

Pressure ulcers: prevention and management of pressure ulcers

NICE guideline

Draft for consultation, November 2013

If you wish to comment on this version of the guideline, please be aware that all the supporting information and evidence is contained in the full version.

This guideline replaces 'Pressure ulcers' (NICE clinical guideline 29) and 'Pressure ulcer prevention' NICE clinical guideline 7).

Contents

Introduction	3
Patient-centred care.....	4
Strength of recommendations	5
Interventions that must (or must not) be used	5
Interventions that should (or should not) be used – a ‘strong’ recommendation.....	5
Interventions that could be used.....	5
Key priorities for implementation.....	7
1 Recommendations.....	10
1.1 Prevention: adults	10
1.2 Prevention: neonates, infants, children and young people.....	14
1.3 Prevention: all ages	17
1.4 Management: adults	19
1.5 Management: neonates, infants, children and young people.....	22
2 Research recommendations	26
2.1 Debridement	26
2.2 Negative pressure wound therapy	26
2.3 Risk assessment in neonates, infants, children and young people ...	27
2.4 Pressure redistributing devices.....	27
2.5 Repositioning	28
3 Other information	29
3.1 Scope and how this guideline was developed	29
3.2 Related NICE guidance	29
4 The Guideline Development Group, National Collaborating Centre and NICE project team.....	31
4.1 Guideline Development Group.....	31
4.2 National Clinical Guideline Centre	32
4.3 NICE project team	32

Introduction

Pressure ulcers are caused when an area of skin and the tissues below are damaged as a result of being placed under pressure sufficient to impair its blood supply. Typically they occur in a person confined to bed or a chair by an illness and as a result they are also sometimes referred to as 'bedsores', or 'pressure sores'.

All patients are potentially at risk of developing a pressure ulcer. However, they are more likely to occur in people who are seriously ill, have a neurological condition, impaired mobility, impaired nutrition, or poor posture or a deformity. Also use of equipment such as seating or beds, which are not designed to provide pressure relief, can cause pressure ulcers. As pressure ulcers can arise in a number of ways, interventions for prevention and treatment need to be applicable across a wide range of settings including community and secondary care. This may require organisational and individual change and commitment to effective delivery.

Pressure ulcers are often preventable and their prevention is included in domain 5 of the Department of Health's 'NHS outcomes framework 2013/14'. The current guideline rationalises the approaches used for prevention and treatment of pressure ulcers, and its implementation will ensure practice is based on the best available evidence. It covers prevention and treatment and applies to all people in NHS care and in care funded by the NHS.

Recommendations for prevention include methods for identification and risk assessment and the preventive measures that should be applied. Treatment of pressure ulcers includes recommendations on wound care, adjunctive therapies and support surfaces. While there is much clinical expertise and good practice focused on preventing and treating pressure ulcers, it is hoped that this evidence-based guidance will contribute to reducing the number of pressure ulcers nationally through its implementation throughout the NHS.

The guideline will assume that prescribers will use a drug's summary of product characteristics to inform decisions made with individual patients.

Patient-centred care

This guideline offers best practice advice on the care of people with pressure ulcers.

Patients and healthcare professionals have rights and responsibilities as set out in the [NHS Constitution for England](#) – all NICE guidance is written to reflect these. Treatment and care should take into account individual needs and preferences. Patients should have the opportunity to make informed decisions about their care and treatment, in partnership with their healthcare professionals. If the patient is under 16, their family or carers should also be given information and support to help the child or young person to make decisions about their treatment. Healthcare professionals should follow the [Department of Health's advice on consent](#). If someone does not have capacity to make decisions, healthcare professionals should follow the [code of practice that accompanies the Mental Capacity Act](#) and the supplementary [code of practice on deprivation of liberty safeguards](#). In Wales, healthcare professionals should follow [advice on consent from the Welsh Government](#).

NICE has produced guidance on the components of good patient experience in adult NHS services. All healthcare professionals should follow the recommendations in [Patient experience in adult NHS services](#).

If a young person is moving between paediatric and adult services, care should be planned and managed according to the best practice guidance described in the Department of Health's [Transition: getting it right for young people](#).

Adult and paediatric healthcare teams should work jointly to provide assessment and services to young people at risk of developing or who have developed pressure ulcers. Diagnosis and management should be reviewed throughout the transition process, and there should be clarity about who is the lead clinician to ensure continuity of care.

Strength of recommendations

Some recommendations can be made with more certainty than others. The Guideline Development Group makes a recommendation based on the trade-off between the benefits and harms of an intervention, taking into account the quality of the underpinning evidence. For some interventions, the Guideline Development Group is confident that, given the information it has looked at, most patients would choose the intervention. The wording used in the recommendations in this guideline denotes the certainty with which the recommendation is made (the strength of the recommendation).

