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Investigating Practices Relating to Malnutrition in Victorian Cancer Services

Summary report 2012

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Key findings

This project Investigating Practices Relating to Malnutrition in Victorian Cancer Services was initiated to address the policy concern of malnutrition in cancer patients and the inconsistent implementation of clinical guidelines which aim to identify malnourished and at risk cancer patients with a view to nutritional intervention to modify risk and improve overall patient outcomes. The key findings of this project have confirmed this policy concern and malnutrition in cancer patients as a priority area for improvement.

Investigating Practices Relating to Malnutrition in Victorian Cancer Services was undertaken in 2012 and included a malnutrition prevalence study. Dietitians at the 15 participating sites consented, screened and assessed malnutrition prevalence in their cancer patients (n = 1,693) over the common data collection period. This cross-sectional data was then pooled for analysis. The second part of the project involved organisational and multidisciplinary clinician surveys to assess existing systems and practices that support nutritional care for cancer patients within the participating health services. This self-reported information was then correlated to the findings of the prevalence study to identify barriers and enablers to good practice and outcomes.

Cancer malnutrition prevalence

- In 2012 the first and largest Australian study of malnutrition prevalence in adult cancer patients was conducted in Victoria. Dietitians undertook data collection using validated tools to screen and assess malnutrition.
- Malnutrition occurs in patients with all cancer types. Those cancer streams where malnutrition is more likely are upper gastrointestinal (62 per cent), head and neck (40 per cent), lung (37 per cent), haematological (34 per cent) and colorectal (33 per cent). Malnutrition was also more frequent in those with more advanced disease.

Malnutrition was twice as likely for those patients who were inpatients with over half (57 per cent) affected compared with one-quarter (25 per cent) of ambulatory care patients. Malnutrition occurred in patients receiving all treatment modalities, and was found to be higher in those having chemotherapy (32 per cent) and concurrent chemo-radiotherapy (39 per cent) compared with patients receiving active radiotherapy alone (nine per cent).

Malnutrition was more common in those aged 65 years and older (35 per cent) and those living alone (35 per cent). However, the location of the person's usual residence (metropolitan versus regional/rural) did not change the likelihood of being malnourished. Malnutrition was present in all body mass index categories. Although malnutrition is more frequently seen in those who are underweight, one person in every five (20 per cent) with cancer who is overweight is malnourished.
- There was significant variation in the prevalence of malnutrition between participating sites. This variation appears to be related to the type of cancer services provided; sites with radiotherapy services reported a lower prevalence. There was no difference in the prevalence of malnutrition due to the hospital location (metropolitan versus regional).
- Almost half (45 per cent) of the cancer patients with malnutrition were not receiving nutrition care from a dietitian. Dietetic intervention was highest for inpatients (71 per cent). The lowest intervention rates were in those patients receiving ambulatory chemotherapy (48 per cent).
- Cancer groups at high risk for malnutrition, for example head and neck tumours, are well recognised, with 86 per cent of all malnourished patients receiving nutrition care from a dietitian. The largest deficit in dietetic intervention to malnourished patients was to those patients in tumour streams with lower malnutrition prevalence, including breast (with only 18 per cent of malnourished patients being seen). This is indicative of the poor recognition of malnutrition in these groups. Where this poor recognition of risk occurs in high-volume cancer streams, the impact of even low rates of malnutrition is significant in terms of overall numbers of patients affected.

- A wide variation in the proportion of malnourished patients receiving dietetic intervention was seen between participating sites, ranging from 26 per cent to 85 per cent. In sites where routine screening practices were in place to identify patients at risk of malnutrition, a higher proportion of malnourished patients received care from a dietitian.

Impact of malnutrition on patients and service performance

- Patients with malnutrition had poorer outcomes (at day 30). Malnourished patients stayed in hospital five days longer than those patients who were well nourished. The 30-day mortality rate was almost 10 times higher in the malnourished patients. One in four patients with malnutrition required admission (or readmission) and malnourished patients were more likely to require an unplanned admission.

Organisational practices

- Multidisciplinary clinician awareness regarding malnutrition in cancer patients is high. Clinicians routinely self-report asking patients about weight loss, eating and functional performance to identify declining nutritional status, and demonstrate a good understanding of the issues related to patients achieving nutritional adequacy. They view malnutrition screening as important, especially at diagnosis and admission to hospital.
- Malnutrition risk screening practices are in place in two-thirds of inpatient wards, 60 per cent of chemotherapy day units and all radiotherapy units. Screening is predominately conducted by nursing staff. Sites acknowledge that compliance is a significant barrier to effective screening; however, regular auditing to assess this is not commonly undertaken and there is limited education/training to reinforce practices.
- Health services with strong nutrition governance practices (including policy, a multidisciplinary nutrition committee and regular auditing) had more malnourished patients receiving dietetic care. Most health services reported having a policy for malnutrition screening and a multidisciplinary nutrition committee; however, very few sites had a robust program of key performance indicators relating to malnutrition. Senior management awareness and support for initiatives to improve the care of patients at risk of malnutrition had increased with the anticipated introduction of the accreditation standard for nutrition. Clinicians in all health services had a low awareness of nutrition governance systems.
- Analysis of the Victorian Admitted Episode Dataset (VAED, 2010–11) indicated only seven per cent of adult inpatients with cancer were coded for malnutrition. This is a significantly lower rate than the 57 per cent of inpatients with malnutrition identified in the point prevalence survey. Opportunities exist for improvements in the screening, assessment/diagnosis and documentation of malnutrition in patients' central medical records to ensure accurate coding. This will enable the impact of malnutrition to be monitored and enable health services to be reimbursed for care associated with malnutrition.
- The current allocation of dietetic resources to cancer services varies significantly between health services and clinical areas (inpatient, chemotherapy day unit, radiotherapy). Nutrition managers believe the current dietetic resourcing to cancer patients is inadequate and the demand for nutrition is increased by both the number of clients and the complexity of care needs. Dietetic resourcing may contribute to the variation in the number of malnourished patients receiving dietetic care. Clinicians see a need for increased nutrition services, in particular for chemotherapy patients, palliative care and oncology outpatients.
- Multidisciplinary clinicians are willing to participate in further education and training on malnutrition strategies and in-services to increase awareness, preferably via local or online training. These education needs correlate well with those needs identified by nutrition managers. In addition clinicians were keen to access relevant evidence-based guidelines.

