respectively).

- Participants reported increased nutrition risk screening practices after completing the program (screening of patients at presentation increased from 58 per cent to 82 per cent six months post-completion).
- A pilot of the e-learning packages as a component of mandatory training for multidisciplinary cancer clinicians is underway at Peter MacCallum Cancer Centre.
- The department developed a suite of promotional material including a promotional video targeted at health service executives highlighting:
 - the impact of malnutrition on patients
 - the cost of malnutrition to health services
 - the capacity of the e-learning program to improve clinician and organisational practices (joint with project 1b).



The video can be viewed via the [department's website](https://www2.health.vic.gov.au/about/health-strategies/cancer-care/cancer-projects/investigating-practices-relating-to-malnutrition-in-victorian-cancer-services) <<https://www2.health.vic.gov.au/about/health-strategies/cancer-care/cancer-projects/investigating-practices-relating-to-malnutrition-in-victorian-cancer-services>>.



Implications and recommendations

The cancer malnutrition e-learning program is an effective platform to improve and sustain clinician knowledge and practice related to malnutrition. A new round of promotional material outlines strategies to further promote clinician and organisation uptake. This material is currently being disseminated.

The project report and relevant links can be found on the [department's website](https://www2.health.vic.gov.au/about/health-strategies/cancer-care/cancer-projects/investigating-practices-relating-to-malnutrition-in-victorian-cancer-services) <<https://www2.health.vic.gov.au/about/health-strategies/cancer-care/cancer-projects/investigating-practices-relating-to-malnutrition-in-victorian-cancer-services>>.

Project 1b: Roll out, implement and evaluate the malnutrition governance toolkit

Background

The phase I projects indicated that malnourished patients from health services with strong nutrition governance systems were more likely to receive individualised nutrition care from a dietitian.⁹ In response, the department created a practical and evidence-based malnutrition governance toolkit in 2014 to guide system-wide practice improvements, embed hospital quality and safety accreditation standards for nutrition care, and help to close the gap in treatment variation.¹⁰ The toolkit is freely available through the [department's website](https://www2.health.vic.gov.au/about/publications/policiesandguidelines/Malnutrition%20in%20Victorian%20cancer%20services%20-%20Malnutrition%20governance%20toolkit)

<<https://www2.health.vic.gov.au/about/publications/policiesandguidelines/Malnutrition%20in%20Victorian%20cancer%20services%20-%20Malnutrition%20governance%20toolkit>>.

Aims

This project aimed to evaluate the effectiveness of the toolkit and support its implementation into health services.

Participating nutrition departments established common malnutrition indicators for health services. A group of health services conducted a benchmarking pilot of collecting and reporting on these indicators to test the feasibility and effectiveness of nutrition care.

Outcomes and impact

- Measurable advancements in the clinical governance of cancer malnutrition care in Victorian health services has occurred since the program began and the toolkit developed in 2014. This includes convening multidisciplinary committees to oversee malnutrition policy and guidelines and establishing audit processes.
- Consensus on two common malnutrition indicators for health services were established: (1) malnutrition risk screening completed within 24 hours of admission (inpatients); and (2) weight recording completed within 24 hours of admission (inpatient).
- Eleven health services completed a benchmarking pilot of the two common malnutrition indicators. Specifically developed tools enabled health services to undertake this benchmarking using a consistent approach and common data elements to provide instant data analysis and heighten confidence in data integrity. (The Nutrition Care Tracker is a data capture spreadsheet including a nutrition scorecard plus associated decision support tools.) These tools were highly regarded by health services engaged to benchmark quarterly.
- The feasibility of malnutrition performance benchmarking at a statewide level was established.
- The benchmarking pilot showed a relatively poor performance result within the inpatient hospital setting across the state for weight recording (62 per cent), which indicates ongoing work is needed. However, pleasingly, 100 per cent the inpatient wards audited had completed malnutrition risk screening. Low rates of malnutrition screening and performance monitoring were found in ambulatory cancer care settings (chemotherapy, radiotherapy and outpatients), which require further attention.



- In conjunction with project 1a, a [promotional video](https://www2.health.vic.gov.au/about/health-strategies/cancer-care/cancer-projects/investigating-practices-relating-to-malnutrition-in-victorian-cancer-services) <<https://www2.health.vic.gov.au/about/health-strategies/cancer-care/cancer-projects/investigating-practices-relating-to-malnutrition-in-victorian-cancer-services>> targeted at health service executives highlighted the impact of malnutrition on patients and the cost to health services.

