Nutrition and pressure ulcers: putting evidence into practice

Carolyn Taylor

Nutritional intake can have an effect on many areas of a patient’s health, while malnutrition specifically has a recognised role in pressure ulcer development. In this article, the author looks at whether there is any high quality evidence to recommend specific nutritional measures when trying to prevent pressure ulcers, as well as looking at overall recommendations for malnourished patients. Nutritional screening remains essential to help identify those patients most at risk of malnutrition and allows community nurses to prepare nutritional care plans and begin to correct any nutritional deficiencies. The author recommends that community nurses perform nutritional screening at any patient contact, be that in hospital, nursing home or in the patient’s own home. Recording the outcome of screening at regular intervals also helps to identify trends in a patient’s nutritional state and means that any reduction will be picked up quickly.

KEYWORDS:
Nutrition ■ Wounds ■ Dietitian ■ Malnutrition ■ Screening

Pressure ulcer treatment — and crucially prevention — has become a key focus for improving the quality of health care. Most pressure ulcers are now considered avoidable and consequently prevention has been included in domain 5 of the NHS Outcome Framework (Department of Health [DH], 2014), which has a stated aim of: ‘Treating and caring for people in a safe environment and protecting them from avoidable harm.’

There is also a financial burden to consider, with pressure ulcers costing the NHS £1.4-2.1bn per year (Bennett et al, 2004), with category four pressure ulcers costing approximately £14,108 per patient (Dealey et al, 2012). The cost to patients in terms of quality of life is also significant, with pressure ulcers affecting people’s ability to work and maintain independence.

Any treatment that reduces the costly, painful and debilitating effect of pressure ulcers must be considered and the National Institute for Health and Care Excellence (NICE, 2014) recently released updated guidance on the prevention and management of pressure ulcers; in conjunction with this guidance, the NICE Quality Standards for pressure ulcers also highlight where improvements in patient care can be made and in particular what factors will prevent the development of pressure ulcers (NICE, 2015).

A good nutritional status and fluid intake have always been considered important to both the prevention and management of pressure ulcers (Posthauer et al, 2015), and reference is made to the importance of nutritional status and nutritional intake throughout the recent NICE (2014) guidance. This is also highlighted in the quality standards (NICE, 2015), which repeatedly mention malnutrition as one of the risk factors for pressure ulcer development.

Further evidence for the role of nutrition is provided by a recently updated Cochrane review into the specific role of nutrition in the prevention and management of pressure ulcers (Langer and Fink, 2014). While the Cochrane review showed much of the evidence to be of poor quality, it did demonstrate that nutritional supplements could reduce the development of pressure ulcers, although not to a significant level. The evidence that nutritional supplements could contribute to the healing of pressure ulcers was also of poor quality and difficult to draw conclusions from, although Langer and Fink (2014) specifically mentioned that there was emerging evidence that supplementing diet with the amino acid arginine (thought to become essential following trauma) may improve healing rates, although further research is required. While the evidence was found to be generally poor, Langer and Fink (2014) stated that it is still important to correct any nutritional deficiencies.

This article reviews the current guidance relating to nutrition and how it affects the development of pressure ulcers, before considering how community nurses can put the recommendations into practice.

NUTRITION AND PRESSURE ULCER PREVENTION

Both of the NICE documents mentioned above (NICE, 2014; 2015) highlighted that malnutrition is one of the risk factors for pressure ulcer development.
New Purée Petite.

500+ calories and 15g+ protein in one smaller portion.
Perfect for reduced appetites.

The new Purée Petite range takes a fresh look at Category C meals, for patients with dysphagia. Each energy-dense 275g dish is smaller in size for patients with reduced appetites, but with similar calorie and protein content to the larger meals in our Softer Foods range. Meaning the much needed nutrition goes exactly where it belongs, in your patient.

Arrange a free tasting today and discover how Purée Petite and our other Softer Foods meals for Category C, D and E diets can help your patients.

