

Hospital-Acquired Complication **13**

MALNUTRITION

HOSPITAL-ACQUIRED COMPLICATION		RATE ^a
1	Pressure injury	10
2	Falls resulting in fracture or intracranial injury	4
3	Healthcare-associated infection	135
4	Surgical complications requiring unplanned return to theatre	20
5	Unplanned intensive care unit admission	na ^b
6	Respiratory complications	24
7	Venous thromboembolism	8
8	Renal failure	2
9	Gastrointestinal bleeding	14
10	Medication complications	30
11	Delirium	51
12	Persistent incontinence	8
13	Malnutrition	12
14	Cardiac complications	69
15	Third and fourth degree perineal laceration during delivery (per 10,000 vaginal births)	358
16	Neonatal birth trauma (per 10,000 births)	49

a per 10,000 hospitalisations except where indicated
b na = national data not available

Malnutrition is a deficiency of nutrients such as energy, protein, vitamins and minerals, and causes adverse effects on body composition, function or clinical outcome.^{1*}



Why focus on malnutrition?

Each year, patients in Australian hospitals experience over 5,400 episodes of hospital-acquired malnutrition.² Malnutrition is both a cause and an effect of ill health.

Malnutrition can develop through a deficiency in dietary intake, from complications associated with illnesses causing poor absorption, such as Crohn's disease and ulcerative colitis; nutrient losses; or as a consequence of increased nutritional requirements of a disease state.³ The risk of malnutrition becomes more acute for patients as they age⁴, and is associated with a range of adverse outcomes including depression of the immune system, impaired wound healing, muscle wasting, longer length of hospital stay, and higher treatment costs and increased mortality.

Malnutrition in the acute hospital setting may be estimated as high as approximately 40% of all admitted patients. Patients may be malnourished on admission or develop malnutrition while in hospital.⁵ Nutrition screening is important to identify vulnerable patients who may be at risk of malnutrition, and to enable the commencement of a preventive management plan.

The rate of hospital-acquired malnutrition in Australian hospitals was 12 per 10,000 hospitalisations in 2015–16.² Patients experiencing hospital-acquired malnutrition remain in hospital for 21.3 days longer on average than those without this hospital-acquired complication.² The national average cost per admitted acute overnight stay is \$2,074.⁶ Each hospitalisation with hospital-acquired malnutrition may therefore be associated with approximately \$44,176 in extra costs.

* The specifications for the Hospital-Acquired Complications list providing the codes, inclusions and exclusions required to calculate rates is available on the [Commission's website](#).

Significant reductions in malnutrition rates are being achieved in some hospitals by suitable preventive initiatives.⁵ The rate for malnutrition at Principal Referral Hospitals* was 14 per 10,000 hospitalisations in 2015–16. If all Principal Referral Hospitals above this rate reduced their rate to 14 per 10,000 hospitalisations, then 1,652 episodes of malnutrition during hospitalisation in these hospitals would have been prevented, and more when other facilities are considered.

* Hospitals were classified in the Principal Referral Hospitals peer group for these purposes according to the Australian Institute of Health and Welfare's former definition of major city hospitals with more than 20,000 acute weighted separations and regional hospitals with more than 16,000 acute weighted separations.



What is considered best practice for preventing malnutrition?

All hospital-acquired complications can be reduced (but not necessarily eliminated) by the provision of patient care that mitigates avoidable risks to patients.



The **health service organisation** providing services to patients at risk of malnutrition:

- Has systems for prevention and management of malnutrition that are consistent with best-practice guidelines
- Ensures that equipment and devices are available to decrease the risk and effectively manage pressure injuries.



Clinicians caring for patients at risk of malnutrition:

- Screen for malnutrition and where indicated, conduct comprehensive nutritional status assessments in accordance with best-practice time frames and frequency
- Provide malnutrition prevention and care in accordance with best-practice guidelines.



The National Safety and Quality Health Service (NSQHS) Standards (second edition), in particular the Comprehensive Care Standard⁷, support the delivery of safe patient care.