Implications and recommendations

- Malnutrition is a multidisciplinary concern – all key team members including nutrition department staff need to be involved in malnutrition performance monitoring to ensure it is embedded into practice.
- There is a recognised need to embed statewide malnutrition performance monitoring and benchmarking into routine practice. This could be achieved through promoting the value and supporting the inclusion of mandatory statewide malnutrition performance monitoring through avenues such as Safer Care Victoria. Malnutrition key performance indicators could also be included in the statewide cancer performance indicators and performance monitoring program as recommended in the *Victorian cancer plan 2016–2020*.¹⁴
- Ongoing support for health services to embed malnutrition performance monitoring and benchmarking into routine practice and scoping of workforce models that will support improved nutrition care processes in ambulatory settings is needed.
- Strategies to further promote clinician and organisation uptake of the toolkit have been developed and dissemination of promotional material is underway.

The project report and relevant links can be found on the [department's website](https://www2.health.vic.gov.au/about/health-strategies/cancer-care/cancer-projects/investigating-practices-relating-to-malnutrition-in-victorian-cancer-services) <<https://www2.health.vic.gov.au/about/health-strategies/cancer-care/cancer-projects/investigating-practices-relating-to-malnutrition-in-victorian-cancer-services>>.

Project 2: Establish a sustainable methodology for the repeat cancer malnutrition point prevalence study

Background

The cancer malnutrition PPS conducted in 2012 and repeated in 2014 indicated cancer malnutrition in Victorian health services has reduced from 31 per cent to 26 per cent respectively.¹⁰ The PPS results have provided robust, meaningful clinical and health service data for the Victorian Department of Health and Human Services, health services and cancer clinicians working outside of Victoria. Data from the PPS has increased the awareness of malnutrition and its consequences, highlighted areas of greatest need, supported business cases and grants, and raised the profile of the issue of cancer malnutrition.

Data from the PPS provides an indicator of the impact of cancer malnutrition improvement initiatives undertaken across the state. As such, it is anticipated the PPS will be completed every two years to continue to monitor the state prevalence of cancer malnutrition and help drive clinical improvements. To ensure ongoing high participation rates, a standardised and sustainable methodology is required to support data collection without significant burden being placed on individual health services.

Aims

This project aimed to:

- determine key stakeholders' views on the methodology of previous PPS
- benchmark the current PPS methodology against practices used for other recurring national and international multisite studies
- provide recommendations for a national organisation to provide ongoing governance of future PPS
- establish a standardised, sustainable methodology to complete future cancer malnutrition PPS
- develop standardised ethics submission templates, site training packages for clinicians and direct entry data forms
- test project tools in a repeat malnutrition PPS.

Outcomes and impact

- Participating health services value the statewide cancer malnutrition PPS for the robust data it provides, which can be used for benchmarking, profile raising, business cases and targeting service delivery. The main limitation to participating in the PPS is the time commitment to complete all the required aspects of the study in the context of a busy clinical environment.
- A standardised, sustainable methodology for future PPS was developed including:
 - electronic data collection through a purpose-built web-based Research Electronic Data Capture (REDCap) database, along with conventional paper-based tools if required

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Malnutrition Prevalence Study 2016

Actions: [Download PDF of instrument\(s\)](#) [Share instrument in the Library](#) [VIDEO: Basic data entry](#)

Malnutrition Prevalence Study Tool

Editing existing REDCap ID 24

Event Name: Baseline (Arm 1: Patient Surveys)

REDCap ID 24

Anthropometry

8. Height (cm) 152
* must provide value

Height, source of measurement
 Actual/Measured
 Patient Reported
 Estimated

9. Current weight (kg) 70.2
* must provide value

Weight, source of measurement
 Actual/Measured
 Patient Reported
 Estimated

BMI 30.4 View equation

10. Loss of weight?
* must provide value
 No
 Yes and I know by how much
 Yes but not sure by how much
 Unsure

10a. How much? (kg) 9

Percentage (%) loss of weight 11.4 View equation

10b. Intentional?
 Unintentional weight loss
 Intentional weight loss

10c. Weight loss occurrence
 Weight loss occurred in <= 3 months
 Weight loss occurred in >= 4 months

Food Intake

11. Does the patient complain of a reduced appetite?
* must provide value
 Yes
 No

PATIENT IS AT RISK OF MALNUTRITION

12. Does the patient report a reduced food intake?
* must provide value
 Yes
 No

Patient is at risk of malnutrition

13. Muscle loss - Muscle wasting of:

- streamlining ethics submission processes, including multisite ethics approval obtained for five years and resources to support ethics submissions
- a PPS-specific online training package.
- Following ethics approval, the new PPS methodology was tested with 12 health services across Victoria between 14 November and 9 December 2016. Participating health services completed an online questionnaire evaluating all aspects of the newly standardised, sustainable PPS methodology. Survey results indicated the methodology was well accepted and sustainable, providing ethics requirements were minimal or further support to submit ethics was available, and consideration was given to the timing of data collection for minimal impact on clinical services.
- Results from the repeat 2016 PPS found overall cancer malnutrition prevalence was 23 per cent, with a higher prevalence of 37 per cent in inpatients.² Malnutrition is prevalent across all tumour streams, with upper gastrointestinal cancer patients experiencing the highest rates of malnutrition (43 per cent) and breast and skin/melanoma patients the lowest (8 per cent).²

