National Institute for Health and Clinical Excellence

Pressure ulcers

The management of pressure ulcers in primary and secondary care

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NICE clinical guideline 29

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Contents

Introduction

The Royal College of Nursing (RCN) and National Institute for Health and Clinical Excellence (NICE or the Institute) collaborated to develop a clinical guideline on the management of pressure ulcers in primary and secondary care. Identification of the topic emerged from a consultation process with RCN members and referral of the topic by the Department of Health and Welsh Assembly Government. This document describes the methods used for developing the guidelines and presents the resulting recommendations. It is the source document for the NICE (abbreviated version for health professionals) and *Information for the public* (patient and carer) versions of the guidelines, which will be published by NICE. The Guideline was produced by a multidisciplinary Guideline Development Group (GDG) and the development process was wholly undertaken by the RCN.

The main areas examined by the Guideline are:

- holistic assessment for the risk of delayed healing or complications of having a pressure ulcer
- the ulcer assessment
- pressure-relieving support surfaces for the treatment of pressure ulcers
- mobility, positioning and re-positioning for the treatment of pressure ulcers
- dressings and topical agents for the treatment of pressure ulcers
- debridement for the treatment of pressure ulcers
- nutritional support
- surgery for the treatment of pressure ulcers
- therapeutic ultrasound for the treatment of pressure ulcers
- electrotherapy and electromagnetic therapy for the treatment of pressure ulcers, and
- topical negative pressure for the treatment of pressure ulcers.

Recommendations for good practice based on the best available evidence of clinical and cost-effectiveness are presented. Literature searching details, including cut-off dates, are reported in

the methods section for each topic area. Update searches were performed for each area not less than six months prior to submission of the first consultation draft. Recommendations contained in this document are those considered to be central to the management of pressure ulcers. This is a guide to that management not a textbook of care.

Health care professionals should use their clinical judgement and consult with patients when applying the recommendations, which aim at reducing the negative personal, physical, social and financial impact of pressure ulcers.

Patient-centred care

This guideline offers best practice advice on the care of adults and children with pressure ulcers.

Treatment and care should take into account patients' needs and preferences. People with pressure ulcers should have the opportunity to make informed decisions about their care and treatment, in partnership with their healthcare professionals. If patients do not have the capacity to make decisions, healthcare professionals should follow the Department of Health's advice on consent and the code of practice that accompanies the Mental Capacity Act. In Wales, healthcare professionals should follow advice on consent from the Welsh Government.

Good communication between healthcare professionals and patients is essential. It should be supported by evidence-based written information tailored to the patient's needs. Treatment and care, and the information patients are given about it, should be culturally appropriate. It should also be accessible to people with additional needs such as physical, sensory or learning disabilities, and to people who do not speak or read English.

If the patient agrees, families and carers should have the opportunity to be involved in decisions about treatment and care.

Families and carers should also be given the information and support they need.

Key priorities for implementation

- Record the pressure ulcer grade using the European Pressure Ulcer Advisory Panel Classification System.
- All pressure ulcers graded 2 and above should be documented as a local clinical incident.
- Patients with pressure ulcers should receive an initial and ongoing pressure ulcer assessment. Where a cause is identified strategies should be implemented to remove/reduce these. Ulcer assessment should include:
    - cause of ulcer
    - site/location
    - dimensions of ulcer
    - stage or grade
    - exudate amount and type
    - local signs of infection
    - pain
    - wound appearance
    - surrounding skin
    - undermining/tracking (sinus or fistula)
    - odour, and
    - involvement of clinical experts – e.g. tissue viability nurse.

  This should be supported by tracings and or photography (calibrated with a ruler).
- Patients with pressure ulcers should have access to pressure-relieving support surfaces and strategies – for example, mattresses and cushions – 24 hours a day, and this applies to all support surfaces.