Summary report

The project Investigating Practices Relating to Malnutrition in Victorian Cancer Services has for the first time determined the prevalence of malnutrition among the adult cancer population in Victoria. It has provided the opportunity to gain an understanding of organisational and clinician practices relating to malnutrition in cancer services, as well as increasing the availability of standardised malnutrition information for cancer consumers and professional resources.

This project was initiated to address the policy concern of malnutrition in cancer patients and the inconsistent implementation of clinical guidelines which aim to identify malnourished and at risk cancer patients with a view to nutritional intervention to modify risk and improve overall patient outcomes. The project aims to inform cancer reform policymakers, health service executives, Integrated Cancer Services (ICS), multidisciplinary cancer clinicians, dietitians and consumers to better understand the prevalence of cancer malnutrition across Victoria and identify areas for local improvement.

The following summary report outlines the project background, methodology, key findings and recommendations. Refer to the full technical report for detailed results (data and its analyses), the prevalence study toolkit, documentation standards, and the consumer information resource.

1. Background and rationale

Supportive care in cancer covers five interrelated domains of care of physical, psychological, social, information and spiritual needs. Malnutrition is identified as a significant supportive care need. *Victoria's cancer action plan 2008–2011 (VCAP)*¹ recognises that early identification of supportive care needs through screening and intervention can lead to considerable benefits for patients and their carers. Strategies to address the need for better supportive care for people with cancer are outlined in *Providing optimal cancer care, supportive care policy for Victoria*.²

The Victorian Department of Health, Cancer Strategy and Development section provided funding for this project. Fifteen health services representing all eight adult ICS collaborated. The department identified these sites based on cancer service activity levels and invited them to apply to participate.

What we know about cancer-related malnutrition

Malnutrition occurs when an individual is eating less energy, protein and other nutrients than the body requires, which leads to unplanned weight loss and a reduction in muscle mass and body fat stores (refer to Appendix 2). Even a small amount of unintentional weight loss when accompanied by reduced food intake is a marker of the risk of malnutrition.

Cancer-related malnutrition has been identified as a significant supportive care need in the cancer population, often poorly recognised and therefore untreated. Nutrition and the management of malnutrition are increasingly recognised as an important marker of standard of care, especially with the introduction of accreditation standards for nutrition under EQulP5.³

According to the published literature, the proportion of cancer patients with malnutrition is between 30 and 70 per cent.^{4–7} Oncology patients are 1.7 times more likely to be malnourished than other clinical groups.⁶ The malnutrition prevalence in ambulatory patients receiving chemotherapy is 26–46 per cent^{8,9} and up to 40 per cent in high-risk groups undergoing radiotherapy.¹⁰

Many factors can increase the risk of malnutrition in people with cancer including:

- the cancer itself and the part of the body involved, especially if the cancer involves the head and neck area or gastrointestinal tract (including stomach and bowel cancers)
- side effects of the cancer or its treatment, which can increase nutrition needs, cause difficulty swallowing and digesting food, and cause nausea, vomiting, loss of appetite, taste changes and mucositis (mouth ulcers)
- stress and anxiety of a cancer diagnosis, which can affect appetite and food intake.

Malnutrition has serious implications for health and recovery from illness, surgery and cancer treatments and is an independent predictor of outcome.¹² Malnutrition can increase length of hospital stay, readmission rates, hospital costs and mortality.⁷ Timely and regular nutrition risk screening and nutritional assessment are required to ensure early nutrition interventions and best patient outcomes.¹³

Malnutrition and weight loss can usually be prevented. They should not be considered an expected side effect from cancer or treatments, especially in less advanced disease. National evidence-based clinical guidelines have been published to guide dietitians in the nutritional management of patients with cancer.^{14–17}

A recent meta-analysis demonstrates that nutritional intervention with dietary advice and/or oral nutritional supplements during treatment for cancer patients who are malnourished or at nutritional risk results in improvements in weight and energy intake and some aspects of quality of life.¹¹

2. Cancer malnutrition point prevalence

In 2012 a cross-sectional prevalence study was conducted to assess the proportion of adults with cancer who have malnutrition and to identify areas for improvement in managing and treating malnutrition in Victorian cancer services. Fifteen health services providing more than 75 per cent of Victoria's cancer treatment participated in data collection for the study.

