

# Managing malnutrition: identifying and treating unintentional weight loss in adults

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**Early identification and management of malnutrition by primary healthcare teams led by general practitioners can lead to a better quality of life and improved health outcomes for patients.**

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The authors were part of the Dietitians Association of Australia's Malnutrition Guideline Steering Committee, which produced 'Evidence based practice guidelines for the nutritional management of malnutrition in adult patients across the continuum of care', published in 2009 as a supplement in the Association's peer-reviewed journal, *Nutrition & Dietetics*.



**M**alnutrition is defined as a state of nutrition in which deficiency or excess of energy, protein and other nutrients causes measurable adverse effects on body composition, function and clinical outcome.<sup>1</sup> Malnutrition exists across all healthcare settings, with prevalence ranging from 10 to 30% in the community, 30 to 50% in the acute care setting and 40 to 70% in the residential aged care setting.<sup>2</sup> Despite it being a major health concern internationally and in Australia, malnutrition continues to be under-recognised and therefore under-treated.<sup>2</sup>

Increasing comorbidity, ageing of the population and shortened acute and rehabilitation stays can increase the risk of malnutrition. GPs therefore play a key role in identifying and managing malnourished patients in the community and in the residential aged care setting. In this article, malnutrition refers to protein–energy undernutrition.

## CAUSES AND CONSEQUENCES OF MALNUTRITION

Malnutrition is both a cause and a consequence of ill health across healthcare settings.<sup>2</sup> People can become malnourished for the following reasons:

- decreased oral intake of food due to people having one or more of swallowing or dentition problems, impaired functional capacity, reduced appetite, depression and illness, and/or taking many medications<sup>3,4</sup>

### A SCREENING TOOL FOR MALNUTRITION

Nutrition screening tools vary in complexity, with some containing anthropometric measures and calculations. Consideration should be given to who will perform the screening when selecting a tool for a particular setting.

The simplest nutrition screening tool available is the Malnutrition Screening Tool (MST).<sup>10,11</sup> This tool was developed for use in acute and residential aged care facility settings but has not been specifically validated in the community setting. It is used widely in the aged care setting and in many large Australian teaching hospitals and is suitable for completion by the patient, his or her carer or a practice nurse.

#### Malnutrition Screening Tool\*

**1. Have you lost weight recently without trying?**

No	0
Unsure	2
Yes, how much?	
1 to 5 kg	1
6 to 10 kg	2
11 to 15 kg	3
More than 15 kg	4
Unsure	2

**2. Have you been eating poorly because of a decreased appetite?**

No	0
Yes	1

Total score —

A score of 2 or more indicates the patient is at risk of malnutrition.

\* Reproduced from Ferguson et al, *Nutrition* 1999; 15: 458-464; with permission from Elsevier.

- acute care hospital admission, with resultant deterioration in the patients' nutritional status<sup>5</sup>
- disease, drinking alcohol, taking drugs, sensory deficits, social isolation, dementia, delirium, dysphagia, depression and destitution in the vulnerable elderly population.
- Consequences of an individual being malnourished include, but are not limited to, the following:
  - decreased immune function and poor wound healing<sup>6</sup>
  - cardiac complications and anaemia
  - pale, thin, dry skin and loss of bone density
  - gastrointestinal tract atrophy and intestinal bacterial overgrowth
  - hypothermia, ascites, hypoalbuminaemia, vitamin and mineral deficiencies
  - decreased quality of life<sup>7</sup>
  - decline in strength, increased risk of falls, transfer to higher level care and ultimately hospital readmission or death<sup>8</sup>
  - serious adverse drug reactions – these occur more often in elderly individuals who are malnourished, with decreased body weight, dehydration and impaired renal function
  - increased healthcare costs – studies have shown that the cost of

malnutrition to the Victorian public hospital system in 2003 to 2004 was at least \$10.7 million, and the mean economic cost of pressure ulcers attributable to malnutrition in Queensland public hospitals in 2002 to 2003 was \$13 million.<sup>6,9</sup>

### HOW IS MALNUTRITION IDENTIFIED AND ASSESSED?

As well as looking after the nutritional status of patients living in the community, GPs find they play the primary role in monitoring the nutritional status of patients who have been discharged from acute or rehabilitation facilities and those who are living in residential aged care facilities. Implementation of strategies to identify and manage patients at risk of malnutrition will avoid further decline in the health status of these patients.

Where available, Accredited Practising Dietitians (APDs) can provide comprehensive nutrition assessment, treatment and follow-up plans for patients.

#### Identification

Evidence-based guidelines for the identification and nutritional management of malnutrition in adult patients across the continuum of care have been developed by the Dietitians Association of Australia.<sup>2</sup> At-risk patients can be identified by a validated nutrition screening instrument.