- All individuals assessed as having a grade 1-2 pressure ulcer should, as a minimum provision, be placed on a high-specification foam mattress or cushion with pressure-reducing properties combined with very close observation of skin changes, and a documented positioning and repositioning regime.
- If there is any perceived or actual deterioration of affected areas or further pressure ulcer development, an alternating pressure (AP) (replacement or overlay) or sophisticated continuous low pressure (CLP) system – for example low air loss, air fluidised, air flotation, viscous fluid – should be used. (NB: For individuals requiring bed rails, alternating pressure (AP) overlay mattresses should be placed on a reduced-depth foam mattress to maintain their safety.)
- Depending on the location of ulcer, individuals assessed as having grade 3-4 pressure ulcers – including intact eschar where depth, and therefore grade, cannot be assessed – should, as a minimum provision, be placed on an alternating pressure mattress (replacement or overlay) or sophisticated continuous low pressure system – for example low air loss, air fluidised, viscous fluid).
- If alternating pressure equipment is required, the first choice should be an overlay system, unless other circumstances such as patient weight or patient safety indicate the need for a replacement system.
- Create the optimum wound healing environment by using modern dressings – for example hydrocolloids, hydrogels, hydrofibres, foams, films, alginates, soft silicones – in preference to basic dressing types – for example gauze, paraffin gauze and simple dressing pads.

1 Guidance

1.1 The holistic assessment of individuals with pressure ulcers

1.1.1 Patients with pressure ulcers should receive an initial and ongoing holistic assessment. Both intrinsic and extrinsic factors have been identified as important factors for assessment. This assessment should include:

- health status
  - acute, chronic and terminal illness
  - co-morbidity – e.g. diabetes and malnutrition
- mobility status
- posture (pelvic obliquity and posterior pelvic tilt)
- sensory impairment
- level of consciousness
- systemic signs of infection
- nutritional status
- previous pressure damage
- pain status
- psychological factors
- social factors
- continence status
- medication
- cognititive status, and

- blood flow.

1.1.2 Assessment of mobility should include all aspects of independent movement including walking, ability to reposition – for example in bed or a chair – or transfer – for example from bed to chair.

1.1.3 Presence of any sensory impairment in an individual with a pressure ulcer should be recorded.

1.1.4 Level and duration of impaired consciousness should be recorded.

1.1.5 Presence of acute, chronic or terminal illness and its potential impact on ulcer healing should be recorded.

1.1.6 Previous pressure damage (site/location, stage or grade of previous ulcer and previous interventions) should be recorded.

1.1.7 Pain assessment should include: whether the individual is experiencing pain; the causes of pain; level of pain (using an appropriate tool); location and management interventions.

1.1.8 In the presence of systemic and clinical signs of infection in the patient with a pressure ulcer, systemic anti-microbial therapy should be considered.

1.1.9 Psychological assessment should include concordance and abilities of the individual to self-care (mood, motivation and aptitude).

1.1.10 Assessment of social factors should include the suitability of the home environment, level of supportive provision and the involvement of local support services.

1.1.11 Continence assessment should include whether the individual is continent of urine, faeces and continence interventions, which may affect ulcer healing and impair the function of pressure-relieving support surfaces – for example pads or bedding.

1.1.12 Holistic assessment is the responsibility of the inter-disciplinary team and should be carried out by health care professionals.

1.2 Ulcer assessment

1.2.1 The aim of the ulcer assessment is to:

- establish the severity of the pressure ulcers
- generate a personal ulcer profile to develop a plan of care from which treatment interventions will be initiated
- evaluate treatment interventions
- assess for complications, and
- communicate information about the pressure ulcer to those involved in pressure ulcer management.

1.2.2 Patients with pressure ulcers should receive an initial and ongoing pressure ulcer assessment. Ulcer assessment should include:

- cause of ulcer
- site/location
- dimensions of ulcer
- stage or grade
- exudate amount and type
- local signs of infection
- pain
- wound appearance
- surrounding skin
- undermining/tracking (sinus or fistula), and

- odour.

This should be supported by photography and or tracings (calibrated with a ruler).

1.2.3 The pressure ulcer grade should be recorded using the European Pressure Ulcer Advisory Panel Classification System. Pressure ulcers should not be reverse graded (retrograding). A grade 4 pressure ulcer does not become a grade 3 as it heals. As the ulcer heals it should be described as a healing grade 4 pressure ulcer.

1.2.4 Those carrying out ulcer assessments should consider the aims and objectives of the assessment to ensure that maximum benefit to the individual is gained.

1.2.5 The dimensions of the pressure ulcer should be measured recording the longest length/longest width as an estimate of surface area (use of tracings); the deepest part of the wound should also be measured using a sterile probe.