The advice contained in the hospital-acquired complication fact sheets aligns with the criteria in this standard, which are as follows:

- Clinical governance structures and quality-improvement processes supporting patient care
- Developing the comprehensive care plan
- Delivering the comprehensive care plan
- Minimising specific patient harms.

Top tips for prevention and management of malnutrition

The following provides key points for clinicians to consider to avoid this hospital-acquired complication

Conduct risk assessment

- Conduct a comprehensive risk assessment
- Identify risk factors such as: increased age, frailty and impaired mobility, polypharmacy, oral dysphagia, impaired swallowing, constipation, malabsorption conditions and syndromes, Parkinson's disease, chronic disease, cognitive decline and delirium, dementia, eating dependencies and/or institutionalisation
- Identify patients who are nutritionally at risk, including those who have been admitted to hospital with poor appetites or inadequate food intakes, preceding unexplained or unintentional weight loss, physical difficulty eating and/or drinking, and/or communication difficulties
- Identify patients with high nutritional needs, including those with increased nutritional requirements, those with poor absorptive capacity, some who are malnourished and lactating women.

For a patient at risk, develop a prevention plan as part of a comprehensive care plan.

Develop prevention plan

Clinicians, patients and carers develop an individualised, comprehensive prevention plan to prevent malnutrition that identifies:

- Goals of treatment consistent with the patient's values
- Any specific nursing requirements
- Any allied health interventions required
- Observations or physical signs to monitor and determine frequency of monitoring
- Laboratory results to monitor and determine frequency of monitoring
- If specialist assistance is required.

Deliver prevention plan

Where clinically indicated, deliver malnutrition prevention strategies, such as:

- Social measures to ensure provision of meals
- Help with feeding
- Food and fluid intake records
- Modified menus
- Dietetic advice and oral nutrition supplements and/or artificial nutrition support
- Patient and family input where feasible.

Monitor

- Monitor the effectiveness of any malnutrition prevent strategies, and reassess the patient if malnutrition occurs
- Review and update the care plan if it is not effective or is causing side effects
- Engage in reviewing clinical outcomes, identifying gaps and opportunities for improvement.



Clinical governance structures and quality-improvement processes

to support best practice in prevention and management of malnutrition

Health service organisations need to ensure systems are in place to prevent malnutrition through effective clinical governance and quality improvement.

The NSQHS Standards (2nd ed.) describe actions that are relevant to the prevention and management strategies outlined below. These actions are identified in brackets.

Policies, procedures and protocols

Health service organisations ensure policies, procedures and protocols are consistent with national evidence-based guidelines for the risk assessment, prevention and management of malnutrition. **(1.27, 1.7, 5.1a)**

Best-practice screening and management

Health service organisations:

- Agree on the process and criteria for malnutrition risk screening **(5.7)**
- Inform the clinical workforce of screening requirements **(5.1c)**
- Identify a format for nutritional assessments **(5.1a, 5.10)**
- Identify a format for prevention plans for high-risk patients **(5.7a)**
- Identify a management plan format for patients with malnutrition. **(5.13a, 5.27, 5.28)**

Identification of key individuals/governance groups

Health service organisations identify an individual or a governance group that is responsible for:

- Monitoring compliance with the organisation's nutrition policies, procedures and protocols **(1.7b, 5.2a)**
- Presenting data on the performance of malnutrition prevention and management systems to the governing body **(1.9, 5.2c)**
- Overseeing the food services system. **(1.8, 5.5b)**

Training requirements

Health service organisations:

- Identify workforce training requirements **(1.20a)**
- Train relevant staff on the use of risk screening, prevention plans and malnutrition management plans **(1.20b, 1.20c)**
- Ensure workforce proficiency is maintained. **(1.20d, 1.22, 1.28b)**

Monitoring the delivery of prophylaxis and care

Health service organisations ensure mechanisms are in place to:

- Report malnutrition **(1.9, 5.2)**
- Manage risks associated with malnutrition prophylaxis and management **(5.1b)**
- Identify performance measures and the format and frequency of reporting **(1.8a)**
- Set performance measurement goals **(1.8a)**
- Collect data on compliance with policies **(1.7b)**
- Collect data about malnutrition risk screening activities, including whether risk assessment is leading to appropriate action **(1.8, 1.11, 5.1b, 5.2)**
- Identify gaps in systems for screening patients for malnutrition, collect data on incidence, prevalence and severity of malnutrition **(5.2)**
- Provide timely feedback and outcomes data to staff. **(1.9)**

Quality- improvement activities

Health service organisations:

- Implement and evaluate quality-improvement strategies to reduce the frequency and harm from malnutrition **(5.2)**
- Use audits of patient clinical records and other data to:
 - identify opportunities for improving nutrition plans **(5.2)**
 - identify gaps and opportunities to improve the use of nutrition plans (such as increasing the number of at-risk patients who have nutrition plans implemented) **(5.2)**
 - monitor the overall effectiveness of systems for prevention and management of malnutrition. **(5.2)**

Equipment and devices

Health service organisations facilitate access to equipment and devices for the prevention and management of malnutrition. **(1.29b)**



Developing the patient's comprehensive care plan

to support best practice in malnutrition prevention and management

Clinicians should collaborate with patients, carers and families in assessing risk, in providing appropriate information to support shared decision making, and in planning care that meets the needs of patients and their carers.

Identifying risk factors for malnutrition

Clinicians should identify risk factors. The following are some key risk factors associated with malnutrition⁸:

- Increased age
- Frailty and impaired mobility
- Oral dysphagia
- Impaired swallowing
- Constipation
- Malabsorption conditions and syndromes
- Parkinson's disease
- Chronic disease
- Cognitive decline and delirium
- Dementia
- Depression
- Eating dependencies
- Institutionalisation.

Patients who are nutritionally at risk include those who have:

- Been admitted to hospital with poor appetites or inadequate food intakes
- Preceding unexplained or unintentional weight loss
- Physical difficulty eating and/or drinking, including poor dentition leading to eating fatigue and lack of interest in food
- Acute or chronic illness or medical treatments affecting appetite and food intake
- Cognitive and communication difficulties, creating difficulties with ordering appropriate food and fluids
- Eaten little or nothing for five days and/or are likely to eat little or nothing for five days or longer.

Patients with high nutritional needs, including:

- Those with increased nutritional requirements, such as due to cachexia, trauma, surgery and / or burns
- Those with poor absorptive capacity, such as short-gut syndrome
- Some who are malnourished
- Lactating women.

Implement risk-assessment screening

Clinicians should use basic screening processes at presentation to assess the risk of malnutrition and identify requirements for further assessment to identify appropriate prevention strategies. For example, screen patients:

- On admission, and then either:
 - weekly during the patient's episode of care in an acute facility
 - at least monthly in slower stream facilities
 - or if the patient's clinical condition changes.

If identified on basic screening as at risk of malnutrition, conduct a comprehensive malnutrition risk-assessment using a validated screening tool to identify patients requiring prevention and management strategies.

Formal nutrition assessment should be undertaken by a Dietician using validated tools such as the:

- Subjective Global Assessment (SGA) Tool
- Mini Nutritional Assessment (MNA)
- Patient Generated Subjective Global Assessment (PG-SGA).

Clinical assessment

Clinicians comprehensively assess:

- Conditions
- Medications
- Risks identified through screening process.

Clinicians routinely weigh* patients at risk of malnutrition and document weights in the clinical record.

Informing patients with a high risk

Clinicians provide information for patients with high risk and their carers about prevention and management of malnutrition.

Planning in partnership with patients and carers

Clinicians inform patients, family and carers about the purpose and process of developing a nutrition plan and invite them to be involved in its development.