For all recommendations, NICE expects that there is discussion with the patient about the risks and benefits of the interventions, and their values and preferences. This discussion aims to help them to reach a fully informed decision (see also 'Patient-centred care').

Interventions that must (or must not) be used

We usually use 'must' or 'must not' only if there is a legal duty to apply the recommendation. Occasionally we use 'must' (or 'must not') if the consequences of not following the recommendation could be extremely serious or potentially life threatening.

Interventions that should (or should not) be used – a 'strong' recommendation

We use 'offer' (and similar words such as 'refer' or 'advise') when we are confident that, for the vast majority of patients, an intervention will do more good than harm, and be cost effective. We use similar forms of words (for example, 'Do not offer...') when we are confident that an intervention will not be of benefit for most patients.

Interventions that could be used

We use 'consider' when we are confident that an intervention will do more good than harm for most patients, and be cost effective, but other options may be similarly cost effective. The choice of intervention, and whether or not to have the intervention at all, is more likely to depend on the patient's values

and preferences than for a strong recommendation, and so the healthcare professional should spend more time considering and discussing the options with the patient.

Key priorities for implementation

The following recommendations have been identified as priorities for implementation.

Adults: risk assessment

- Carry out and document an assessment of pressure ulcer risk on initial contact for adults receiving NHS care which does not involve admission to secondary care or a care home (for example, care received at a GP surgery or an accident and emergency department) only if they have a risk factor, for example:
 - significantly limited mobility (for example, people with a spinal cord injury)
 - a previous pressure ulcer
 - the risk of nutritional deficiency
 - the inability to reposition themselves
 - a neurological condition
 - significant cognitive impairment. [1.1.2]

Adults: skin assessment

- Offer adults who have been assessed as being at elevated risk¹ of developing a pressure ulcer a skin assessment by a trained healthcare professional (see recommendation 1.3.4). The assessment should take into account any pain or discomfort reported by the patient and the skin should be checked for:
 - skin integrity in areas of pressure
 - colour changes or discoloration

¹ Adults considered to be at elevated risk of developing a pressure ulcer will usually have multiple risk factors (for example, significantly limited mobility, risk of nutritional deficiency, inability to reposition themselves, a neurological condition, significant cognitive impairment) identified during risk assessment with or without a validated scale. Adults with a history of pressure ulcers are also considered to be at elevated risk.

- variations in heat, firmness and moisture (for example, because of incontinence, oedema, dry or inflamed skin).

[1.1.5]

Adults: care planning

- Develop and document an individualised care plan for adults at elevated risk² of developing a pressure ulcer, taking into account:
 - the outcome of risk and skin assessment
 - the need for additional pressure relief at specific at-risk sites
 - their mobility and ability to reposition themselves
 - other comorbidities
 - patient preference. [1.1.8]

Adults: repositioning

- Encourage adults, who have been assessed as being at risk of developing a pressure ulcer, to change their position frequently and at least every 6 hours. If they are unable to reposition themselves, offer help to do so, using appropriate equipment if needed. Document the frequency of repositioning required. [1.1.9]

Adults: devices for prevention of pressure ulcers

- Use a high-specification foam mattress for adults who are:
 - admitted to secondary care
 - at elevated risk² of developing a pressure ulcer in primary and community care settings (as identified by the risk and skin assessment).[1.1.14]

² Adults considered to be at elevated risk of developing a pressure ulcer will usually have multiple risk factors (for example, significantly limited mobility, risk of nutritional deficiency, inability to reposition themselves, a neurological condition, significant cognitive impairment) identified during risk assessment with or without a validated scale. Adults with a history of pressure ulcers are also considered to be at elevated risk.

Neonates, infants, children and young people: risk assessment

- Carry out and document an assessment of pressure ulcer risk in neonates, infants, children and young people, using a scale validated for this population (for example, the Braden Q scale for children), to support clinical judgement.[1.2.1]

All ages: healthcare professional training and education

- Provide training to healthcare professionals on preventing a pressure ulcer, including:
 - who is most likely to be at risk of developing a pressure ulcer
 - how to identify pressure damage
 - what steps to take to prevent new or further pressure damage
 - who to contact for further information and for further action.[1.3.3]
- Provide further training to healthcare professionals who have contact with anyone at elevated risk³ of developing a pressure ulcer. Training should include:
 - how to carry out a risk and skin assessment
 - how to reposition
 - information on pressure redistributing devices
 - discussion of pressure ulcer prevention with patients and their carers
 - details of sources of advice and support. [1.3.4]

Adults: management of heel pressure ulcers

- Discuss with adults with a heel pressure ulcer a strategy to offload heel pressure as part of their individualised care plan. [1.4.24]

³ Adults considered to be at elevated risk of developing a pressure ulcer will usually have multiple risk factors (for example, significantly limited mobility, risk of nutritional deficiency, inability to reposition themselves, a neurological condition, significant cognitive impairment) identified during risk assessment with or without a validated scale. Adults with a history of pressure ulcers are also considered to be at elevated risk.