1.2.6 Initial and ongoing ulcer assessment is the responsibility of the interdisciplinary team and should be carried out by health care professionals.

1.2.7 Reassessment of the ulcer should be performed at least weekly but may be required more frequently, depending on the condition of the wound and the result of holistic assessment of the patient.

1.2.8 All pressure ulcers graded 2 and above should be documented as a local clinical incident.

1.3 Support surfaces for pressure ulcer treatment

1.3.1 Patients with pressure ulcers should have access to appropriate pressure-relieving support surfaces and strategies – for example mattresses, cushions, and repositioning – 24 hours a day and this applies to all support surfaces.

1.3.2 Decisions about choice of pressure-relieving support surfaces for patients with pressure ulcers should be made by registered health care professionals.

1.3.3 Initial choice and subsequent decisions, following re-assessments, related to the provision of pressure-relieving support surfaces for patients with pressure ulcers should be based on:

- ulcer assessment (severity)
- level of risk: from holistic assessment
- location and cause of the pressure ulcer
- general skin assessment
- general health status
- acceptability and comfort for the patient
- lifestyle of the patient
- ability of the patient to reposition themselves
- availability of carer/health professional to reposition the patient, and
- cost consideration.

1.3.4 There is no conclusive research evidence that any one pressure-relieving support technology is superior to another. However professional consensus recommends that:

- all individuals assessed as having a grade 1-2 pressure ulcer should, as a minimum provision, be placed on a high-specification foam mattress or cushion with pressure-reducing properties combined with very close observation of skin changes, and a documented positioning and repositioning regime.
- if there is any perceived or actual deterioration of affected areas or further pressure ulcer development, an AP (replacement or overlay) or sophisticated CLP system – for example low air loss, air fluidised, air flotation, viscous fluid – should be used. N.B. For individuals requiring bed rails, AP overlay mattresses should be placed on a reduced-depth foam mattress to maintain safety.

- individuals assessed as having grade 3-4 pressure ulcers (including intact eschar where depth, and therefore grade, cannot be assessed) should, as a minimum provision, be placed on an AP mattress (replacement or overlay) or sophisticated CLP system – for example low air loss, air fluidised, viscous fluid.
- if alternating pressure equipment is required the first choice should be an overlay system, unless other circumstances such as patient weight or patient safety indicate the need for a replacement system. N.B. To ensure maximum effect the inflated cells of the overlay must support the body weight of the patient in all bed positions (during use of backrest, knee break) and all patient positions (sitting up, side lying).

Safe use of pressure-relieving mattresses

1.3.5 When selecting pressure-relieving devices consider the following factors:

- Ensure that the mattress does not elevate the individual to an unsafe height in relation to bed rails if used. (For individuals requiring bed rails, AP overlay mattresses should be placed on a reduced-depth foam mattress.)
- Ensure that the individual is within the recommended weight range for the mattress.
- Children and alternating pressure
  - Cell size of mattress – small children can sink into gaps created by deflated cells causing discomfort and reducing efficacy.
  - Position of pressure sensors within the mattress in relation to the child – small children positioned at the top of the mattress may not register as the weight sensor is positioned in the middle of the mattress, thus producing inappropriate cell calibration.
  - Many alternating pressure mattresses have a permanently inflated head end which may place the occiput at risk in young children.

1.4 Dressings and topical agents in the treatment of pressure ulcers

1.4.1 Decisions about choice of dressing or topical agent for those with pressure ulcers should be made by registered health care professionals.

1.4.2 Choice of dressings or topical agents for the treatment of pressure ulcers should be based on:

- ulcer assessment (condition of wound)
- general skin assessment
- treatment objective
- dressing characteristics
- previous positive effect of particular dressing
- manufacturer's indications for use and contraindications
- risk of adverse events, and
- patient preference (lifestyle, abilities and comfort).

1.4.3 There is insufficient research evidence to guide clinicians' decision making about which dressings are most effective in pressure ulcer management**.** However professional consensus recommends:

Create the optimum wound healing environment by using modern dressings – e.g. hydrocolloids, hydrogels, hydrofibres, foams, films, alginates, soft silicones) in preference to basic dressing types – e.g. gauze, paraffin gauze and simple dressing pads.