Methods

Patients invited to participate in the study included those who were admitted as acute care inpatients for cancer treatment or related care, and those attending for ambulatory intravenous chemotherapy or radiotherapy. Patients were excluded if they were receiving terminal care, if participation was likely to be too burdensome, if they were admitted to subacute, rehabilitation or hospice care or if they were unwilling or unable to consent.

Ethics approval was granted by each participating health service as either a low-negligible risk (LNR) or quality improvement activity. All patients provided verbal consent to allow data collection.

All data was collected in the same two-week period (19–30 March 2012) across all project sites. Dietitians employed in the health service conducted the nutrition screening, assessment and data collection. All patient information was de-identified and entered by sites into a central database via an online survey tool (SurveyMonkey). The Department of Health is the data custodians of this dataset.

Malnutrition risk and status was determined using a validated and reliable malnutrition risk screening tool (Malnutrition Screening Tool, MST)¹⁸ and nutrition assessment tool (Patient Generated-Subjective Global Assessment, PG-SGA).^{19, 20} The MST was used to identify patients at risk of malnutrition. Any participant at risk of malnutrition then required a nutrition assessment (using the PG-SGA) to be completed.

Additional information on cancer diagnosis, current treatments and nutrition care was collected from the patients' medical histories. Most patient interviews were completed in less than 10 minutes. Records were reviewed 30 days after the initial study day to collect further information on clinical outcomes.

Results

A total of 1,693 of a possible 2,113 (80 per cent) adult cancer patients consented to participate in the study and were screened for malnutrition risk; 336 were inpatients, 807 chemotherapy day patients and 558 radiotherapy patients.

The overall prevalence of malnutrition in Victorian cancer services was determined to be 31 per cent (n = 612). Of the 1,693 patients participating, 1,081 (69 per cent) were well nourished or not at risk of malnutrition.

Participant characteristics

Of the 1,693 participants in the study 51 per cent were male. The average age of participants was 63 years and half the group were aged 65 years and over. The majority (60 per cent) were Melbourne residents, 39 per cent resided in regional Victoria and one per cent were from interstate. Twenty per cent of participants lived alone, one per cent were in residential care and the remainder lived with family/carers.

The majority of participants were being treated in the ambulatory setting (80 per cent) compared with 20 per cent receiving care as an inpatient. There was a spread of cancer diagnosis across most tumour streams and 35 per cent of all participants had metastatic disease. Seventy-five per cent of participants were receiving treatment of curative intent.

Table 1 provides a summary of the study findings and implications.

Table 1: Summary of malnutrition point prevalence findings 2012

Variable	Findings	Implications/interpretation
Cancer type	<p>Malnutrition is more likely in cancer patients with the following tumour streams: upper gastrointestinal (62 per cent), head and neck (40 per cent), lung (37 per cent), haematological (34 per cent) and colorectal (33 per cent).</p> <p>Breast cancer patients had a low rate of malnutrition (14 per cent).</p>	<p>Overall malnutrition prevalence is 31 per cent but ranges from seven per cent to 65 per cent depending on the type of cancer.</p> <p>There are some obvious tumour streams with higher rates of malnutrition. Other high-volume groups with low rates of malnutrition (such as breast cancer) result in a similar number of malnourished patients – these are high-risk groups and should not be neglected.</p>
Treatment type	<p>More than half (57 per cent) of inpatients were malnourished compared with one-quarter (25 per cent) of ambulatory patients.</p> <p>Malnutrition status varied by treatment type; radiotherapy (nine per cent), chemotherapy (32 per cent) and concurrent chemo-radiotherapy (39 per cent).</p> <p>Malnutrition was significantly higher in patients receiving palliative treatments (75 per cent) compared with those receiving active/curative treatments (46 per cent).</p>	<p>Malnutrition is more common in inpatients and ambulatory patients receiving chemotherapy (including where combined with radiotherapy).</p> <p>Patients with advanced disease receiving treatment of palliative intent have higher rates of malnutrition.</p>
Gender	<p>Malnutrition rates among men is higher than among women (34 per cent versus 27 per cent, $p < 0.001$).</p>	<p>This finding is significant, but it may be due to the high number of women with breast cancer ($n = 330$) included in the study, where rates of malnutrition are low in this particular group.</p>
Age	<p>Malnutrition was more common in those aged 65 years and older compared with those under this age (35 per cent versus 27 per cent, $p < 0.0001$).</p>	<p>Older cancer patients are more at risk of malnutrition.</p>
Social situation	<p>Malnutrition is higher in patients living in residential care (50 per cent) versus living alone (35 per cent) versus living with family or a carer (30 per cent).</p>	<p>Additional attention should be given to patients known to live alone and those living in residential care.</p>