1 Recommendations

The following guidance is based on the best available evidence. The [full guideline](#) gives details of the methods and the evidence used to develop the guidance.

Adults, neonates, infants, children and young people

This guideline covers people of all ages at risk of, or who have, a pressure ulcer. These terms are defined as follows:

- adults: 18 years or older
- neonates: under 4 weeks
- infants: between 4 weeks and 1 year
- children: 1 year to under 13 years
- young people: 13 to 17 years.

1.1 Prevention: adults

Risk assessment

- 1.1.1 Carry out and document an assessment of pressure ulcer risk for all adults on admission to secondary care or care home in which NHS care is provided.
- 1.1.2 Carry out and document an assessment of pressure ulcer risk on initial contact for adults receiving NHS care which does not involve admission to secondary care or a care home (for example, care received at a GP surgery or an accident and emergency department) only if they have a risk factor, for example:
- significantly limited mobility (for example, people with a spinal cord injury)
 - a previous pressure ulcer
 - the risk of nutritional deficiency
 - the inability to reposition themselves
 - a neurological condition

- significant cognitive impairment.

1.1.3 Reassess pressure ulcer risk if there is a change in clinical status (for example, after surgery, on worsening of an underlying condition or with a change in mobility).

1.1.4 Consider using a validated scale to support clinical judgement (for example, the Braden scale, the Waterlow score or the Norton risk-assessment scale) when assessing pressure ulcer risk.

Skin assessment

1.1.5 Offer adults who have been assessed as being at elevated risk⁴ of developing a pressure ulcer a skin assessment by a trained healthcare professional (see recommendation 1.3.4). The assessment should take into account any pain or discomfort reported by the patient and the skin should be checked for:

- skin integrity in areas of pressure
- colour changes or discoloration
- variations in heat, firmness and moisture (for example, because of incontinence, oedema, dry or inflamed skin).

1.1.6 Use finger palpation or diascopy to determine whether erythema or discolouration (identified by skin assessment) is blanchable.

1.1.7 Consider repeating the skin assessment at least every 2 hours in adults who have non-blanching erythema.

⁴Adults considered to be at elevated risk of developing a pressure ulcer will usually have multiple risk factors (for example, significantly limited mobility, risk of nutritional deficiency, inability to reposition themselves, a neurological condition, significant cognitive impairment) identified during risk assessment with or without a validated scale. Adults with a history of pressure ulcers are also considered to be at elevated risk.

Care planning

1.1.8 Develop and document an individualised care plan for adults at elevated risk⁵ of developing a pressure ulcer, taking into account:

- the outcome of risk and skin assessment
- the need for additional pressure relief at specific at-risk sites
- their mobility and ability to reposition themselves
- other comorbidities
- patient preference.

Repositioning

1.1.9 Encourage adults, who have been assessed as being at risk of developing a pressure ulcer, to change their position frequently and at least every 6 hours. If they are unable to reposition themselves, offer help to do so, using appropriate equipment if needed. Document the frequency of repositioning required.

1.1.10 Encourage adults, who are at elevated risk⁵ of developing a pressure ulcer, (as identified by risk assessment) to change their position frequently and at least every 4 hours. If they are unable to reposition themselves, offer help to do so, using appropriate equipment if needed. Document the frequency of repositioning required.

Skin massage

1.1.11 Do not offer skin massage or rubbing to adults to prevent a pressure ulcer.

⁵ Adults considered to be at elevated risk of developing a pressure ulcer will usually have multiple risk factors (for example, significantly limited mobility, risk of nutritional deficiency, inability to reposition themselves, a neurological condition, significant cognitive impairment) identified during risk assessment with or without a validated scale. Adults with a history of pressure ulcers are also considered to be at elevated risk.

Nutritional supplements and hydration

- 1.1.12 Do not offer nutritional supplements specifically to prevent a pressure ulcer in adults whose nutritional intake is adequate.
- 1.1.13 Do not offer subcutaneous or intravenous fluids specifically to prevent a pressure ulcer in adults whose hydration status is adequate.

Pressure redistributing devices

- 1.1.14 Use a high-specification foam mattress for adults who are:
- admitted to secondary care
 - at elevated risk⁶ of developing a pressure ulcer in primary and community care settings (as identified by the risk and skin assessment).
- 1.1.15 Consider a high-specification foam theatre mattress or an equivalent pressure redistributing surface for all adults who are undergoing surgery.
- 1.1.16 Discuss with adults at elevated risk⁶ of a heel pressure ulcer a strategy to offload heel pressure, as part of their individualised care plan.
- 1.1.17 Consider a high-specification foam or equivalent pressure redistributing cushion for adults who use a wheelchair.