Debridement

1.4.4 Clinicians should recognise the positive potential benefit of debridement in the management of pressure ulcers. Decisions about the method of debridement should be based on:

- ulcer assessment (condition of wound)
- general skin assessment
- previous positive effect of debridement techniques

- manufacturer's indications for use and contraindications
- risk of adverse events
- patient preference (lifestyle, abilities and comfort)
- characteristic of dressing/technique, and
- treatment objective.

1.4.5 Decisions about debridement methods for patients with pressure ulcers should be made by registered health care professionals.

1.5 Antimicrobial agents in the treatment of pressure ulcers

1.5.1 In the presence of systemic and clinical signs of infection in the patient with a pressure ulcer, systemic anti-microbial therapy should be considered.

1.6 Mobility and positioning in the treatment of pressure ulcers

1.6.1 Mobilising, positioning and repositioning interventions should be considered for *all* individuals with pressure ulcers (including those in beds, chairs and wheelchairs).

1.6.2 *All* patients with pressure ulcers should actively mobilise, change their position or be re-positioned frequently**.**

1.6.3 Avoid positioning individuals directly on pressure ulcers or bony prominences (commonly the sites of pressure ulcer development).

1.6.4 Mobilising, positioning and re-positioning interventions should be determined by:

- general health status
- location of ulcer

- general skin assessment
- acceptability (including comfort) to the patient, and
- the needs of the carer.

1.6.5 Frequency of re-positioning should be determined by the patient's individual needs and recorded – e.g. a turning chart.

1.6.6 Passive movements should be considered for patients with pressure ulcers who have compromised mobility.

1.7 Nutrition in the treatment of pressure ulcers

1.7.1 Nutritional support should be given to patients with an identified nutritional deficiency.[1]

1.7.2 Nutritional support/supplementation for the treatment of patients with pressure ulcers should be based on:

- nutritional assessment (using a recognised tool, e.g. "MUST" Tool)
- general health status
- patient preference, and
- expert input supporting decision-making (dietician or specialists).

1.8 Surgery for the treatment of pressure ulcers

1.8.1 Referral for surgical interventions for patients with pressure ulcers should be based on:

- level of risk (anaesthetic and surgical intervention; recurrence)
- patient preference (lifestyle, abilities and comfort)
- ulcer assessment

- general skin assessment
- general health status
- competing care needs
- assessment of psychosocial factors for the risk of recurrence
- practitioner's experience
- previous positive effect of surgical techniques, and
- failure of previous conservative management interventions.

1.9 Topical negative pressure, electrotherapy and electromagnetic therapy, and therapeutic ultrasound in the treatment of pressure ulcers

1.9.1 The use of adjunct therapies (electro-therapy technologies and topical negative pressure therapy) for the treatment of pressure ulcers should be based on:

- ulcer assessment
- level of risk from holistic assessment
- general skin assessment
- general health status
- previous positive effects of the technology/therapy
- patient preference (lifestyle, abilities and comfort), and
- practitioner's competence.

[1] The link between correcting this deficiency and its causal relationship with pressure ulcer healing has not been clearly established.

2 Notes on the scope of the guidance

NICE guidelines are developed in accordance with a scope that defines what the guideline will and will not cover. The scope of this guideline is available from our website – click on 'How this guidance was produced'.

How this guideline was developed

NICE commissioned the Royal College of Nursing Quality Improvement Programme to develop this guideline. The Centre established a guideline development group (see the full guideline), which reviewed the evidence and developed the recommendations.

There is more information about how NICE clinical guidelines are developed on the NICE website.

3 Implementation

NICE has developed tools to help organisations implement this guidance.

4 Research recommendations

The Guideline Development Group has made the following recommendations for research, based on its review of evidence, to improve NICE guidance and patient care in the future. The Guideline Development Group's full set of research recommendations is detailed in the full guideline.

4.1 Risk of delayed healing/complications to healing

4.1.1 Well designed, large-scale prospective cohort studies including those with pressure ulcers, and including relevant identified risk factors to show how the identified risk factors lead to more severe ulcers or delayed healing or complications.

4.2 Pressure ulcer assessment

4.2.1 Pressure ulcer assessment is a fundamental activity for both evaluating treatment interventions and communicating that information. Research needs to focus on which methods of measurement and which parameters are of use to clinicians to allow accurate wound evaluation.