Variable	Findings	Implications/interpretation
Body mass index (BMI)	<p>The mean BMI was 27 kg/m² (range 12–54).</p> <p>By BMI category the proportion of patients who were malnourished was:</p> <ul style="list-style-type: none"> • 74 per cent of underweight patients • 40 per cent of patients in the healthy weight range • 20 per cent of overweight/obese patients. 	<p>Although malnutrition is more frequently seen in those who are underweight, malnutrition was present in all BMI categories with one in every five overweight people with cancer being malnourished.</p>
Location	<p>The prevalence of malnutrition in individual health service sites ranged between 21 and 49 per cent.</p> <p>Malnutrition prevalence is 31 per cent for both metropolitan and regional health services.</p>	<p>There was variation in malnutrition across health services; this was not related to the hospital location (metropolitan versus regional) or the location of the person's usual residence.</p> <p>Variation did appear to reflect differences in the cancer treatment services available and was lower at sites with radiotherapy care.</p>
Dietetic intervention	<p>A total of 541 patients (32 per cent of the total study population) were receiving nutrition care from a dietitian during the study period. Inpatients with malnutrition were more likely to be receiving dietetic intervention than those in the ambulatory setting (71 per cent versus 48 per cent, $p < 0.0001$).</p> <p>Almost half (45 per cent) of the patients assessed as malnourished were not receiving nutrition care from a dietitian.</p> <p>Only three per cent of ambulatory patients required enteral nutrition support compared with 10 per cent of inpatients.</p>	<p>There is a wide variation in the proportion of patients receiving dietetic interventions between participating sites (26–85 per cent). This variation was also noted between inpatient and ambulatory care settings.</p> <p>Timely malnutrition screening, appropriate referral pathways and adequate dietetic resourcing would provide benefits to patients across all areas, in particular in the ambulatory setting.</p> <p>Few patients require tube feeding, therefore the quality and nutritional content of food in hospitals is an important factor to ensure adequate nutrition and to reduce the risk of nutritional decline during hospital admission.</p>

What this means for cancer patients and those providing care

This study demonstrates that malnutrition is associated with poorer patient outcomes and increased healthcare costs as a result of increased complications, longer lengths of stay (LOS) and more hospital admissions.

*'The cost of oral nutritional supplements, tube feeds and parenteral nutrition (est. £273 million) is less than 2.5 per cent of the cost of disease related malnutrition.'*²¹

Complications

Data were collected regarding three common complications of treatment for inpatients. These were:

- antibiotic use for a current infection (excluded prophylactic antibiotic use)
- neutropaenia
- a pressure ulcer/injury.

A significantly higher proportion of malnourished patients were seen in the group receiving antibiotics (69 per cent versus 50 per cent, $p = 0.0018$). A clinically but not statistically significant difference was seen when comparing the presence of pressure ulcers in malnourished and well-nourished patients (83 per cent versus 55 per cent, $p = 0.075$), and there was no difference in malnutrition prevalence for those with or without neutropaenia.

Outcomes

Outcomes for all patients were reported 30 days following the initial study day including:

- LOS
- mortality
- readmission rates.

‘...a 5 day reduction in LOS from 15 to 10 days, as a result of minimising malnutrition provides an annual saving of £266 million.’²²

LOS data was available for 321 inpatients (96 per cent). LOS was measured from the date of admission to the date of discharge (if within 30 days from the study period or the date of data collection for those remaining as inpatients). Malnourished patients stayed in hospital on average five days longer than those patients who were well nourished ($p < 0.001$).

Thirty-six patients (two per cent of the total study population) were deceased at 30 days. Of the patients who had died, 29 (81 per cent) were malnourished. The 30-day mortality rate was almost 10 times higher in the malnourished patients (six per cent versus 0.6 per cent, $p < 0.0001$). Patients were also more likely to have metastatic disease ($n = 29$) and to have been inpatients ($n = 28$).

Admission (for ambulatory patients) or readmission to hospital was recorded if patients required admission to an inpatient bed within 30 days after data collection. A total of 260 patients (16 per cent) required admission or readmission to hospital within 30 days (excluding day-only attendances for chemotherapy or other day-only procedures). Half of these patients admitted to hospital were malnourished and one in four patients with malnutrition required admission or readmission. The proportion of malnourished patients requiring an unplanned admission was higher compared with those with a planned admission (65 per cent versus 57 per cent, $p < 0.0001$).

3. Understanding practices relating to cancer malnutrition

3.1 Organisational survey

Background

The prevention and management of malnutrition is increasingly being recognised as an important marker of the standard of care in hospitals. In 2011 the Australian Council of Healthcare Standards (ACHS) introduced a nutrition standard within EQuIP5.³ The recently established National Safety and Quality in Health Service (NSQHS) standards²³ do not include a focus on nutrition; however, the development of an additional standard for nutrition is underway in Victoria.

Health services successful in achieving the ACHS EQuIP5 nutrition standard were able to demonstrate a well-established, multidisciplinary approach to nutrition care and included consumer participation.²⁴ Evidence demonstrating that the nutrition standard has been achieved includes hospital-wide policies, a multidisciplinary nutrition committee and a robust program of key performance indicators to monitor practice.

Little is known of individual health services' organisational practices relating to identifying, preventing and treating malnutrition. This project provided the opportunity to gain an understanding of such practices in the 15 participating health services and relate this to the care and outcomes of cancer patients.

Methods

A 33-question organisational survey was developed to identify and understand practices relating to malnutrition within the participating Victorian cancer services. The key points captured were current dietetic activity and dietitian staffing to oncology services, malnutrition screening and nutrition assessment practices, hospital clinical governance arrangements for malnutrition management and identifying perceived unmet educational and training needs relating to cancer malnutrition.