To order a FREE brochure or to arrange a tasting call
0800 066 3164
wiltshirefarmfoods.com
However, identifying malnutrition is difficult (Posthauer et al, 2015). While body weight is a factor in pressure ulcers, assessment is not straightforward, as being both underweight and overweight are known to increase the risk of pressure ulcer development. A low body weight (body mass index [BMI] of less than 18 Kg/m²) is associated with reduction in subcutaneous fat deposits, particularly over the bony prominences. Underweight patients are also more likely to be eating insufficiently and not meeting the recommended daily amounts of macro and micronutrients, meaning that they may not be eating sufficient energy, protein, vitamins and minerals.

Conversely, being overweight (BMI over 25 Kg/m²) can also increase the risk of pressure ulcers due to higher body weight and poor mobility. There is also no guarantee that an overweight person’s dietary intake is balanced — just because they are eating does not mean they are taking in the required micronutrients.

Loss of body weight, irrespective of the person’s initial weight, and especially if it is sudden and unplanned, is also a contributing risk factor for pressure ulcer development. This weight loss could be associated with illness or changes in social situation such as recent bereavement.

As well as causing a loss of appetite, illness can also result in increased levels of inflammatory markers, such as C-reactive protein, which is also a known risk factor for pressure ulcers (Posthauer et al, 2015); the associated production of cytokines also results in a rising demand for energy and protein. At a time when illness may cause patients to lose their appetite, this increased metabolic load increases the risk of skin breakdown or reduced healing as energy and protein reserves are targeted for use elsewhere.

The loss of muscle mass associated with age (sarcopenia) can also be a risk factor for pressure ulcers, however, while sarcopenia may not be avoidable, illness, lack of appetite, and the malabsorption of nutrients from the gastrointestinal tract can exacerbate it.

**IDENTIFYING THOSE AT RISK OF MALNUTRITION**

Identifying a patient’s risk of malnutrition is vital and was supported by the NICE guidelines and quality standard (NICE, 2014; 2015). There is additional NICE guidance that recommends the use of validated screening tools for identifying risk of malnutrition (NICE, 2012), which is also recommended by the National Pressure Ulcer Advisory Panel (NPUAP, 2014).

The tool most frequently used is the Malnutrition Universal Screening Tool (MUST) (Todovic et al, 2003), where patients are ‘scored’ based on BMI, unintentional weight loss and any acute illness. MUST, therefore, relies on measuring the amount of weight the patient has lost, but this may be more difficult in those with limited mobility. In nursing and residential care, monitoring the weight of those patients with mobility issues can be made easier by creative use of equipment:

- Asking the patient to sit on scales
- Attaching scales to hoists when moving patients
- Using medical beds that incorporate a facility for weighing the patient.

For patients at home, options for assessing weight change and risk of malnutrition include the following (Taylor, 2014):

- Measuring waist circumference, although this may be more difficult if a patient is unable to stand
- Measuring the patient’s arm circumference, although correlation may be affected by any pre-existing physical issues such as arm paralysis
- Hand-grip measurements can also be used as there is some correlation between declining strength and nutritional state (Flood et al, 2014)

- The physical ‘look’ of the patient
- The fit of the patient’s clothes, i.e. are they loose?
- Fit of dentures — the gum line will recede with weight loss
- Patient-reported weight loss
- Deteriorating skin condition or a non-healing pressure ulcer.

The NICE (2015) quality standards recommended identifying pressure ulcer risk factors for all patients referred to community services and on admission to any healthcare setting. The guidelines also highlight that, along with assessing all risk factors, nutritional screening using a validated screening tool should be included and become part of routine care. As Posthauer et al (2015) suggested, early identification of malnutrition or risk of malnutrition can ensure that treatment begins quickly and will help prevent pressure ulcers developing as well as contributing to healing.