Implications and recommendations

- The cancer malnutrition PPS should be repeated biennially using the new methodology to ensure that current cancer malnutrition prevalence data is available.
- The PPS data should be used to maintain a current benchmark for malnutrition prevalence rates for health services to use. Using the data as a benchmark will enable high-performing health services to be identified and learnings to be shared.
- All Victorian (and potentially interstate) health services should be invited to participate in future PPS to support a truly statewide and/or national data understanding of cancer malnutrition prevalence and management.
- A future action is to determine the governance for future PPS. The appointed organisation needs to be committed to cancer malnutrition and have the capability to maintain, as well as continue to grow, this highly valued work. Decisions about who owns the PPS data are required. Broadening the scope to malnutrition prevalence across all clinical areas (not just cancer) should also be considered.
- A further action is to revisit an analysis of malnutrition coding within the VAED against the PPS results (as completed within phase I of this program of work), which would enable any improvements to be examined over time in relation to documented malnutrition within health service inpatient records.

The project report and relevant links can be found on the [department's website](https://www2.health.vic.gov.au/about/health-strategies/cancer-care/cancer-projects/investigating-practices-relating-to-malnutrition-in-victorian-cancer-services) <<https://www2.health.vic.gov.au/about/health-strategies/cancer-care/cancer-projects/investigating-practices-relating-to-malnutrition-in-victorian-cancer-services>>.

Project 3: Improve methods for malnutrition identification in culturally diverse populations

Background

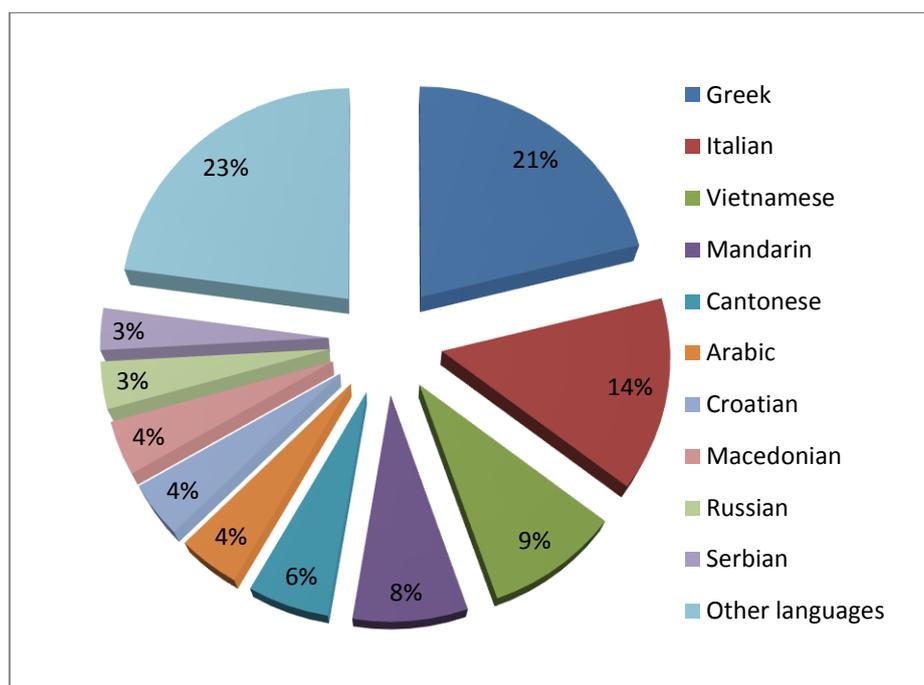
Evidence suggests that timely malnutrition screening and early nutrition intervention improve patient outcomes.^{5,6} All patients admitted to Victorian cancer services should have their risk of malnutrition assessed using a validated screening tool. Victoria is Australia's most culturally diverse state, with residents born in more than 230 nations and speaking in excess of 200 languages. The widely used *Malnutrition screening tool* (MST) is only available in English and there is little information about culturally diverse patients completing malnutrition screening. Figure 3 provides a breakdown of admissions with a preferred language other than English.

Aims

This project aimed to:

- scope best practice and similar work undertaken by peak bodies in translating screening tools and support materials that retain cultural salience
- identify priority languages for adapting screening tools in 17 Victorian cancer services
- ascertain current practice and perceived barriers in administering malnutrition screening for culturally diverse patients
- scope key stakeholder perspectives on translating the MST
- scope the steps required to culturally adapt the MST and other malnutrition resources
- identify potential grant funding sources and prepare a grant application to adapt the MST and other malnutrition resources for culturally diverse patients.