Barrier creams

- 1.1.18 Consider using a barrier preparation to prevent skin damage in adults who are at elevated risk⁶ of developing a moisture lesion, as identified by skin assessment (such as those with incontinence,

⁶ Adults considered to be at elevated risk of developing a pressure ulcer will usually have multiple risk factors (for example, significantly limited mobility, risk of nutritional deficiency, inability to reposition themselves, a neurological condition, significant cognitive impairment) identified during risk assessment with or without a validated scale. Adults with a history of pressure ulcers are also considered to be at elevated risk.

oedema, dry or inflamed skin).

1.2 *Prevention: neonates, infants, children and young people*

Risk assessment

1.2.1 Carry out and document an assessment of pressure ulcer risk in neonates, infants, children and young people, using a scale validated for this population (for example, the Braden Q scale for children), to support clinical judgement.

Skin assessment

1.2.2 Offer neonates, infants, children and young people who are identified as being at elevated risk⁷ of developing a pressure ulcer a skin assessment by a trained healthcare professional. Take into account:

- occipital area skin
- skin temperature
- the presence of blanching erythema or discoloured areas of skin.

1.2.3 Be aware of specific sites (for example, the occipital area) where neonates, infants, children and young people are at risk of developing a pressure ulcer.

Repositioning

1.2.4 Ensure that neonates and infants who are at risk of developing a pressure ulcer are repositioned at least every 4 hours.

1.2.5 Encourage children and young people who are at risk of developing

⁷ Neonates, infants, children and young people considered to be at elevated risk of developing a pressure ulcer will usually have multiple risk factors (for example, significantly limited mobility, risk of nutritional deficiency, inability to reposition themselves, a neurological condition, significant cognitive impairment) identified during risk assessment with or without a validated scale. Those with a history of pressure ulcers are also considered to be at elevated risk.

a pressure ulcer to change their position at least every 4 hours. If they are unable to reposition themselves, offer help to do so, using appropriate equipment if needed.

- 1.2.6 Consider repositioning neonates and infants at elevated risk⁸ of developing a pressure ulcer (as identified by risk assessment) more frequently than every 4 hours. Document the frequency of repositioning required.
- 1.2.7 Encourage children and young people who are at elevated risk⁸ of developing a pressure ulcer (as identified by risk assessment) to change their position more frequently than every 4 hours. If they are unable to reposition themselves, offer help to do so, using equipment if needed. Document the frequency of repositioning required.
- 1.2.8 Ensure that repositioning equipment is available to aid the repositioning of children and young people, if needed.
- 1.2.9 Ensure that healthcare professionals are trained in the use of repositioning equipment.
- 1.2.10 Ensure that patients, parents and carers understand the reasons for repositioning. If children and young people decline repositioning, document and discuss their reasons for declining.
- 1.2.11 Consider involving a play expert to encourage children who have difficulty with, or who have declined repositioning.
- 1.2.12 Relieve pressure on the scalp and head when repositioning neonates, infants, children and young people at risk of developing a

⁸ Neonates, infants, children and young people considered to be at elevated risk of developing a pressure ulcer will usually have multiple risk factors (for example, significantly limited mobility, risk of nutritional deficiency, inability to reposition themselves, a neurological condition, significant cognitive impairment) identified during risk assessment with or without a validated scale. Those with a history of pressure ulcers are also considered to be at elevated risk.

pressure ulcer.

Skin massage

- 1.2.13 Do not offer skin massage or rubbing to neonates, infants, children and young people to prevent a pressure ulcer.

Nutritional supplements and hydration

- 1.2.14 Do not offer nutritional supplements specifically to prevent a pressure ulcer in neonates, infants, children and young people with adequate nutritional status for their developmental stage and clinical condition.
- 1.2.15 Do not offer subcutaneous or intravenous fluids specifically to prevent a pressure ulcer in neonates, infants, children and young people with adequate hydration status for their development stage and clinical condition.

Pressure redistributing devices

- 1.2.16 Use a high-specification foam cot mattress or overlay for all neonates and infants at elevated risk⁹ of developing a pressure ulcer (as identified by the risk assessment).
- 1.2.17 Use a high-specification foam mattress or overlay for all children and young people at elevated risk⁹ of developing a pressure ulcer (as identified by the risk assessment) as part of their individualised care plan.
- 1.2.18 Discuss with children and young people at elevated risk⁹ of a heel pressure ulcer a strategy to offload heel pressure.
- 1.2.19 Offer infants, children and young people who are long-term

⁹ Neonates, infants, children and young people considered to be at elevated risk of developing a pressure ulcer will usually have multiple risk factors (for example, significantly limited mobility, risk of nutritional deficiency, inability to reposition themselves, a neurological condition, significant cognitive impairment) identified during risk assessment with or without a validated scale. Those with a history of pressure ulcers are also considered to be at elevated risk.

wheelchair users, regular wheelchair assessments and provide pressure relief or redistribution.