For those patients not identified as being at risk of malnutrition, both a Cochrane review (Langer and Fink, 2014) and the NICE (2014) guidance highlighted that there was no specific evidence to recommend additional nutritional treatment to prevent pressure ulcers. In other words, if people are well nourished then increasing their nutritional intake to prevent pressure ulcers occurring is not recommended — only if they are malnourished can nutritional measures reduce the risk.

**HYDRATION**

There is limited evidence on how hydration affects pressure ulcer development and the recommendation is to ensure that the patient’s hydration status is adequate (NICE, 2014).

Despite the lack of evidence in this area, dehydration is commonly accepted to affect skin turgor (the degree of elasticity of skin); in the author’s opinion it follows that this would increase the risk of pressure ulcers. All fluid losses, including urine, diarrhoea, excessive sweating, losses from pressure ulcers or other wounds, and stomas or fistula outputs, need to be accounted for. Fluid requirements will increase in certain circumstances such as fever and increased respiratory effort, while there will be excessive losses with
GET IN THE ZONE

Panic Zone

Learning Zone

Comfort Zone

THE NEW JCN DIGITAL LEARNING ZONE

Wide range of topics in four categories:

- INSIGHTS
- MODULES
- LZ:TV
- PRODUCTS IN PRACTICE

Learn for free online

- Easy-to-use, module format
- Searchable by category and topic
- Learning activity counts towards your revalidation requirements
- Log your learning in our free revalidation e-portfolio
- Desktop, tablet and mobile-friendly
- Content compliments our free-to-access journal archives and regional study days

http://www.jcn.co.uk/learning-zone/
diarrhoea, vomiting and in people with wounds who will lose fluid through exudate leakage.

While fluid requirements may reduce in the older population, their reduced thirst and anxiety about maintaining continence may reduce their desire to drink, thus making dehydration a risk in this population; similarly, the use of diuretics for the management of other long-term conditions such as heart failure and high blood pressure may increase fluid loss.

**NUTRITION AND PRESSURE ULCER MANAGEMENT**

There have been some studies into the effect of nutritional supplements on the treatment of pressure ulcers, however, these were generally of low quality, making specific recommendations difficult (NICE, 2014).

The majority of research was associated with the use of oral nutritional supplements; either generic oral nutritional supplements, which contain a mixture of macro and micronutrients, or those containing specific amino acids or vitamins.

In the NICE (2014) guidance, consideration was given to the cost-benefit of nutritional supplements. In view of the inconclusive evidence around their use, and the cost of many of the generic oral nutritional supplements when used in the community (as opposed to in hospital where they are often negotiated at a contract price), the recommendation was that they should not be routinely used in the treatment of pressure ulcers when the patient’s nutritional intake is otherwise adequate.

However, the guidance also stated that nurses should seek to correct any nutritional deficiency a patient may have, which may involve using nutritional supplements. For those with inadequate nutritional intake or poor nutritional status, a ‘food-first’ approach should be used to increase intake (the use of high energy and high protein foods often considered the more palatable and cost-effective way of meeting requirements), however, if this is tried and the patient’s intake remains insufficient, nutritional supplements may be the next line of treatment. This means that, rather than routinely providing nutritional supplements to patients who have a pressure ulcer, nurses need to undertake a nutritional assessment to identify those at risk of malnutrition so that they can be given the specific advice required to improve their nutritional intake.

If patients are considered to be at risk of malnutrition following an assessment, then nutritional action plans need to be implemented. A review of their dietary intake would help to begin a conversation about the types and variety of foods they are eating. Typical dietary aspects that would raise concern include:
- Meals being missed
- Repetitive meal choices with limited variation in ingredients
- Inability to recall a variety of different meals recently eaten
- Indications that patient may be using smaller plates.

**Specific nutritional elements**

Specific nutritional elements are considered to promote pressure ulcer repair, including protein (both whole proteins and specific amino acids), iron, zinc and vitamin C. As mentioned above, the Cochrane review (Langer and Fink, 2014) stated that good quality evidence for the routine supplementary use of these elements is lacking, although the authors did suggest that more recent research into the use of arginine in the treatment of pressure ulcers is worth further investigation, as indications are that it may be beneficial in improving healing rates (Desneves et al, 2005; Cereda et al, 2009; Van Anholt et al, 2010).