Figure 3: Proportion of health service admissions with a preferred language other than English, Victoria, 2014-2015¹

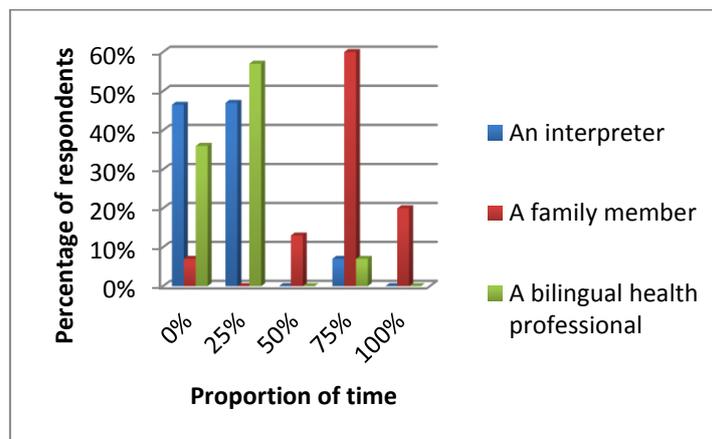


Outcomes and impact

- The top 10 languages other than English spoken across Victorian cancer services apply to 77 per cent of all admissions with a preferred language other than English. Patients from Aboriginal and Torres Strait Islander backgrounds represent the fourth largest cultural group in Victoria.
- Two separate online questionnaires were developed for Oncology Dietitians and Health Professionals administering malnutrition screening at 17 Victorian cancer services. The results of these surveys indicate:
 - The MST is the predominant malnutrition screening tool used in Victorian cancer services, with all dietitians reporting the MST is used at their service. Culturally adapting the MST and associated resources into the top 10 preferred languages identified will ensure the majority of culturally diverse patients in Victoria have access to malnutrition screening in their preferred language.
 - Practices relating to malnutrition screening in culturally diverse patients are far from meeting best practice. Dietitians perceive that malnutrition screening is routinely completed in approximately one-third of culturally diverse patients. For those patients who are screened for malnutrition, health professionals reported using an interpreter in less than a quarter of all patients seen. Meanwhile, most respondents reported using a family member most of the time to assist with completion of malnutrition screening (Figure 4).
 - Language, time constraints and access to interpreters were reported as barriers for effective malnutrition screening, while enablers include the presence of interpreters, family members and bilingual colleagues.
 - If a translated MST were available, most health professionals reported they would prefer a paper-based tool; however, the use of a web- or app-based platform was also popular.

¹ Victorian Admitted Episode Dataset language data

Figure 4: Proportion of interpreter use in participating Victorian cancer services, 2016



- Consumer feedback emphasised the difficulties associated with low literacy levels in people from culturally diverse backgrounds, and almost half reported that a web- or app-based MST with verbal instructions would be useful.
- There is a growing body of evidence that suggests that health status measures (including malnutrition screening tools) cannot simply be translated word for word. The content should also be culturally adapted to ensure its original meaning remains the same in the target culture.
- A proposal has been developed for funding to translate and culturally adapt the MST and an associated resource.

Implications and recommendations

- Identify possible funding sources to perform the next steps required to translate and culturally adapt the MST and an associated resource.
- Future actions for this work include to:
 - translate and culturally adapt the MST in up to 10 of Victoria’s top languages – this should follow the evidence-based recommendations for the cultural adaptation of patient-reported outcome measures
 - translate and culturally adapt the Cancer Council Victoria’s *Understanding malnutrition and cancer* factsheet in up to 10 of Victoria’s top languages – this resource should also be culturally adapted for Aboriginal and Torres Strait Islander Australians
 - include a consumer perspective when preparing and testing culturally adapted versions of the MST
 - develop a dissemination and education strategy for culturally adapted resources
 - consider developing a web- or app-based platform that includes written text, pictures and spoken word.

The project report and relevant links can be found on the [department's website](https://www2.health.vic.gov.au/about/health-strategies/cancer-care/cancer-projects/investigating-practices-relating-to-malnutrition-in-victorian-cancer-services) <<https://www2.health.vic.gov.au/about/health-strategies/cancer-care/cancer-projects/investigating-practices-relating-to-malnutrition-in-victorian-cancer-services>>.

Project 4: Evaluate patient food service models to best support improving nutrition care

Background

An important step towards reducing malnutrition prevalence is through appropriate food service interventions in acute and subacute health settings. Access to appropriate nutrition is a fundamental human right for all, and providing safe and nutritious food and fluids within health services is an essential element of patient care. Hospitalised patients represent a diverse group with varied clinical and cultural needs, and many are either malnourished on admission or become so during their admission. Providing timely and appropriate nutrition care will assist with treatment and recovery, and can improve a patient's experience of their care and quality of life.^{5,6} However, it is unclear what the most appropriate hospital food service models are to best support patients with cancer.¹⁰