Nutrition managers from the 15 participating health services completed the online survey using SurveyMonkey. See the full technical report for more details.

Results

There is no recognised gold standard for dietetic resourcing to oncology services. Ten sites were able to provide timely or accurate information regarding site and dietitian activity to cancer patients. The current allocation of dietetic resources to cancer services varies significantly between health services and clinical areas (inpatients, chemotherapy and radiotherapy). All nutrition managers believe the current dietetic resourcing is inadequate. Some areas are better resourced due to dedicated funding, but other areas receive no or limited service. The demand for dietitian support is increasing due to both the number of clients and the complexity of care needs.

The survey results indicated a wide variation in screening practices between sites and clinical areas. Some nutrition services have well-embedded practices using validated tools while others had no routine screening. The presence of nutrition-risk screening practices in clinical areas resulted in higher numbers of malnourished patients receiving dietetic intervention (60 per cent versus 47 per cent, $p = 0.016$).

Enablers to malnutrition risk screening were reported as increased staff awareness, executive support and a clear model of care to support screening and referral practice. However, screening compliance is reported as a major barrier, and is poorly monitored across sites.

The majority (75 per cent) of nutrition managers believe they have some level of support for initiatives to improve the care of patients at risk of malnutrition from senior management in their organisation. They acknowledge, however, the budget constraints that limit the funding of staffing or program enhancements. Management awareness and support has increased with the introduction of the EQUiP5 nutrition standard.

The majority (12 out of 15) of health services had developed (or were developing) a policy for malnutrition screening and nine of these sites also had a multidisciplinary nutrition committee. Very few sites had a robust program of key performance indicators relating to malnutrition. Health services with strong nutrition governance practices (policy, multidisciplinary nutrition committee and regular auditing) had improved dietetic services for managing malnourished patients.

*'National Institute for Health & Clinical Excellence has identified better nutritional care as the fourth **largest potential source of cost saving** to the National Health Service and that nutrition and hydration are identified as one of the ... eight **high impact clinical areas** yielding "huge cost savings" if performance is improved.'*²⁵

3.2 Multidisciplinary clinicians survey

Background

There have been a small number of studies that have investigated the attitudes, knowledge and practices of clinicians in relation to malnutrition in the acute hospital setting.

These studies have found health professionals' knowledge of malnutrition risk factors such as recent loss of weight and loss of appetite was poor for the elderly and general medical patients.²⁶⁻²⁸ These studies have found clinicians lack knowledge and interest in nutrition. No studies have been conducted in clinicians working in cancer services.

Methods

A 26-question survey was developed to identify and understand the attitudes, knowledge and practices of multidisciplinary cancer clinicians relating to malnutrition. The key points captured were clinicians' attitude and practices of malnutrition screening and nutrition assessment, perceptions of adequacy of current dietetic services, knowledge and awareness of hospital governance relating to malnutrition and training needs.

Hospital-based oncology clinicians (excluding dietitians) were invited to complete the survey via an email with a link to the online survey (SurveyMonkey). Clinicians were recruited from the membership of the Cancer Council's Victorian Cooperative Oncology Group (VCOG) Network and the ICS. In addition, site project dietitians approached clinicians via their cancer services manager.

Results

Responses were received from 124 clinicians including medical (23 per cent), nursing (47 per cent) and allied health professionals (30 per cent). The majority of responses (87 per cent) came from clinicians working in hospitals where some malnutrition screening was taking place. This may reflect the overall engagement and interest in malnutrition from these health services compared with those without screening practices.

The survey results indicated that clinician awareness regarding malnutrition in cancer patients is high and they have a good understanding of issues impacting on patients achieving nutritional adequacy. They view malnutrition screening as important, especially at diagnosis and admission to hospital. Clinicians routinely ask patients about weight loss, eating and functional performance to identify declining nutritional status. Despite these results, nutrition is not routinely incorporated into ward practices as evidenced by the lack of:

- discussion of nutrition in ward rounds/team meetings (48 per cent)
- nutrition consideration at discharge planning (40 per cent)
- the inclusion of nutrition in medical discharge summaries (11 per cent).

Clinicians report that they believe dietitians have the primary responsibility for nutrition assessment (95 per cent), development of the nutrition management plan (98 per cent), monitoring the patient's nutritional status (84 per cent) and communication with general practitioners (GPs) (81 per cent). Nursing roles were identified as being responsible for nutrition screening (62 per cent) and monitoring nutritional status (52 per cent), and medical staff for nutrition screening (30 per cent) and communication with GPs (45 per cent).

Clinicians have a greater confidence in the timeliness of dietetic referrals than nutrition managers. However, they report a need for increased services for chemotherapy patients, palliative care and oncology outpatients.

Clinicians across all health services have a low awareness of nutrition governance strategies. Clinicians were more likely to be aware of nutrition clinical guidelines (parenteral nutrition, enteral nutrition, refeeding syndrome) rather than those relating to malnutrition assessment and management.

Clinicians are willing to participate in further education and training on malnutrition strategies and in-services to increase awareness, preferably via local or online training. These education needs correlate well with those identified by nutrition managers. In addition clinicians were keen to access relevant evidence-based guidelines.