4.3 Support surfaces for pressure support

4.3.1 Independent, well-designed, multi-centre, randomised, controlled trials are needed to compare the clinical and cost-effectiveness of different types of pressure-relieving support surfaces to treat existing pressure ulcers for patients in a variety of settings. In particular, this research should aim to compare, for example:

- different types of high-specification foam mattresses and other constant low-pressure devices, and
- alternating pressure, air fluidised and low air loss devices.

The studies should also evaluate the cost-benefit trade off of pressure ulcer treatment alternatives.

4.3.2 Positioning and repositioning should be investigated in those with existing pressure ulcers to determine:

- the need for repositioning with pressure-relieving devices
- methods of repositioning on different devices with frequency, and
- practitioner time involved in repositioning.

4.3.3 Future research must address the methodological deficiencies associated with much of the research described in the reviews. Particular attention should be paid to:

- description of inclusion and exclusion criteria used to derive the sample from the target population
- evidence of an a priori sample size calculation
- evidence of allocation concealment at randomisation
- description of baseline comparability of treatment groups
- evidence of blinded outcome assessment
- clear description of main interventions
- adequate description of associated care, and
- withdrawals reported by the treatment group with reasons.

Attention should also be paid to:

- true randomisation (with concealed allocation)
- a sample of sufficient size to detect clinically important differences, and clear criteria for measuring outcomes
- blinded interventions and assessment
- adequate follow up

- appropriate statistical analysis
- measuring patient experiences of pressure-relieving equipment
- comfort
- pain
- ease of use (for devices)
- appropriateness for users and settings, and
- durability of equipment.

4.4 Antimicrobials/nutrition

4.4.1 The results summarised in this review are based on findings from small trials with methodological problems. Therefore, much of the required research needs replication in larger, well-designed studies using contemporary interventions for antimicrobial activity, and nutritional support/supplementation.

4.5 Surgery

4.5.1 Research needs to focus on the effectiveness of different types of surgery, and surgery compared to conventional treatments, in those with pressure ulcers.

5 Other versions of this guideline

5.1 Full guideline

The full guideline, Pressure ulcers: the management of pressure ulcers in primary and secondary care, contains details of the methods and evidence used to develop the guideline. It is published by the Royal College of Nursing, and is available from our website.

5.2 Information for the public

NICE has produced information for the public explaining this guideline.

We encourage NHS and voluntary sector organisations to use text from this information in their own materials about pressure ulcers.

6 Updating the guideline

NICE clinical guidelines are updated so that recommendations take into account important new information. New evidence is checked 3 years after publication, and healthcare professionals and patients are asked for their views; we use this information to decide whether all or part of a guideline needs updating. If important new evidence is published at other times, we may decide to do a more rapid update of some recommendations.

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About this guideline

NICE clinical guidelines are recommendations about the treatment and care of people with specific diseases and conditions in the NHS in England and Wales.

The guideline was developed by the National Collaborating Centre for Nursing and Supportive Care, based at the Royal College of Nursing. The Collaborating Centre worked with a group of healthcare professionals (including consultants, GPs and nurses), patients and carers, and technical staff, who reviewed the evidence and drafted the recommendations. The recommendations were finalised after public consultation.

The methods and processes for developing NICE clinical guidelines are described in The guidelines manual.

The recommendations in this guideline were graded according to the quality of the evidence they were based on. The gradings are available in the full guideline and are not shown in this web version.

We have produced information for the public explaining this guideline. Tools to help you put the guideline into practice and information about the evidence it is based on are also available.

Changes since publication

October 2012: Minor maintenance.

12 December 2011: Minor maintenance.

Your responsibility

This guidance represents the view of NICE, which was arrived at after careful consideration of the evidence available. Healthcare professionals are expected to take it fully into account when exercising their clinical judgement. However, the guidance does not override the individual responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or guardian or carer, and informed by the summary of product characteristics of any drugs they are considering.

Implementation of this guidance is the responsibility of local commissioners and/or providers. Commissioners and providers are reminded that it is their responsibility to implement the guidance, in their local context, in light of their duties to avoid unlawful discrimination and to have regard to promoting equality of opportunity. Nothing in this guidance should be interpreted in a way that would be inconsistent with compliance with those duties.

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