Nutrition and hydration play a key role in keeping the skin healthy. Dietary deficiencies are recognised as a risk for developing pressure ulcers and international guidance recommends using a nutritional screening tool to assess risk factors, including malnutrition. This article, the seventh in an eight-part series on the development of a core education curriculum for pressure ulcer prevention and management, looks at effective nutrition and hydration assessment and support.

**In this article...**
- Malnutrition as a risk factor for pressure ulcers and tools for assessing nutritional status
- The role of supplementation, including enteral feeding
- Ensuring adequate hydration and evaluating tolerance of enteral feeding

**Key points**
- People who are well nourished have a lower risk of pressure ulcers than malnourished individuals
- All patients at risk of pressure ulcers should have a comprehensive nutritional assessment
- Patients with a nutritional deficit should have an individualised nutritional intervention plan
- Dietetic support is usually needed, but others in the team also play a role in maintaining good nutrition and hydration
- Steps should be taken to discuss other forms of nutritional support with patients when adequate nutrition is not possible through normal diet or fortified foods

**Author** Jacqui Fletcher is chair of the Pressure Ulcer Core Education Curriculum Group and senior clinical advisor, NHS England and NHS Improvement.

**Abstract** Dietary deficiencies are a recognised risk for developing pressure ulcers and international guidance recommends using a nutritional screening tool to assess risk factors, including malnutrition. This article, the seventh in an eight-part series on the development of a core education curriculum for pressure ulcer prevention and management, looks at effective nutrition and hydration assessment and support.

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**Fig 1. Malnutrition universal screening tool**

### Step 1
**BMI score**

<table>
<thead>
<tr>
<th>BMI kg/m²</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;20 (&gt;30 Obese)</td>
<td>= 0</td>
</tr>
<tr>
<td>18.5-20</td>
<td>= 1</td>
</tr>
<tr>
<td>&lt;18.5</td>
<td>= 2</td>
</tr>
</tbody>
</table>

### Step 2
**Weight loss score**

- **Unplanned weight loss in past 3-6 months**
  - % of previous weight
  - Score: <5 = 0, 5-10 = 1, >10 = 2

### Step 3
**Acute disease effect score**

- If patient is acutely ill and there has been or is likely to be no nutritional intake for >5 days
  - Score 2

### Step 4
**Overall risk of malnutrition**

Add scores together to calculate overall risk of malnutrition:
- Score 0 = low risk
- Score 1 = medium risk
- Score 2 or more = high risk

### Step 5
**Management guidelines**

#### 0
**Low risk**
- **Routine clinical care**
  - Repeat screening
  - Hospital - weekly
  - Care homes - monthly
  - Community - annually for special groups eg those >75 years

#### 1
**Medium risk**
- **Observe**
  - Document dietary intake for 3 days
  - If adequate - little concern and repeat screening
  - Hospital - weekly
  - Care homes - at least monthly
  - Community - at least every 2-3 months
  - If inadequate - clinical concern.
  - Follow local policy, set goals, improve and increase overall nutrition intake, monitor and review care plan regularly

#### 2 or more
**High risk**
- **Treat**
  - Refer to dietitian, nutritional support team or implement local policy
  - Set goals, improve and increase overall nutritional intake
  - Monitor and review care plan
  - Hospital - weekly
  - Care homes - monthly
  - Community - monthly

*Unless detrimental or no benefit is expected from nutritional support, for example, imminent death

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**All risk categories**
- Treat underlying condition and provide help and advice on food choices, eating and drinking when necessary
- Record malnutrition risk category
- Record need for special diets and follow local policy

**Obesity**
- Record presence of obesity. For those with underlying conditions, these are generally controlled before the treatment of obesity

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• Food history and adequacy of nutritional intake;
• Anthropometric measures (height, weight and BMI);
• Weight history;
• Biochemical data such as blood tests for albumin (based on the patient’s diagnosis/conditions);
• Medical tests and procedures;
• Nutrition-focused physical assessment that includes muscle wasting, oedema, micronutrient deficiencies and functional status (for example, hand grip);
• Ability to eat independently.