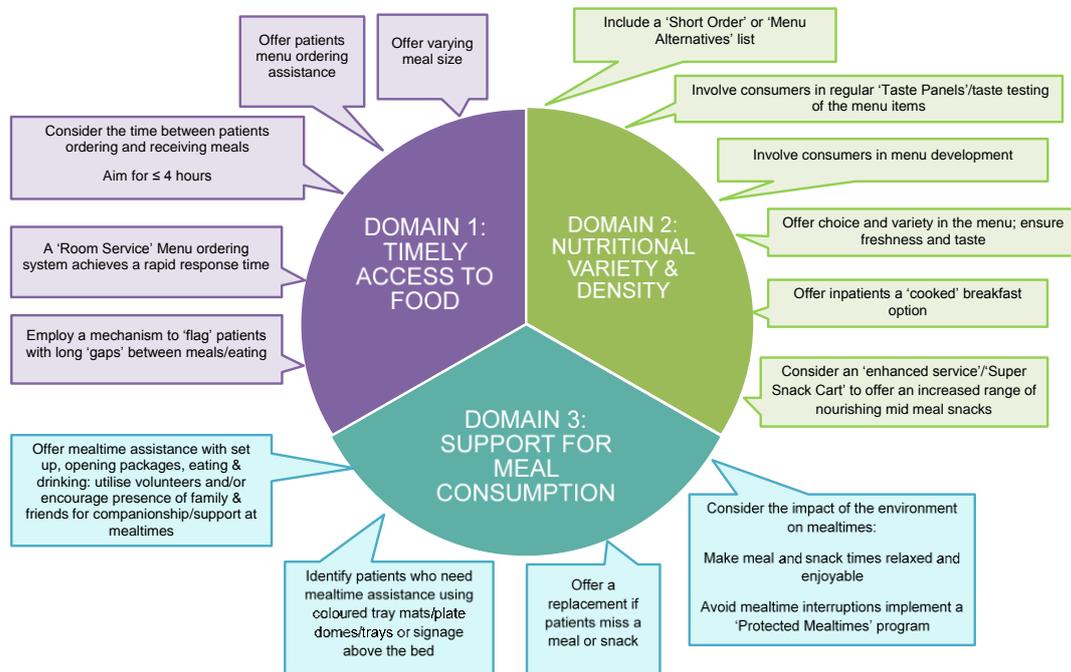
Aims

The aim of this project was to investigate hospital patient food service models using a mixed method and person-centred care approach to determine effective and cost-efficient food service systems/models that can feasibly be implemented within Victorian health services.

Outcomes and impact

- Evidence suggests that food service interventions can improve the clinical outcomes of cancer patients, specifically oral nutrition supplements; however, published literature is limited.¹⁵
- Published data, clinical experience and expert group consensus has identified key components of a high-quality food service model that meets the needs of patients with cancer undergoing treatment in a range of settings. These have been formulated as three food service domains of care: (1) timely access to food; (2) nutritional variety and density; and (3) assistance with meal consumption (Figure 5).
- When Victorian health services were compared with key components of the three food service domains of care, very few health services met the majority of domains.
- The consumer experience survey results show that patients value nutritious meals and snacks as well as choice of meals and variety. The results show 49 per cent of patients have a poor appetite and 54 per cent have lost weight without trying, contributing to malnutrition and its associated complications and poorer outcomes. Unfortunately, consumers are not always well supported to manage these symptoms in current health service systems.

Figure 5: Components of a food service model to support patients with cancer across inpatient and ambulatory treatment settings



Implications and recommendations

The project outcomes reflect the work required to close the gap between the evidence-based model and current practice. It is recommended that:

- health services improve compliance with the three identified food service domains of care and develop strategies to incorporate these domains into their services, ideally supported by dedicated food service dietitian positions
- health services adopt an organisation-wide approach to improving the patient's food journey
- future actions include research into effective hospital food service systems and/or interventions in cancer patients that underpin best practice.

The project report and relevant links can be found on the [department's website](https://www2.health.vic.gov.au/about/health-strategies/cancer-care/cancer-projects/investigating-practices-relating-to-malnutrition-in-victorian-cancer-services) <<https://www2.health.vic.gov.au/about/health-strategies/cancer-care/cancer-projects/investigating-practices-relating-to-malnutrition-in-victorian-cancer-services>>.

Community of practice evaluation

Community of practice (CoP) meetings were established as part of the phase III MVCS program of work. CoP meetings aim to provide a forum for participants to interact, share their practice, deepen their knowledge of nutrition care and assist in guiding the statewide projects. Four CoP meetings were held throughout the phase III MVCS program of work at different venues in Melbourne, and participation was open to interested health professionals. The CoP meetings were evaluated after the fourth CoP, coinciding with the conclusion of the phase III projects.

Aims

To evaluate the perceived value and effectiveness of the CoP program in meeting the intended aims of the CoP meetings within the phase III MVCS program of work held throughout 2016 and 2017.

Method

An online survey was sent to all attendees of the phase III MVCS program CoP meetings held throughout 2016 and 2017.