The Malnutrition Screening Tool (MST) has been validated in the acute and residential aged care facility settings but not specifically in the community setting. It is, however, the simplest tool available, and is used widely in the aged care setting and in many large Australian teaching hospitals. It consists of two questions related to recent unintentional weight loss and eating poorly because of a decreased appetite (see the box on this page).<sup>10,11</sup> The MST score ranges from 0 to 5, with individuals considered at risk of malnutrition if they score 2 or more.

Nutrition screening tools validated for use in the community setting include:<sup>12</sup>

- Mini Nutritional Assessment – Short Form (MNA-SF)<sup>13</sup>
- Malnutrition Universal Screening Tool (MUST)<sup>14</sup>
- Seniors in the Community: Risk Evaluation for Eating and Nutrition, version II (SCREEN II).<sup>15</sup>

When selecting a nutrition screening tool for a particular setting, consideration should be given to who will perform the screening. Some screening tools contain anthropometric measures and calculations and take more time to complete, whereas others are simple and could be completed by the patient, his or her carer or a practice nurse as part of a patient information record.

More detail on nutrition screening is available in the resources section, nutrition support, of the Queensland Health Nutrition Education Materials Online website (see ‘Nutrition screening’ at [www.health.qld.gov.au/nutrition/nemo\\_nutrsup.asp](http://www.health.qld.gov.au/nutrition/nemo_nutrsup.asp)).

An unintentional weight loss in a person of 5% in one month or 10% in six months is associated with increased health risks, and monitoring the weight of people at risk of malnutrition is therefore essential.<sup>2</sup> Involuntary weight loss is, however, easy to overlook in a person who is overweight, and it is important to recognise that someone may be malnourished even though he or she appears healthy or overweight.

### Assessment

Once an at-risk patient has been identified by nutrition screening, nutrition assessment can then contribute to a diagnosis of malnutrition. Nutrition assessment may include a nutritional and medical history, review of dietary intake, nutrition impact symptoms, a physical examination, laboratory parameters and/or anthropometric measures.<sup>16</sup> Examples of validated nutritional assessment tools include:

- Subjective Global Assessment (SGA)<sup>17</sup>
- Mini Nutritional Assessment (MNA).<sup>18</sup>

More detail on nutrition assessment is available on the Nutrition Education Materials Online website (see ‘Nutrition assessment’ at [www.health.qld.gov.au/nutrition/nemo\\_nutrsup.asp](http://www.health.qld.gov.au/nutrition/nemo_nutrsup.asp)).

It should be noted that a low serum albumin level is not necessarily indicative of malnutrition because this could reflect inflammation or a disease state. Also, albumin and transferrin levels may be normal but glucose and cholesterol levels may be low in undernourished adults.

### MANAGING MALNUTRITION

Outcome measures to assess improved nutrition status include weight gain and documented use of supplementary drinks and snacks.

#### Weight gain

It is essential when caring for patients who are malnourished that height and weight measurements are recorded regularly (at every GP visit or at least monthly if at risk) and monitored closely.

Body mass index (BMI) is calculated as weight in kg/(height in m)<sup>2</sup>. A BMI value between 18.5 and 24.9 kg/m<sup>2</sup> is considered indicative of a normal healthy weight and a value below 18.5 kg/m<sup>2</sup> indicates a person may be underweight; for older adults, a higher range of 22 to 29 kg/m<sup>2</sup> is acceptable as normal.

#### High-protein, high-energy drinks and snacks

Medical issues such as poor dentition and swallowing difficulties must be treated to maximise food and drink intake. Speech pathologists and dietitians can give advice on the appropriate texture for foods and supplementary drinks. Regular meals and snacks and/or supplementary drinks should be scheduled; for example, food consumption six times per day may be better than three larger meals per day.

Examples of high-energy and/or high-protein foods and their uses include:

- enriched milk (one to two tablespoons of full or skim milk powder added to

**MALNUTRITION IN THE COMMUNITY AND RESIDENTIAL AGED CARE SETTINGS**

- There is an unacceptable level of malnutrition across all healthcare settings.
- GPs play a key role in identifying and managing patients with malnutrition in the community and residential aged care settings.
- Simple validated screening tools can be used to identify an individual's malnutrition risk.
- Consider referring a malnourished patient to an accredited dietitian for full nutritional assessment and dietary counselling.
- Refer malnourished patients to appropriate allied health professionals as required (e.g. physiotherapist, speech pathologist, occupational therapist).
- Taking oral nutritional supplements and eating energy- and protein-rich foods and fluids are beneficial for patients with malnutrition.
- Improving nutritional status is associated with better quality of life and health outcomes.

one cup of milk) – use for drinks, cereals and soups

- cream, butter, margarine and cheese – use generously on vegetables and in soups and sauces
- full-fat cheese and yoghurts
- milk-based desserts
- higher-fat content meats, such as mince, lamb chops, roasted meats and chicken (with skin on) – can be served with fried vegetables or small salads liberally dressed with regular salad dressing
- fatty spreads, mayonnaise and avocado – liberal use on bread can increase the energy content of sandwiches made with protein fillings such as oily tinned

**CONSULTANT'S COMMENT**

Many studies of nutritional status among both community and hospital patients during the past 30 years in Australia have demonstrated high levels of malnutrition, especially in those aged above 60 years. It is estimated that more than 38% of elderly persons living in the community are at risk of malnutrition and almost 59% are clinically malnourished. The incidence of malnutrition in hospitalised patients is around 40%, with more than 60% at risk of malnutrition. The highest risk of malnutrition is found in patients over the age of 80 years.