In most organisations a nutritional screening tool is a standard part of the admission process – for example, MUST (BAPEN, 2016), Mini Nutritional Assessment (mna-elderly.com) or Nutrition Risk Screening (Bit.ly/NutritionRisk2002), and should be used to trigger onward referral or initiation of basic nutritional support. The tool that is most commonly used in the UK is MUST (Fig. 1, p47).

Once patients are identified as malnourished, they will usually be referred for dietetic support, but others in the multidisciplinary team (Table 1) also have a role in maintaining good nutrition and hydration; for example, physiotherapists and occupational therapists may enable patients to regain independence to feed themselves following a stroke.

Once the health professional has completed the assessment and identified a nutritional deficit, it is important to initiate an individualised nutritional intervention plan. As well as identifying the type and amount of nutrients required, the plan should address the most appropriate route and the clinical goals of care. In end-of-life and palliative care settings, provision of adequate nutrition and hydration should be compatible with the individual’s condition and wishes. Adequate nutritional support is desirable, however, it may not be achievable for patients who are unable or refuse to eat.

Frail older people may also have difficulty maintaining adequate nutrition, as their appetite reduces and their ability to prepare or consume food declines. They may also be anxious about drinking fluids if they are taking diuretics because of the need to visit the toilet frequently. This can cause anxiety about incontinence and may also be a considerable effort for them.

Supplementation
Where it is not possible to achieve the nutrition required through normal diet, fortified foods should be considered. If oral intake is inadequate, enteral nutrition (via gastrointestinal tract) or parenteral nutrition (via intravenous route) may be recommended if it is consistent with the patient’s wishes. Enteral feeding is the preferred route if the gastrointestinal tract is functioning. The risks and benefits of nutrition support should be discussed with patients and caregivers at an early stage, and should reflect their preferences and goals for care (EPUAP et al, 2019).

As well as nutritional intake, patients’ inability to absorb nutrients must also be considered. Certain diseases and medications can hinder absorption of specific nutrients; for example, Crohn’s disease, lactose intolerance and prolonged use of antibiotics and drugs that may injure the lining of the intestine, such as tetracycline or cholestyramine.

If tube feeding is used, care should be taken at the site to ensure pressure damage is not caused by the siting and attachment of the tube.

Hydration
Water is important to allow the body to absorb and transport through the body vitamins, minerals, glucose and other nutrients and to eliminate waste products. In healthy individuals who are adequately hydrated, water released from food and metabolism accounts for 20% or more of total water intake

A high temperature, vomiting, profuse sweating, diarrhoea, and/or heavily exuding wounds increase the need for water intake to replace losses. Those consuming high levels of protein may also require additional water intake.

Tolerance of enteral feeding should be evaluated daily through physical examination, regularity of stool and flatus, and experience of gastrointestinal signs and symptoms (for example, vomiting, abdominal distension, nausea and discomfort). If diarrhoea does occur, care should be taken to prevent the associated skin damage.

Conclusion
Assessing nutritional status can be complex and should consider the ability to prepare, eat and absorb food, as well as the impact of any comorbidities or medications used. The multidisciplinary team plays a large role in assessing needs and abilities and should be involved in regular reassessment of patients’ requirements.

The final article in this series will look at how to communicate effectively with patients, carers and the multidisciplinary team about all elements of pressure ulcer prevention. NT

Table 1. Multidisciplinary roles in nutrition and hydration

<table>
<thead>
<tr>
<th>Clinician</th>
<th>Suggested roles (may overlap/be more extensive)</th>
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<tbody>
<tr>
<td>Nurse</td>
<td>Initial screening, assistance with eating and drinking</td>
</tr>
<tr>
<td>Dietitian</td>
<td>Specialist screening, developing individualised plan</td>
</tr>
<tr>
<td>Speech and language therapist</td>
<td>Assessment of swallowing reflex</td>
</tr>
<tr>
<td>Physiotherapist</td>
<td>Exercises to strengthen arms and head control</td>
</tr>
<tr>
<td>Occupational therapist</td>
<td>Environmental assessment, provision of specialist crockery and cutlery</td>
</tr>
<tr>
<td>Medical staff</td>
<td>Review of comorbidities and medication</td>
</tr>
<tr>
<td>Pharmacist</td>
<td>Advice on nutritional supplements</td>
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</tbody>
</table>

References

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