Malnutrition can be defined as a state of nutrition in which a deficiency or excess (or imbalance) of energy, protein and other nutrients causes measurable adverse effects both on tissue/body form, body function, and clinical outcome (Elia, 2000).

Malnutrition is a reversible risk factor for pressure ulcers in adults (NICE, 2014), therefore it is essential that all healthcare professionals are able to correctly identify those at risk early on and provide appropriate management.

Nutritional screening should be implemented in all healthcare settings, particularly in the community where undernourished patients are harder to spot. Studies have shown that up to 93% of malnourished people are living in the community and this continues to be a major clinical and public health problem in the UK (Elia, 2000; Elia and Russell, 2009).

Source: Rabess C (2015)
Understanding the link between wound care and nutrition. J Comm Nurs 29(4): 60–5

**Practical measures**

Despite the lack of evidence for the positive effect of specific nutritional elements on healing pressure ulcers, there are some practical suggestions that can help community nurses improve patient’s overall nutritional intake:
- For those with a small appetite, eating little and often is frequently recommended. By eating small amounts frequently it is possible to improve nutritional intake. It is important that high calorie snacks (chocolates, sweets and crisps, etc) do not replace more nutritious meals or highly...
Improve your patient care and strengthen your revalidation portfolio

Secure your free pass to Best Practice in Nursing today!

Best Practice in Nursing is back on 19-20 October 2016 at Birmingham NEC. The nursing profession's favourite event brings together nurses from across the nation for a two-day conference and exhibition and to raise the profile of primary care nursing.

Improve your patient care and strengthen your revalidation portfolio

What's in it for you...

1. Come together as a national community of nurses and share ideas over cake and tea in dedicated networking areas.

2. Attend advanced clinical training courses in topics like respiratory, diabetes and travel medicine to advance your career.

3. Gain valuable clinical updates to improve patient care and outcomes.

4. Cover the bulk of your annual mandatory training requirements including CPR and anaphylaxis certification.

5. Engage with 200+ suppliers of the most innovative nursing products and solutions to improve cost efficiencies.

6. Add 12 hours of accredited CPD participatory learning to your revalidation portfolio.

AND MUCH, MUCH MORE!

Thanks to our show partners - we can offer a limited amount of nurses education bursaries so they can attend Best Practice in Nursing free of charge! Claim your free pass at:

www.bestpracticeinnursing.co.uk/gpn

Supported by:
Nutritional screening remains essential to help identify those patients most at risk of malnutrition, which will allow community nurses to prepare appropriate nutritional care plans and begin to correct any nutritional deficiencies. It is recommended that community nurses should perform nutritional screening at any patient contact, be that in hospital, nursing home or in the patient’s own home.

The NICE guidelines for nutritional support in adults recommend the use of a validated screening tool such as MUST (NICE, 2012), and this is now widely used as a simple measure for identifying patients at nutritional risk. Recording the outcome of these screening tools at regular intervals can help to identify trends in a patient’s nutritional state and mean that any reduction will be picked up quickly.

Further research into the role of nutrition in promoting pressure ulcer healing is required. This is echoed by the James Lind Pressure Ulcer Partnership (www.jla.nihr.ac.uk), which has highlighted diet and pressure ulcer research as one of its key areas for further investigation.

**REFERENCES**


Langer G, Fink A (2014) Nutritional interventions for preventing and treating pressure ulcers (review) Cochrane Database of Systematic Reviews 6: CD003216


Register now to use the new, free JCN revalidation zone

JCN’s online revalidation zone helps you follow NMC CPD rules for nurses and midwives:

- Managing your portfolio is easy and FREE
- Store all your work in one place
- Compile your evidence with a simple CPD hours calculator
- See your progress at a glance

Visit

www.jcn.co.uk/revalidation

and register today