Collaboration and working as a team

Medical, nursing, pharmacy and allied health staff work collaboratively to perform malnutrition risk assessment and clinical assessment.

Documenting and communicating the care plan

Clinicians document in the clinical record and communicate:

- The findings of the screening process
- The findings of the clinical assessment process including patient weight
- The nutrition plan.

* Weight and height documented on admission and weight should continue to be recorded at least weekly.



Delivering comprehensive care

to prevent and manage malnutrition

Safe care is delivered when the individualised care plan, that has been developed in partnership with patients, carers and family, is followed.

Collaboration and working as a team

Medical, nursing, pharmacy staff and allied health workers collaborate to deliver malnutrition prophylaxis and management.

Delivering malnutrition prevention strategies in partnership with patients and carers

Clinicians work in partnership with patients and carers to use the comprehensive care plan to deliver malnutrition prevention strategies⁹ where clinically indicated, for example by considering and documenting:

- Clearly identified goals of treatment
- Social measures to ensure provision of meals
- Help with feeding
- Food and fluid intake and output records
- Modified menus
- Dietetic advice and oral nutrition supplements and/or artificial nutrition support
- Patient and family input where feasible.

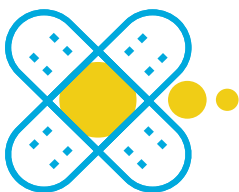
Delivering malnutrition management in partnership

Clinicians work in partnership with patients and carers to ensure patients who have malnutrition are managed according to best practice guidelines.

Monitoring and improving care

Clinicians should:

- Monitor the effectiveness of these strategies in preventing malnutrition and reassess the patient if malnutrition occurs
- Review and update the care plan if it is not effective or is causing side effects
- Engage in reviewing clinical outcomes, identifying gaps and opportunities for improvement.



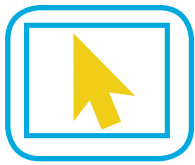
Minimising specific patient harm

Patients at risk of specific harms are identified, and clinicians deliver targeted strategies to prevent and manage these harms.

Nutrition and hydration

Clinicians should work together to ensure the nutritional and fluid requirements of the patient are:

- Planned
- Delivered and adjusted as appropriate
- The patient's intake and output are monitored.



Additional Resources

Nutritional standards

Western Australian Government. Nutrition Standards for adult inpatients in WA hospitals. [↗](#) (AU) 2012.

Queensland Health. Queensland Health Nutrition Standards for Meals and Menus [↗](#) (AU) 2015.

NSW Agency for Clinical Innovation. Nutrition Standards for Adult Inpatients in NSW Hospitals [↗](#) (AU) 2011.

NSW Agency for Clinical Innovation. Nutrition Standards for consumers of inpatient mental health services in NSW [↗](#) (AU) 2013 [updated 2013].

Department of Human Services Victoria. Nutrition Standards for Menu Items in Victorian Hospitals and Residential Aged Care Facilities [↗](#) (AU) 2009.

Nutritional tools

Nutrition Education Materials Online. Subjective Global Assessment. [↗](#) (AU) 2009.

Nutrition Education Materials Online. Food diary - inpatient or outpatient. [↗](#) (AU) 2015.

Nutrition Education Materials Online. Nutrition and Dietetics Discharge Report [↗](#) (AU) 2015.

Nutrition Education Materials Online. Food and Fluids Consumption Chart [↗](#) (AU) 2017.

Nestle. Mini Nutritional Assessment. [↗](#) Vevey, Switzerland 2009.

Queensland Government. Malnutrition: Is your patient at risk? [↗](#) (AU) 2015.

Queensland Government Lady Cilento Children's Hospital. Paediatric Nutrition Screening Tool. [↗](#) (AU).

BAPEN Malnutrition Advisory Group. Malnutrition Universal Screening Tool [↗](#) (UK) 2011.

Other resources

National Institute for Health and Care Excellence. Nutrition support in adults [↗](#) [qs24] (UK) 2012.