- 1.2.20 Offer neonates, infants, children and young people at risk of developing an occipital pressure ulcer an appropriate pressure redistributing surface (for example, a suitable pillow or pressure redistributing pad).

Barrier creams

- 1.2.21 Use barrier preparations to help prevent skin damage, such as moisture lesions, for neonates, infants, children and young people who are incontinent.

1.3 *Prevention: all ages*

Patient and carer information

- 1.3.1 Offer timely, tailored information to people at elevated risk¹⁰ of developing a pressure ulcer, and their carers. The information should be delivered by a trained or experienced healthcare professional and include:

- the causes of a pressure ulcer
- the early signs of a pressure ulcer
- ways to prevent a pressure ulcer
- the implications of having a pressure ulcer (for example, for general health, treatment options and the risk of developing pressure ulcers in the future).

Demonstrate techniques and equipment used to prevent a pressure ulcer.

¹⁰ Neonates, infants, children and young people considered to be at elevated risk of developing a pressure ulcer will usually have multiple risk factors (for example, significantly limited mobility, risk of nutritional deficiency, inability to reposition themselves, a neurological condition, significant cognitive impairment) identified during risk assessment with or without a validated scale. Those with a history of pressure ulcers are also considered to be at elevated risk.

1.3.2 Take into account individual needs when supplying information to people with:

- degenerative conditions
- impaired mobility
- neurological impairment
- cognitive impairment
- impaired tissue perfusion (for example, caused by peripheral arterial disease).

Healthcare professional training and education

1.3.3 Provide training to healthcare professionals on preventing a pressure ulcer, including:

- who is most likely to be at risk of developing a pressure ulcer
- how to identify pressure damage
- what steps to take to prevent new or further pressure damage
- who to contact for further information and for further action.

1.3.4 Provide further training to healthcare professionals who have contact with anyone at elevated risk¹¹ of developing a pressure ulcer. Training should include:

- how to carry out a risk and skin assessment
- how to reposition
- information on pressure redistributing devices
- discussion of pressure ulcer prevention with patients and their carers
- details of sources of advice and support.

¹¹ Neonates, infants, children and young people considered to be at elevated risk of developing a pressure ulcer will usually have multiple risk factors (for example, significantly limited mobility, risk of nutritional deficiency, inability to reposition themselves, a neurological condition, significant cognitive impairment) identified during risk assessment with or without a validated scale. Those with a history of pressure ulcers are also considered to be at elevated risk.

1.4 *Management: adults*

Ulcer measurement

- 1.4.1 Record and document the surface area of all pressure ulcers in adults. If possible, use a validated measurement technique (for example, transparency tracing or a photograph).
- 1.4.2 Document an estimate of the depth of all pressure ulcers and the presence of undermining, but do not routinely measure the volume of a pressure ulcer.

Categorisation

- 1.4.3 Categorise each pressure ulcer in adults using a validated classification tool (such as the International NPUAP-EPUAP [2009] Pressure Ulcer Classification System). Use this to guide ongoing preventative strategies and management. Repeat and document each time the ulcer is assessed.

Nutritional supplements and hydration

- 1.4.4 Offer adults with a pressure ulcer a nutritional assessment by a dietitian or other healthcare professional with the necessary skills and competencies.
- 1.4.5 Offer nutritional supplements to adults with a pressure ulcer who have a nutritional deficiency.
- 1.4.6 Provide information and advice to adults with a pressure ulcer on how to follow a balanced diet to maintain an adequate nutritional status, taking into account energy, protein and micronutrient requirements.
- 1.4.7 Do not offer nutritional supplements to treat a pressure ulcer in adults whose nutritional intake is adequate.
- 1.4.8 Do not offer subcutaneous or intravenous fluids to treat a pressure ulcer in adults whose hydration status is adequate.

Pressure redistributing devices

- 1.4.9 Use high-specification foam mattresses for adults with a pressure ulcer. If this is not sufficient to redistribute pressure, consider the use of a dynamic support surface.
- 1.4.10 Do not use standard-specification foam mattresses for adults with a pressure ulcer.

Negative pressure wound therapy

- 1.4.11 Do not routinely offer adults negative pressure wound therapy to treat a pressure ulcer, unless it is necessary to reduce the number of dressing changes (for example, in a wound with a large amount of exudate).

Hyperbaric oxygen therapy and electrotherapy

- 1.4.12 Do not offer the following to adults to treat a pressure ulcer:
- electrotherapy
 - hyperbaric oxygen therapy.