4. Victorian Admitted Episode Data (VAED) analysis

Background

The VAED comprises demographic, clinical and administrative details for every patient-admitted episode of care occurring in Victorian hospitals, rehabilitation centres, extended care facilities and day procedure centres.²⁹

Since 2008 the National Centre for Classification in Health and the Coding Standards Advisory Committee recognises documentation of malnutrition by a dietitian in the patient's admitted medical record as adequate evidence for coding purposes.¹³ The VAED is the primary source of data used to administer the casemix/activity-based funding for public hospitals in Victoria. Coding of malnutrition and dietetic intervention can impact on the casemix weighting of an inpatient episode of care reflecting higher complexity. An opportunity to enhance the accuracy of coding of complexity and subsequent reimbursement for health services relates to the accurate recording of malnutrition status (and associated nutritional intervention/s).

The accuracy of malnutrition coding is affected by a number of key actions including correctly identifying patients at risk of malnutrition through screening, a nutrition assessment to provide a diagnosis and treatment plan, accurately documenting this in the patient medical history by a dietitian or medical officer, and for clinical coders to identify and correctly assign the relevant codes relating to malnutrition.

This study has provided the opportunity to understand the current rates of coded malnutrition in the VAED and has allowed comparison of these with the inpatient malnutrition point prevalence study (an accurate clinical picture of malnutrition prevalence in cancer patients).

Methods

Analysis of the 2010–11 VAED was undertaken to determine the rate of malnutrition coded in the multi-day stay, adult cancer patient population. A total of 44,170 patients were identified as meeting the criteria for inclusion.

Results

The results indicated that only seven per cent of adult inpatients with cancer were coded for malnutrition. This is a significantly lower rate than the 57 per cent of inpatients with malnutrition identified in the point prevalence survey. Coding of malnutrition varied between tumour streams, which ranged between 0.75 and 15 per cent. Rates were highest (above five per cent) in those tumour streams recognised as having a high nutrition risk (head and neck, upper gastrointestinal, haematology, lung), however, these remain very low compared with the results of the malnutrition prevalence study.

For the participating hospitals, coded malnutrition ranged between 2.8 and 21.8 per cent for multi-day adult patients. Of note, nutrition managers in the organisational survey reported confidence with malnutrition coding practices in their health service (with only 20 per cent disagreeing). This contrasts to the very low prevalence of coded malnutrition reported within the VAED analysis. Most nutrition managers indicated work is being undertaken to strengthen relationships with health information services, improve documentation and coding rates and potential casemix reimbursement to assist with the additional healthcare costs of managing malnourished patients.

Due to this low result in coded malnutrition, a focus group discussion was conducted with the Victorian ICD-10 Clinical Coding (VICC) group. At this meeting the results of the 2010–11 VAED analysis were presented and enablers and barriers to accurately coding malnutrition identified. This information has been used to develop practice tips for effective coding of malnutrition that can be used by both nutrition and health information services (see Appendix 2). See the toolkit and full technical report for further details.

5. Development of a new consumer resource

Background

Centralised information for consumers about nutrition and cancer in Victoria is available through Cancer Council Victoria (CCV) and the Department of Health's Better Health Channel. Currently there is no specific information on malnutrition and the risk of becoming malnourished readily available to people throughout their cancer journey.

Methods

Nutrition departments from the participating health services provided education material relating to malnutrition. A small working group was established to develop a single education resource addressing malnutrition in cancer. The draft of this material was circulated to the wider project committee for comment and consumer feedback was received from consumer members of the Western and Central Melbourne Integrated Cancer Service.

Results

The Malnutrition in cancer resource was developed. CCV will distribute the final version of this resource to increase the availability of cancer malnutrition information to people with cancer and their carers. The resource will also be made available on the Australian Government's Cancer Learning website at www.cancerlearning.gov.au and the Better Health Channel at www.betterhealth.vic.gov.au.

Recommendations and future actions

Investigating Practices Relating to Malnutrition in Victorian Cancer Services has captured a significant amount of data and information to allow a better understanding of the prevalence of cancer malnutrition and current practices related to malnutrition care.

The following recommendations and related discussion are proposed to drive improvement within Victorian health services and to enable the best supportive care for cancer patients through appropriate and timely nutrition assessment and nutrition care practices.

Note: Lessons learnt and recommendations may have application and benefits to patients in clinical groups broader than the oncology population, especially those recommendations relating to screening practices, diagnosing malnutrition and nutrition governance.

- 1. Health services should ensure all patients with cancer are receiving timely malnutrition risk screening using a valid tool. Malnutrition risk screening of all cancer patients in all treatment settings should ensure early identification of malnutrition and efficient use of dietetic services. Appropriate assessment (using validated tools) and nutrition care should be provided to those at risk. Oncology patients, due to their high risk of malnutrition, should be made a high priority for dietetic resource allocation within health services.**

The study demonstrated malnutrition was present in patients of all tumour streams and undergoing all treatment types; however, it remains poorly recognised. Malnutrition screening is an important component of broader supportive care screening, and an important initiative of the Victorian ICS. Health services and nutrition services should work with their local ICS to ensure validated and reliable malnutrition screening is included in their supportive care screening tool and education programs.