Malnutrition has profound effects on the outcome for hospitalised patients, including:

- increased length of stay
- higher hospital costs
- increased mortality
- increased postsurgical complications through delayed wound healing
- impaired immunity and increased rates of infection
- impaired muscle and respiratory function
- prolonged rehabilitation.

Some of the causes of malnutrition cannot be mitigated by virtue of the patient's underlying medical condition, for example, malignant cachexia, but many causes can be treated by attention to the fundamental aspects of the biopsychosocial paradigm.

Clinicians tend to focus on disease states to the neglect of the foundational paradigm in which disease occurs. Malnutrition risk must be identified rapidly in order to ameliorate the well-recognised negative outcomes for our patients and the healthcare system. By being familiar with simple assessment tools, as outlined in this article, we can significantly improve the health outcomes of our patients.

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fish, cold meats, cheese and eggs.

Nutrition education materials, including patient support materials and information on high-energy and high-protein diets and managing poor appetite and nausea and vomiting, are given on the Nutrition Education Materials Online website (see 'Resource' at [www.health.qld.gov.au/nutrition/nemo\\_nutrsup.asp](http://www.health.qld.gov.au/nutrition/nemo_nutrsup.asp)).

Commercial nutritional supplements can be given in addition to meals or as between-meal snacks. Complete nutritional supplements (high energy and high protein, and also containing vitamins and minerals) and incomplete supplements (glucose polymers [high energy] and protein supplements) in powder form can also be added to drinks, soups, casseroles and desserts or sprinkled over ice cream

and breakfast cereals. If lactose intolerance is an issue, lactose-free versions are available of some of the commercial supplements.

**Vitamin and mineral supplements**

A multivitamin and mineral supplement may be indicated in malnourished patients. However, it should be remembered that commercial nutritional supplements contain varying degrees of added vitamins and minerals and that, if taken in sufficient amounts, some of these will meet the recommended dietary intakes (RDIs) for nutrients.

Pharmacological treatment of some vitamin and mineral deficiencies may also be indicated clinically. In particular,



low levels of vitamins D and B<sub>12</sub> and of iron can occur in people with protein–energy malnutrition.

### PRIMARY HEALTHCARE TEAMS

Early identification and management of malnutrition by primary healthcare teams led by GPs can lead to a better quality of life and improved health outcomes for patients. The GP is the central co-ordinator of nutrition screening and monitoring in general practices and residential aged care homes, and accredited practising dietitians (APDs) and speech pathologists provide practical assistance. Important points about managing patients with malnutrition in the community and residential aged care settings are summarised in the box on page 70.

Dietitians use diet and medical histories, physical indicators and anthropometric and/or body composition measures to provide comprehensive nutritional assessments of patients. There is moderate evidence that nutrition counselling by a dietitian leads to beneficial outcomes.<sup>2</sup> APDs can tailor individual advice to accommodate other comorbidities a patient may have and, as part of residential aged care teams, they can help staff to monitor dietary intake and changing nutritional status and alter the diet plan accordingly. A ‘train-the-trainer’ approach has been found to help maintain nutritional status in residential aged care settings.<sup>19</sup> Strategies to maximise oral intake include ‘protected’ mealtimes, appropriate assistance with meals and environments conducive to eating. Frail older adults may be eligible for dietetic services through home and community care.

APDs can be found in Australia through the Dietitians Association of Australia website ([www.daa.asn.au](http://www.daa.asn.au)) or by calling 1800 812 942.

### CONCLUSION

Overweight and obesity are high on the public health policy agenda, but

protein–energy malnutrition is frequently forgotten. Although malnutrition risk increases with age and level of care, even for people living in the community the prevalence of malnutrition remains unacceptably high. Malnutrition is independently associated with poorer outcomes and decreased quality of life.

GPs play a key role in identifying and managing malnourished patients in the community and residential aged care settings. A simple nutrition screening tool can be used to identify malnutrition risk. Those individuals identified as being at nutritional risk should have their body weight and dietary intake monitored. Nutritional intervention and support by an accredited dietitian has been found to maintain or improve nutritional status and improve quality of life and outcomes.<sup>2</sup> **MT**

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