Department of Health & Human Services Victoria. Identifying nutrition and hydration issues. [↗](#) Melbourne (AU).

McClave SA, DiBaise JK, Mullin GE, Martindale RG. ACG clinical guideline: nutrition therapy in the adult hospitalized patient. *The American Journal of Gastroenterology*. 2016;111(3):315

NSW Ministry of Health. Nutrition Care [↗](#) (PD2017_041). Sydney (AU) 2017.

NSW Agency for Clinical Innovation. The patient nutrition care journey: a guide to support implementation of the NSW Health Nutrition Care Policy [↗](#) (v1) Sydney (AU) 2012.

Dieticians Association of Australia South Australian Chapter. Nutrition and hydration policy support handbook for acute adult inpatient setting. [Adelaide \(AU\) 2015](#).

Barker LA, Gout BS, Crowe TC. Hospital malnutrition: prevalence, identification and impact on patients and the healthcare system. *International journal of environmental research and public health*. 2011;8(2):514-27

Note on data

The data used in this sheet are for hospital-acquired complications recorded during overnight acute episodes of care in Australian public hospitals in 2015-16. Data are included where hospitals were able to identify that the complication had arisen during an admission using the condition onset flag. Figures reported by the Independent Hospitals Pricing Authority (IHPA) may differ due to the IHPA's methodology, which applies different inclusion/exclusion criteria.

References

1. National Institute for Health and Care Excellence. Nutrition support for adults: oral nutrition support, enteral tube feeding and parenteral nutrition [cg 32]. (UK) 2006; Available from: <https://www.nice.org.uk/guidance/cg32/resources/nutrition-support-for-adults-oral-nutrition-support-enteral-tube-feeding-and-parenteral-nutrition-pdf-975383198917>.
2. Independent Hospital Pricing Authority (AU). Activity Based Funding Admitted Patient Care 2015-16, acute admitted episodes, excluding same day.
3. Naber TH, Schermer T, de Bree A, Nusteling K, Eggink L, Kruimel JW, et al. Prevalence of malnutrition in nonsurgical hospitalized patients and its association with disease complications. *The American Journal of Clinical Nutrition*. 1997;66(5):1232-9. Epub 1997/11/14.
4. Walton K. Treating malnutrition in hospitals: Dietitians in the driving seat? *Nutrition & Dietetics*. 2009;66(4):202-5.
5. Barker LA, Gout BS, Crowe TC. Hospital malnutrition: prevalence, identification and impact on patients and the healthcare system. *International journal of environmental research and public health*. 2011;8(2):514-27. Epub 2011/05/11.
6. Independent Hospital Pricing Authority (AU). National Hospital Cost Data Collection 2015-16, acute admitted episodes, excluding same day.
7. Australian Commission on Safety and Quality in Health Care. National Safety and Quality Health Service Standards (second edition). Sydney 2017.
8. Fávaro-Moreira NC, Krausch-Hofmann S, Matthys C, Vereecken C, Vanhauwaert E, Declercq A, et al. Risk Factors for Malnutrition in Older Adults: A Systematic Review of the Literature Based on Longitudinal Data. *Advances in Nutrition: An International Review Journal*. 2016;7(3):507-22.
9. NSW Ministry of Health. Nutrition Care (PD2017_041). Sydney (AU) 2017; Available from: http://www1.health.nsw.gov.au/pds/ActivePDSDocuments/PD2017_041.pdf.

AUSTRALIAN COMMISSION ON SAFETY AND QUALITY IN HEALTH CARE

© Australian Commission on Safety and Quality in Health Care March 2018

All material and work produced by the Australian Commission on Safety and Quality in Health Care is protected by copyright. The Commission reserves the right to set out the terms and conditions for the use of such material.

With the exception of any material protected by a trademark, any content provided by third parties, and where otherwise noted, all material presented in this publication is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International Licence.



Enquiries regarding the licence and any use of this publication are welcome and can be sent to communications@safetyandquality.gov.au.