It is recommended that health services implement local systems and processes to ensure all cancer patients are receiving timely screening, especially those patients in the inpatient and chemotherapy setting and those with high-risk tumour types. Simple practice changes such as routine weight monitoring can allow for more timely identification of patients at risk. Those patients assessed as at risk of malnutrition should receive appropriate nutrition care and have a nutrition care plan. The model should be in line with national evidence-based practice guidelines.¹⁴⁻¹⁷ Embedding screening practices into routine care results in a significantly higher proportion of malnourished patients receiving care from a dietitian.

Malnutrition is associated with poorer patient outcomes and increased healthcare costs as a result of increased complications, longer LOS and hospital admissions. Early risk identification and timely intervention to address malnutrition ensures these poorer outcomes and costs are limited.

Although clinicians identify dietitians as being primarily responsible for the nutrition care and management of patients, nutrition care should be the concern of all members of a multidisciplinary team. Leadership from executive medical and nursing staff is required to support and enable evidence-based nutrition care to be implemented.

Only a small proportion of patients require specialised nutrition support via tube feeding, therefore the food service system is an essential component of nutrition care for both preventing and managing malnutrition. An opportunity also exists to review food service provision within health services and should ensure the supply of nutritious meals that is flexible and responsive to meet the needs of cancer patients, especially those with malnutrition.

The variation in dietetic resources between cancer services and patient groups as reported by nutrition managers is of concern. Health services are encouraged to review dietetic resourcing to address identified gaps in current service delivery, and local business cases should be considered for increasing dietetic resources where appropriate.

An opportunity exists to establish dietetic equivalent full-time (EFT) standards to provide a much needed benchmark for optimal nutrition care in cancer services. Peak professional groups including the Dietitians Association of Australia (DAA) Oncology Interest Group, Clinical Oncological Society of Australia (COSA) Nutrition Group or Australasian Society of Parenteral and Enteral Nutrition (AuSPEN) could play a role in defining and testing an appropriate national dietitian resource allocation for oncology patients.

2. Health services should have nutrition governance practices including executive sponsorship, a multidisciplinary nutrition committee, nutrition policy, quality activities and performance monitoring practices in place. Although a national quality standard for nutrition would ensure these practices are implemented, it is recommended that health services establish and monitor malnutrition prevalence as a quality indicator, in advance of such a standard.

Health services should implement nutrition governance practices to ensure all cancer patients at risk and assessed as malnourished are receiving appropriate nutrition care, and that local performance and outcomes are being monitored and reported to the health service senior executive and board on a regular basis.

A malnutrition point prevalence study provides the most accurate assessment of malnutrition and the requirement for dietetic intervention in the cancer patient population. Health services should endeavour to conduct a malnutrition prevalence study on a regular basis as part of their local quality improvement program. The resources generated from this project should be used to support the application of a consistent methodology. Monitoring this indicator over time and matching the estimated prevalence with nutritional intervention and patient outcomes (including benchmarking across services) will help drive improved quality of care. The ongoing collaboration established by this project should continue to allow services to share and benchmark results. It is recommended that a statewide study (as reported here) be repeated within five years to monitor system change.

Optimising health service data capture and monitoring through accurate diagnosis and documentation of malnutrition and subsequent coding of inpatient admitted care is required. The potential for additional inpatient activity-based funding to health services through accurate diagnosis, documentation and coding of malnutrition is estimated to apply in approximately 16 per cent of malnourished cancer patients (unpublished data, Peter Mac 2012). Failure to capture this patient casemix complexity and activity equates to significant missed reimbursement opportunities.

In this study the current data capture within the VAED represents only 12 per cent of the actual inpatient malnutrition prevalence. Nutrition departments and health services should implement best practice for assessing, diagnosing and documenting malnutrition in patients' central medical records to ensure accurate coding of malnutrition in inpatient data collections. This will enable the impact of malnutrition to be monitored and enable health services to be reimbursed for care associated with malnutrition.

An opportunity exists to better understand and quantify the cost implications and the impact of malnutrition to Victorian health services. Further research in this area is recommended.

3. Health services should have resources available to multidisciplinary clinicians and cancer patients to improve awareness, recognition and understanding of malnutrition. Clinicians are seeking further education and training on malnutrition including access to evidence-based clinical guidelines and malnutrition awareness education. Malnutrition and nutrition information resources for cancer patients should be readily available.

Currently cancer clinicians outside of the dietetics domain have limited access and knowledge of nutrition resources, including screening and assessment tools and national evidence-based guidelines. The DAA Oncology Interest Group and the COSA Nutrition Group should investigate a boarder distribution of resources to allow increased access and contribution to these from a wider clinical audience. Publishing resources on Cancer Learning and CareSearch will enable the project findings and tools to be disseminated nationally.

This project highlights an opportunity to commission the development of e-learning packages for nursing, medical and allied health professionals. This could be undertaken locally in Victoria or by professional organisations, such as the DAA, COSA and AuSPEN.

Successful models of nutrition care and experiences of implementation and nutrition governance should be shared at state and national forums, including conferences and ICS workshops. Regular education within health services should be provided for raising the awareness of malnutrition and providing feedback on the implementation of models of care.

Consumer resources developed as part of this project will be made available through CCV. It is recommended that they also be published on the Better Health Channel website and be made available as part of national Cancer Council Australia resources. Following evaluation, resources should be translated into relevant languages other than English.