Debridement

- 1.4.13 Assess the need to debride a pressure ulcer in adults, taking into consideration:
- the amount of necrotic tissue
 - the grade, size and extent of the pressure ulcer
 - patient tolerance
 - any comorbidities.
- 1.4.14 Offer debridement to adults if identified as needed in the assessment:
- use autolytic debridement, using an appropriate dressing to support it
 - consider using sharp debridement if autolytic debridement is likely to take longer and prolong healing time.

1.4.15 Do not routinely offer adults with a pressure ulcer:

- larval (maggot) therapy
- enzymatic debridement.

Consider larval therapy if sharp debridement is contraindicated or if there is associated vascular insufficiency.

Systemic antibiotics and antiseptics

1.4.16 After a skin assessment, offer systemic antibiotics to adults with a pressure ulcer if there are any of the following:

- signs and symptoms of systemic sepsis
- spreading cellulitis
- underlying osteomyelitis.

1.4.17 Discuss with the local hospital microbiology department which antibiotic to offer adults with infection to ensure that the systemic antibiotic is effective against local strains of infection.

1.4.18 Do not offer systemic antibiotics specifically to heal a pressure ulcer in adults.

1.4.19 Do not offer systemic antibiotics to adults based only on positive wound cultures without clinical evidence of infection.

Topical antimicrobials and antiseptics

1.4.20 Do not routinely use topical antiseptics and antimicrobials to treat a pressure ulcer in adults.

Dressings

1.4.21 Discuss with the adult what type of dressing should be used, taking into account:

- pain and tolerance
- position of the ulcer
- amount of exudate

- frequency of dressing change.

1.4.22 Consider using a dressing for adults that promotes a warm, moist wound healing environment to treat grade 2, 3 and 4 pressure ulcers.

1.4.23 Do not offer gauze dressings to treat a pressure ulcer in adults.

Heel pressure ulcers

1.4.24 Discuss with adults with a heel pressure ulcer a strategy to offload heel pressure as part of their individualised care plan.

1.5 *Management: neonates, infants, children and young people*

Ulcer measurement

1.5.1 Record and document the surface area of all pressure ulcers in neonates, infants, children and young people, preferably using a validated measurement technique (for example, transparency tracing or a photograph).

1.5.2 Document an estimate of the depth of a pressure ulcer and the presence of undermining, but do not routinely measure the volume of a pressure ulcer in neonates, infants, children and young people.

Categorisation

1.5.3 Categorise each pressure ulcer in neonates, infants, children and young people at onset using a validated classification tool (such as the International EPUAP-NPUAP [2009] Pressure Ulcer Classification System) to guide ongoing preventative and management options. Repeat and document each time the ulcer is assessed.

Nutritional supplements and hydration

1.5.4 Offer an age-related nutritional assessment to neonates, infants, children and young people with a pressure ulcer. This should be

performed by a paediatric dietitian or other healthcare professional with the necessary skills and competencies.

- 1.5.5 Discuss with a paediatric dietitian (or other healthcare professional with the necessary skills and competencies) whether to offer nutritional supplements specifically to treat a pressure ulcer in neonates, infants, children and young people whose nutritional intake is adequate.
- 1.5.6 Offer advice on a diet that provides adequate nutrition for growth and healing in neonates, infants, children and young people with a pressure ulcer.
- 1.5.7 Discuss with a paediatric dietitian whether to offer nutritional supplements to correct nutritional deficiency in neonates, infants, children and young people with a pressure ulcer.
- 1.5.8 Assess fluid balance in neonates, infants, children and young people with a pressure ulcer.
- 1.5.9 Ensure there is adequate hydration for age, growth and healing in neonates, infants, children and young people. If there is any doubt, seek further medical advice.

Pressure redistributing devices

- 1.5.10 Consider using specialist support surfaces (including dynamic support surfaces where appropriate) for neonates, infants, children and young people with a pressure ulcer, taking into account their current pressure ulcer risk and mobility.
- 1.5.11 Use a high-specification cot or bed mattress or overlay for all neonates, infants, children and young people with a pressure ulcer.
- 1.5.12 If pressure on the affected area cannot be relieved by other means (such as repositioning), consider a dynamic support surface, appropriate to the size and weight of the child or young person with a pressure ulcer, if this can be tolerated.

- 1.5.13 Tailor the support surface to the location and cause of the pressure ulcer for neonates, infants, children and young people.

Negative pressure wound therapy

- 1.5.14 Do not routinely use negative pressure wound therapy to treat a pressure ulcer in neonates, infants, children and young people.

Hyperbaric oxygen therapy and electrotherapy

- 1.5.15 Do not use the following to treat a pressure ulcer in neonates, infants, children and young people:

- electrotherapy
- hyperbaric oxygen therapy.

Debridement

- 1.5.16 Consider autolytic debridement with appropriate dressings for dead tissue in neonates, infants, children and young people. Consider sharp and surgical debridement by trained staff if autolytic debridement is unsuccessful.