Summary of findings

- There was broad representation of CoP participants ($n = 24$), ranging from those actively involved in projects (project leads, project chairs/co-chairs, governance role) to group members and/or attendees only.
- There was strong agreement (95 per cent 'agree' or 'strongly agree') that CoP meetings met the intended aims.
- Participants felt the most valuable aspects of the CoP meetings were:
 - project updates/discussion and the ability to have face-to-face project working group meetings (54 per cent of participants)
 - professional development opportunities from a broad range of speakers relevant to projects/topics of interest (46 per cent of participants)
 - networking and collaborative aspects (42 per cent).
- The top three suggestions to make the CoP meetings more useful were:
 - more time allocated for discussion and workshopping
 - more time allocated to project updates, discussion and working group meetings
 - continue with external speakers and other professional development opportunities.

Recommendations

- CoP meetings are a highly valued and effective enabler of collaboration as part of the MVCS program of work. A similar format should continue with the ongoing MVCS program of work.
- CoP meetings should enable key stakeholders and those involved with providing nutrition cancer care to:
 - meet regularly and directly connect with others to share experiences, tools and resources
 - receive interim project updates and enable face-to-face involvement in project working group meetings
 - network and form collaborations
 - engage with external speakers on relevant topics of interest.

Outcomes, lessons, challenges and enablers

All five phase III projects were statewide collaborative initiatives that produced high-level outcomes that will have an impact on patient outcomes and health service planning and design. All projects had a different focus. Common learnings resulted, but direct comparisons are difficult to make. The overall reach of the phase III projects has been broad, indicated by each project's communication strategy and 14 oral and poster presentations being completed to date at local and national conferences.

First, feedback was sought from the phase III MVCS group on general aspects of the phase III program of work (as per the CoP evaluation survey). This indicated:

- a high success rating from participants regarding various components of the phase III program of work (rating: 1 = unsuccessful to 5 = highly successful):
 - the EOI process to select project leads (average rating 4.5)
 - the cross-collaboration of projects – project leads/chairs/co-chairs from various health services/agencies (average rating 4.2)
 - working groups established for each project from various health services/agencies (average rating 4.1)
 - Peter Mac project support/leadership (average rating 4.5)
- project leads felt a high level of support in their roles ($n = 5$).

Suggestions and feedback were gathered from participants regarding enablers and barriers to the program of work. These will be incorporated into the next program of work.

Common limitations encountered across projects included the complexities of working in an adaptive multi-organisation clinical environment with competing interests, limited project timeframes/resources and challenges in obtaining ethics approval. Outcomes, lessons, challenges and enablers for conducting similar collaborative projects are summarised here under themed headings.

Working collaboratively

Applying lessons learnt from previous program phases, the phase III program of work was established to ensure cross-site collaboration was a cornerstone to each project. Each project lead was appointed through an expression of interest process and selected by an independent panel, and project working groups were formed with broad representation from participating health services and targeted stakeholder engagement. This method of project establishment, in addition to the regular CoP meetings, was key to the success of the phase III program of work, enabling a greater level of information, idea sharing and linkages. The challenges were predominately logistical, with many project working group meetings relying on teleconferencing facilities.

Embedding resources/tools into clinical practice

The cancer malnutrition e-learning packages (project 1a) and malnutrition governance toolkit (project 1b) projects were both focused on evaluating the effectiveness of the resources developed in phase II projects and embedding their use into health service clinical practice. Resources such as these require dedicated time to ensure they are regularly updated, based on evidence, aligned with current best practice and effective. Both the e-learning packages and the toolkit are excellent examples of collaborative projects that have not only created the resources but provided an effective platform to enable improvements in clinical practice.

Malnutrition as a multidisciplinary issue

A key theme throughout the phase I, II and III projects is that cancer malnutrition is a multidisciplinary issue and can only be appropriately managed if the multidisciplinary team is actively engaged. Enlisting support from the broader multidisciplinary team is essential to: strengthen the success of local initiatives; embed effective malnutrition screening, assessment and treatment models into practice; and enable robust benchmarking to occur. The support of health service champions external to the nutrition department is essential to help raise awareness and facilitate education and uptake of project resources in relation to cancer malnutrition.

System approach to improvements

All projects applied a system approach to improvement to allow for greater applicability and transferability of findings. Specifically, the work focused on culturally diverse patients (project 3) and involved exploring the malnutrition screening needs of a vulnerable group, identifying that access to appropriate nutrition care is very limited. Completing the groundwork to facilitate the translation and cultural adaptation of the MST into other languages is an excellent example of a system-wide approach to an improvement that is likely to have a national, and potentially international, reach. A system approach was applied in the food service project (project 4) through investigating current national and international evidence and practice of food service models that underpin optimal nutrition care for people with cancer. The outcomes of this work will have broad transferability nationally and internationally, with applicability beyond cancer care.