4. Investigate the opportunity for enhanced nutrition screening and care in the primary care setting to enable early referrals for dietetic intervention.

There is a role for malnutrition prevention and intervention in the primary care setting where primary care clinicians are providing ongoing care for people with cancer and supporting improvements in cancer survivorship.

GPs can play a role in nutrition care planning. People with cancer may be eligible for allied health services (including dietitians) under the Medicare Benefit Scheme Chronic Disease Management (CDM) program. There is a role for malnutrition screening in general practice for the early identification of malnutrition in patients with cancer, where dietetic referral can then be built into a patient's CDM care plan.

An opportunity exists to undertake further work to foster links with General Practice Victoria (GPV)/ Medicare Locals and the Royal Australian College of General Practitioners (RACGP) to provide education and resources to facilitate the role of general practice in identifying malnutrition and managing malnutrition in cancer patients. This work would align well within the cancer survivorship programs funded by Cancer Strategy and Development, Victorian Department of Health.

Appendix 1: Participating project sites

Barwon South Western Regional Integrated Cancer Service (BSWRICS)

- Barwon Health – The Geelong Hospital, including radiotherapy services

Gippsland Regional Integrated Cancer Service (GRICS)

- Latrobe Regional Hospital – Traralgon, including radiotherapy services

Grampians Integrated Cancer Service (GICS)

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

Hume Regional Integrated Cancer Service (Hume RICS)

- Goulburn Valley Health – Shepparton

Loddon Mallee Integrated Cancer Service (LMICS)

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

North Eastern Melbourne Integrated Cancer Service (NEMICS)

- Austin Health – Austin Hospital, including radiotherapy services
- Eastern Health – Box Hill and Maroondah, including Peter Mac radiotherapy services* at Box Hill

Southern Melbourne Integrated Cancer Service (SMICS)

- Alfred Health – The Alfred, including radiotherapy services
- Cabrini Health – Malvern
- Peninsula Health – Frankston
- Southern Health – Moorabbin, including Peter Mac radiotherapy services*

Western and Central Melbourne Integrated Cancer Service (WCMICS)

- Melbourne Health – City Campus
- Peter MacCallum Cancer Centre – East Melbourne
- St Vincent's Health – East Melbourne
- Western Health – Footscray and Sunshine, including Peter Mac radiotherapy services

* Dietetic services to Peter Mac radiotherapy services at Box Hill and Moorabbin are provided as a satellite service by the nutrition department at Peter Mac, East Melbourne; therefore, prevalence results and practices relating to malnutrition reflect those from Peter Mac. Otherwise all radiotherapy services are provided by the local participating health service.

Appendix 2: Malnutrition codes

ICD-10-AM: 7th edition 2010

The ICD-10-AM/ACHI/ACS is the system used to code inpatient episodes of care in Australian hospitals.

- ICD-10-AM (International Statistical Classification of Diseases and Related Health Problems, 10th Revision, Australian Modification) is used to code diseases and problems.
- ACHI (Australian Classification of Health Related Problems) is used to code procedures and interventions.
- ACS (Australian Coding Standards) is used as a supplement to ICD-10-AM and ACHI to assist clinical coders to use the classifications.

Malnutrition may be coded when documented by a dietitian or medical officer in the clinical record. This decision is supported in ACS with the term 'clinician' used to refer to the treating medical officer or other clinicians such as midwives, nurses and allied health professionals. However, in order to assign a code associated with a particular clinician's documentation, the documented information must be appropriate to the clinician's discipline.

Within ICD-10-AM, malnutrition* (in adults) has been classified as:

E43: Unspecified severe protein-energy malnutrition

BMI <18.5 kg/m² or unintentional loss of weight **≥ 10 per cent**
with evidence of suboptimal intake resulting in severe loss of subcutaneous fat and/or severe muscle wasting.

E44.0: Moderate protein-energy malnutrition

BMI <18.5 kg/m² or unintentional loss of weight **5–9 per cent**
with evidence of suboptimal intake resulting in **moderate** loss of subcutaneous fat and/or **moderate** muscle wasting.

E44.1: Mild protein-energy malnutrition

BMI <18.5 kg/m² or unintentional loss of weight **5–9 per cent**
with evidence of suboptimal intake resulting in mild loss of subcutaneous fat and/or **mild** muscle wasting.

E46: Unspecified protein-energy malnutrition

Weight loss of **at least five per cent**
with evidence of suboptimal intake resulting in subcutaneous fat loss and/or muscle wasting.

For all classifications, malnutrition must meet the criteria in ACS 0001 (principle diagnosis) or ACS 0002 (additional diagnosis) to be coded.

This includes evidence of:

- an assessment to determine the diagnosis
- the documentation of a treatment plan indicating that the diagnosis results in additional clinical care.

*Malnutrition classifications exclude:

D50–D53: Nutritional anaemias
E64.0: Sequelae of protein-energy malnutrition
K90: Intestinal mal-absorption
T73.0: Effects of other deprivation: Starvation

In addition for the purposes of this project also excluded are:

E40: Kwashiorkor
E41: Nutritional marasmus
E42: Marasmic kwashiorkor
E43, E44 and E46: definitions for children
E45: Retarded development following protein-energy malnutrition

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