Systemic antibiotics and antiseptics

- 1.5.17 Consider systemic antibiotics for neonates, infants, children and young people with a pressure ulcer with signs of local or systemic infection.
- 1.5.18 Discuss with a local hospital microbiology department which antibiotic to offer neonates, infants, children and young people with infection to ensure that the systemic antibiotic is effective against local strains of bacteria.

Topical antimicrobials and antiseptics

- 1.5.19 Do not routinely use topical antiseptics and antimicrobials to treat a pressure ulcer in neonates, infants, children and young people.

Dressings

- 1.5.20 Consider using a dressing which promotes a warm, moist healing

environment to treat grade 2,3 and 4 pressure ulcers in neonates, infants, children and young people.

- 1.5.21 Consider using topical antimicrobial dressings to treat a pressure ulcer where clinically indicated in neonates, infants, children and young people, for example, where there is spreading cellulitis.
- 1.5.22 Do not use iodine dressings to treat a pressure ulcer in neonates.
- 1.5.23 Do not offer gauze dressings to treat a pressure ulcer in neonates, infants, children and young people.

Heel pressure ulcers

- 1.5.24 Discuss with parents or carers of neonates and infants and with children and young people, a strategy to offload heel pressure as part of their individualised care plan, taking into account differences in size, mobility, pain and tolerance.

2 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.

2.1 *Debridement*

What is the effect of enzymatic debridement of non-viable tissue compared with sharp debridement on the rate of healing of pressure ulcers in adults?

Why this is important

Debridement of dead tissue is vital as its presence can delay healing and encourage infection. Although autolytic debridement via natural processes (supported by use of an appropriate dressing) is considered to be adequate for the majority of pressure ulcers, other methods, including mechanical, enzymatic, sharp debridement and larval therapy are available.

There is limited high quality evidence on whether removal of dead tissue via sharp (carried out at the bedside) or enzymatic debridement produces the best outcomes. Use of enzymatic debridement in the UK is limited and the availability of these agents is variable, however, it is used in other countries. Additionally, there is some evidence that it may be slower than sharp debridement and result in the removal of viable tissue.

Identifying the best method of debridement may have significant benefits, including reducing the length of time people with pressure ulcers need to stay in hospital.

2.2 *Negative pressure wound therapy*

Does negative pressure wound therapy (with appropriate dressing) improve the healing of pressure ulcers, compared with use of dressing alone in adults with pressure ulcers?

Why this is important

Negative pressure wound therapy is used for a variety of wounds, including pressure ulcers. It aims to assist healing, reduce the surface area of a wound

and remove wound exudate. Negative pressure wound therapy creates a suction force which helps drain the wound and promote wound healing. There is evidence to suggest some benefit in the use of negative pressure wound therapy in other wound areas (for example, surgical wounds) but there is limited evidence to support its use for pressure ulcers.

Negative pressure wound therapy is used variably across the NHS and many trusts have purchased or hired negative pressure wound therapy pumps. There would be benefits to patients and the NHS in establishing whether negative pressure wound therapy improves the healing of pressure ulcers.

2.3 *Risk assessment in neonates, infants, children and young people*

Which pressure ulcer tools are most effective for predicting pressure ulcer risk in children?

Why this is important

There are a few published pressure ulcer risk assessment tools for children, but most of these have no evidence of validity and over half have been developed from adult pressure ulcer risk assessment tools. Of the tools which have validation data, the evidence is mainly poor quality. When healthcare professionals are choosing a risk assessment tool to use in clinical practice, they should be looking for a tool that has evidence to demonstrate that it is good at predicting risk in the population of interest.

2.4 *Pressure redistributing devices*

Do pressure redistributing devices reduce the development of pressure ulcers for those who are at risk of developing a pressure ulcer?

Why this is important

Pressure redistributing devices are widely accepted methods of trying to prevent the development of pressure areas for people assessed as being at risk. These devices include different types of mattresses, overlays, cushions and seating. They work by reducing pressure, friction or shearing forces. There is limited evidence on the effectiveness of these devices and much of

the evidence has been funded by industry. The cost of pressure redistributing devices can vary significantly and there is limited evidence on whether more sophisticated devices (for example, alternating pressure devices) provide any additional benefit compared to more basic devices such as high-specification foam mattresses.

There is also limited evidence on whether different at-risk sites benefit from using different pressure redistributing devices. For example, a pressure redistributing device used for pressure relief on one site could cause pressure on another site. Further research is needed to identify what devices are beneficial for specific at-risk sites for all age groups.

2.5 *Repositioning*

When repositioning a person who is at risk of developing a pressure ulcer, what is the most effective position – and optimum frequency of repositioning – to prevent a pressure ulcer developing?