Sustainability

Three of the five projects primarily focused on sustainability: PPS methodology (project 2), e-learning packages (project 1a) and the governance toolkit (project 1b). Each of these projects was successful in achieving its aim of producing sustainable resources to enable broad uptake and usability. All were guided by the best available evidence and methodology and used health services to pilot and refine how the resources might best be used in clinical practice. However, producing sustainable resources is difficult, and the phase III projects continue to face challenges in ensuring resources remain current and appropriately updated. In addition, the influence of the MVCS group and the phase III projects can have within individual health services regarding cancer malnutrition is somewhat limited in the absence of mandatory nutrition care indicators and/or inclusion within an appropriate quality framework.

Malnutrition across the care continuum

All work in the MVCS program to date has focused on acute care within health services. The nutrition practices, cancer malnutrition awareness and the education needs of health professionals in the Australian primary care sector are largely unknown. To effectively reduce the burden of malnutrition for patients in our community and deliver great nutrition care, future efforts must be directed across the entire care continuum including acute, primary, community and home care. Improved understanding of how the acute and primary sector intersect and interact in relation to cancer malnutrition would provide a great foundation to help to target appropriate education for clinicians, highlight the potential for shared care models and identify any work around malnutrition indicators that may help drive improvement within the health sector more broadly.

Recommendations and future actions

The phase III MVCS program of work has elicited a number of future directions. The following recommendations, with associated future actions, have been formed with the outcomes of each project completed within phase III in mind.

Key recommendations

1. **Cancer malnutrition is an issue throughout the care continuum and efforts need to be continued within health services in addition to being actioned beyond the hospital setting.**

All work to date within the MVCS program has focused on the acute setting. Greater understanding and targeted solutions regarding cancer malnutrition in primary care and community settings is likely to have a greater impact in reducing the prevalence of cancer malnutrition and its associated burden than focusing on acute care alone. It is important to embed high-quality nutrition care from diagnosis, through treatment, survivorship and end-of-life care for people with cancer regardless of the setting.

Actions:

- (i) Investigate cancer malnutrition at the state level that more broadly supports multidisciplinary nutrition care spanning acute, primary care and community settings.
- (ii) Understand and improve connections, partnerships and the coordination of care between acute, primary care and community settings in an effort to reduce the cancer malnutrition burden.
- (iii) Investigate the opportunity for enhanced nutrition screening and care in the primary care setting to enable early referrals for dietetic intervention and links to enable a smooth transition to appropriate nutrition care post-treatment.
- (iv) Investigate and support the education needs of primary care clinicians in relation to addressing cancer malnutrition.

2. **Promote the value of and support the inclusion of mandatory statewide cancer malnutrition and nutrition care indicators within an appropriate quality and risk framework for health services, primary care and community settings.**

Despite strong published evidence and the existence of evidence-based practice guidelines for cancer nutrition, clinical practice adherence remains relatively low. The impetus for health services and primary care settings to participate in benchmarking and prioritise improvements to clinical processes in cancer malnutrition is challenging without mandatory clinical governance processes (mandatory malnutrition care indicators, quality and risk indicators) included within health service quality frameworks.

Actions:

- (i) MVCS group to promote the value of and support the inclusion of nutrition-related indicators to enable cancer malnutrition to be on the statewide agenda within relevant quality and risk forms and policy (Safer Care Victoria and within the *Victorian cancer action plan*).

3. **The resources/tools developed within the MVCS program of work need ongoing focus and effort to enable sustainability and to increase applicability and reach.**

Resources/tools developed include the cancer malnutrition e-learning package, the malnutrition governance toolkit and the cancer malnutrition PPS methodology. All these tools have been effective for their intended purpose, so ensuring their validity and currency is important.

Actions:

- (i) Seek ongoing resource allocation and momentum to continue content updates of these resources/tools and support their ongoing integration into clinical practice.
- (ii) Expand the uptake of each resource/tool both within these participating Victorian health services and other Victorian health services, interstate and in the primary care setting.

4. Support system-wide approaches to reduce the cancer malnutrition burden for vulnerable and high-risk groups

Vulnerable and high-risk groups such as culturally diverse people and health service inpatients (where more than one in three are malnourished at any one time) require system-wide solutions and approaches to gain broader traction.

Actions:

- (i) Support the translation and cultural adaptation of malnutrition screening tools for culturally diverse people through grant applications to relevant agencies.
- (ii) Support ongoing work to determine the most effective food service model and systems to best support patients with cancer.