Why this is important

It is generally accepted that repositioning people who are at risk of developing a pressure ulcer can prevent one developing by removing pressure from the at-risk site. Identifying the most effective position – and the optimum frequency of repositioning – will minimise discomfort and maximise pressure ulcer prevention.

There is limited evidence on the most efficient position and frequency of repositioning for all age groups. Many studies include people who are on pressure redistributing surfaces, so it is unclear whether prevention is because of the support surface or the repositioning. A randomised study of different frequencies and positions on a standard support surface (for example, a high-specification foam mattress) is needed.

3 Other information

3.1 *Scope and how this guideline was developed*

NICE guidelines are developed in accordance with a [scope](#) that defines what the guideline will and will not cover.

How this guideline was developed

NICE commissioned the National Clinical Guideline Centre to develop this guideline. The Centre established a Guideline Development Group (see section 4), which reviewed the evidence and developed the recommendations.

The methods and processes for developing NICE clinical guidelines are described in [The guidelines manual](#).

3.2 *Related NICE guidance*

Details are correct at the time of consultation on the guideline (November 2013). Further information is available on [the NICE website](#).

Published

General

- [Patient experience in adult NHS services](#). NICE clinical guidance 138 (2012).
- [Medicines adherence](#). NICE clinical guidance 76 (2009).

Condition-specific

- [Incontinence in neurological disease](#). NICE clinical guideline 148 (2012).
- [Lower limb peripheral arterial disease](#). NICE clinical guideline 147 (2012).
- [Infection control](#). NICE clinical guideline 139 (2012).
- [Diabetic foot problems](#). NICE clinical guideline 119 (2010).
- [Surgical site infection](#). NICE clinical guideline 74 (2008).
- [Obesity](#). NICE clinical guideline 43 (2006).
- [Nutrition support in adults](#). NICE clinical guideline 32 (2006).

- [The MIST Therapy system for the promotion of wound healing in chronic and acute wounds](#). NICE medical technologies guidance 5 (2011).
- [End of life care for adults](#). NICE quality standard 13 (2011).

Under development

NICE is developing the following guidance (details available from [the NICE website](#)):

- The Debrisoft monofilament debridement pad for use in acute or chronic wounds. NICE medical technologies guidance. Publication expected March 2014.
- Multiple sclerosis (update). NICE clinical guideline. Publication expected October 2014.
- Motor neurone disease. NICE clinical guideline. Publication date to be confirmed.
- Type 2 diabetes (update). NICE clinical guideline. Publication date to be confirmed.

4 The Guideline Development Group, National Collaborating Centre and NICE project team

4.1 *Guideline Development Group*

Gerard Stansby

Professor of Vascular Surgery and Honorary Consultant Surgeon, Newcastle upon Tyne Hospitals NHS Foundation Trust, Newcastle

John Borthwick

Patient member

Nigel Broad

Senior Nurse, Powys Teaching Health Board, Wales

Richard Bull

Consultant Dermatologist, Homerton Hospital NHS Trust, London

Mark Collier

Lead Nurse/Consultant, Tissue Viability, United Lincolnshire Hospitals NHS Trust, Lincolnshire

Elizabeth McGinnis

Nurse Consultant, Tissue Viability, Leeds Teaching Hospitals NHS Trust, Leeds

Raquel Siganporia

Patient member

Laura Stuart

Clinical Lead/Occupational Therapist, Health and Aging Unit, Kings College Hospital, London and Improvement fellow, UCL Partners, London.

Carolyn Taylor

Specialist Dietitian, Spinal Injuries, Sheffield Teaching Hospital NHS Trust, Sheffield

Pradeep Thumbikat

Consultant, Spinal Injuries; Honorary Senior Lecturer, Sheffield Teaching Hospital NHS Trust, Sheffield

Chandi Vellodi

Consultant Physician, Acute Medicine and Medicine for the Elderly, Barnet and Chase Farm Hospitals NHS Trust, London

Jane Willock

Paediatric Rheumatology Nurse Specialist, Children's Hospital for Wales, Cardiff, and Senior Lecturer, University of South Wales, Pontypridd

Davina Richardson (co-opted member)

Physiotherapist, Imperial College Healthcare NHS Trust, London

4.2 *National Clinical Guideline Centre*

Liz Avital

Associate Director

Lilli Cooper

CT1 General Surgery

Katie Jones

Project Manager

Grace Marsden

Senior Health Economist

Paul Miller

Senior Information Scientist

Julie Neilson

Senior Research Fellow

4.3 *NICE project team*

Nicole Elliott

Associate Director, Centre for Clinical Practice

DRAFT FOR CONSULTATION

Caroline Keir

Guideline Commissioning Manager

Margaret Ghلامي

Guideline Coordinator

Nichole Taske

Technical Lead

Bhash Naidoo

Health Economist

Alison Lake

Editor