Actions underway

In addition to addressing the key recommendations stated in this report, the MVCS program of work will continue pursuing the following actions:

- We will continue to support the MVCS program of work with regular and active CoP meetings – these are highly regarded. This includes the full review and update of the cancer malnutrition e-learning program, which is led by the Peter MacCallum Cancer Centre nutrition department and planned for completion in 2018. We will also support opportunities to fund the spread of previous activity within the MVCS program of work.
- Work with existing and/or developing programs such as survivorship initiatives, work in other Australian jurisdictions on nutrition initiatives and with the COSA Nutrition Group to ensure ongoing our work complements but does not duplicate.
- The department has funded a proposal to address the next steps in the MVCS program of work:
 - Project title: *Cancer malnutrition: feeding everyone from hospital to home*
 - The proposal seeks to partner with the primary care/community health sector to: (1) understand needs in these settings in relation to cancer malnutrition; (2) share learnings and resources from the MVCS program to improve nutrition care for patients between hospital and home; and (3) promote the value of cancer malnutrition as a mandatory quality and risk indicator across all health sectors in Victoria.
 - To be conducted from September 2017 to June 2018.
 - Led by Peter MacCallum Cancer Centre nutrition department in collaboration with the MVCS group.

Appendix 1: Phase III Malnutrition in Victorian Cancer Services Governance Group

Health service or agency	Name
Alfred Health	Ibolya Nyulasi Susannah King Jane Stewart
Austin Health	Leonie Pearce Kate Kaegi
Ballarat Health Services	Meredith Atkinson Rebecca Nunes
Bendigo Health	Virginia Fox Lauren Ballantyne
Cabrini Health	Libby Kent Jeanne Fourie
Cancer Council Victoria	Anna Boltong Amber Kelaart
Deakin University	Nicole Kiss
Department of Health and Human Services	Marita Reed
Eastern Health	Erin Brennan Emma Venn Mina Berlandier
Goulburn Valley Health	Wendy Swan
Integrated Cancer Services	Heather Davis
Latrobe Regional Hospital	Lee Bell Jessica Chan
La Trobe University	Vicki Barrington
Melbourne Health	Kathryn Marshall 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 Belinda Steer Lauren Atkins

Health service or agency	Name
St Vincent's Health	Natalie Simmance Rebecca McIntosh Libby Doyle
The Royal Children's Hospital	Heather Gilbertson
University Hospital Geelong	Roy Hoevenaars Carolyn Hall
Western Health	Kathryn Pierce Holly Bevans

Appendix 2: Summary of phase I projects

Project	Key findings	Recommendations
<ul style="list-style-type: none"> • Cancer malnutrition point prevalence study 2012 • Organisational survey of nutrition managers • Multidisciplinary clinician survey • Victorian Admitted Episode Dataset (VAED) analysis • Development of a consumer resource on cancer malnutrition 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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, a 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 primary care settings to enable early referrals for dietetic intervention

Appendix 3: Summary of phase II projects

Project	Key findings	Recommendations
<ul style="list-style-type: none"> • Repeat cancer malnutrition point prevalence study 2014 • Development of the cancer malnutrition e-learning packages • Development of the malnutrition governance toolkit • 17 local health service project initiatives themed to: <ol style="list-style-type: none"> 1. malnutrition practices in chemotherapy day units 2. malnutrition practices in radiotherapy areas 3. specific tumour streams projects (focus areas were haematology, lower and upper gastrointestinal cancer) 	<ul style="list-style-type: none"> • A reduction in 30-day mortality for malnourished patients (of the patients deceased at 30 days, in 2012, 81 per cent were malnourished; in 2014, 68 per cent were malnourished) • A reduction in unplanned admissions for malnourished patients (of the patients requiring an unplanned admission within 30 days of the prevalence study, in 2012, 49 per cent were malnourished; in 2014, 40 per cent were malnourished) • Collaboration across health services has provided more evidence in support of a national nutrition standard • Increased identification of malnutrition risk throughout the patient journey, enabling increased access to a dietitian and to appropriate nutrition care • Better 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 • Improved engagement and awareness of the prevalence of cancer malnutrition in many health services, leading to a raised focus on improving nutrition services • 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 • Excellent reach, exposure and dissemination of phase II project 	<ul style="list-style-type: none"> • Broadly promote phase II statewide projects to enhance uptake, access and use of the malnutrition e-learning packages and malnutrition governance toolkit resources • Evaluate statewide projects to ensure ongoing relevance and currency of content • Continue to conduct ongoing cancer malnutrition 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 • Generate evidence to support a national nutrition standard within the accreditation and/or quality/risk program • Support further collaborative statewide work that will enhance the patient experience and best support people with cancer, for example: <ul style="list-style-type: none"> – develop innovative and translatable nutrition care workforce models – investigate malnutrition screening for disadvantaged patient groups including culturally diverse populations – establish the most appropriate food service systems and models of care for cancer settings and services • Health services should continue to focus on local improvements that support effective and efficient models of care and evidence-based nutrition pathways to be implemented into practice using the above resources • Enhance links between acute cancer health service providers and primary care including community health, general practitioners and practice nurses

Project	Key findings	Recommendations
	<p>outcomes including 20 oral and 12 poster presentations at local, national and international conferences</p>	<ul style="list-style-type: none"> • Establish a cancer malnutrition community of practice to enable ongoing information sharing and a collaborative approach to addressing the issue of cancer malnutrition

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