

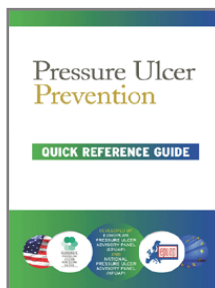
Innovations in pressure ulcer prevention and management: New international guidelines for best practice

09/11/09 | Pressure ulcers | Michael Clark

This short report describes the development process and key recommendations of the new international pressure ulcer guidelines for prevention and treatment developed by the EPUAP and NPUAP. Further key research and practical implications for pressure ulcer prevention and treatment are discussed.

Key innovations

- Development of joint international pressure ulcer guidelines by the EPUAP and NPUAP
- Recognition of future goal to translate guideline recommendations into steps that can be implemented in each country or healthcare system.
- Development of a new and elegant model that may help to explain vulnerability to pressure ulcer development while seated, according to the body mass index (BMI).
- New research to illustrate the costs associated with pressure ulcers in the presence of malnutrition.



A MANOR NEW INITIATIVE

New international pressure ulcer prevention and treatment guidelines have been published recently by the European Pressure Ulcer Advisory Panel (EPUAP) and the National Pressure Ulcer Advisory Panel (NPUAP) in the US. These guidelines, together with brief summaries (Fig 1), are available on the EPUAP website, with a summary of the prevention guideline recently disseminated through the *EPUAP Review* (available to EPUAP members) [1].

Fig 1: Quick reference guides are available from the EPUAP website. The full guidelines will be available from the NPUAP website

This major initiative has taken almost four-and-a-half years from the initial discussions regarding the value of standardised prevention and treatment guidelines between the US and Europe, to their release. With more than 1000 individuals participating directly in the guideline development, this has been the largest project attempted by both organisations to date.

The development process

The basis for the guidelines has been a detailed review of all pressure ulcer-related publications since the beginning of 1998, with earlier robust guidelines used to cover any literature published over 10 years ago. Each relevant publication has been reviewed by two EPUAP or NPUAP members and an evidence table created to summarise the content and conclusions of the paper. From these tables, draft guideline recommendations were developed by teams of working groups. More than 80 scientists and clinicians freely gave their time to review and build the guideline recommendations.

Guideline topics

The working groups covered a wide range of topics. In the **prevention** guideline these included:

- Pressure ulcer aetiology
- Risk assessment
- Skin assessment
- Nutrition
- Patient repositioning
- Use of support surfaces
- Special consideration of patients within operating theatres.

The **treatment** guideline covered a wider range of topics: pressure ulcer classification; assessment and monitoring of healing; nutrition in healing; pain assessment and management; support surfaces; wound cleansing; debridement; wound dressings; assessment and treatment of infection; biophysical agents; growth factors and biological dressings; surgical repair; and palliative care. The final treatment topic covered a scientific explanation of the principles of wound bed preparation and biofilms.

Recommendations

The draft recommendations were reviewed by a team of 12 EPUAP and NPUAP members who coordinated the entire guideline development process. Once agreed by the coordinating group, the recommendations were distributed to organisations and individuals who had registered themselves with the project website. These stakeholders covered 146 organisations from 32 countries and a further 903 individuals from 53 countries [1].

All of the comments from the stakeholders were considered by the coordinating group and, where required, guideline recommendations were modified. Each guideline recommendation was awarded a strength-of-recommendation rating, ranging from A, where direct scientific evidence from properly designed robust controlled trials (known as Level 1 studies) on pressure ulcers was available to support the recommendation, to B, where direct scientific evidence from properly designed and implemented clinical series (known as Level II, III, IV or V studies) was available, to level C recommendations, often based on expert opinion.

Classification

One keenly awaited area is the guideline's recommendations on pressure ulcer classification. Within Europe, a four-category classification has been proposed as follows:

- Category I: non-blanchable redness of intact skin
- Category II: partial thickness skin loss or blister
- Category III: full thickness loss (fat visible)
- Category IV: full thickness loss (bone visible).

Within the US, two further categories will be used - suspected deep tissue injury and an unstageable category. Further details of these categories can be seen in the recent consensus statement on measuring pressure ulcer occurrence [2].

A-level practice recommendations

Within the guidelines there are few A-level practice recommendations as follows:

- **Offer high-protein mixed oral nutritional supplements and/or tube feeding, in addition to the usual diet**, to individuals with nutritional risk and pressure ulcer risk because of acute or chronic diseases, or following a surgical intervention
- **Repositioning should be undertaken** to reduce the duration and magnitude of pressure over vulnerable areas of the body
- **Frequency of repositioning will be influenced by variables** concerning the individual (strength of evidence = C) and the support surface in use
- **Use higher specification foam mattresses** rather than standard hospital foam mattresses for all individuals assessed as at risk for pressure ulcer development
- **There is no evidence of the superiority** of one higher specification foam mattress over alternative higher specification foam mattresses
- **Both alternating pressure active support overlays and replacement mattresses have a similar efficacy** in terms of pressure ulcer incidence
- **Consider the use of direct contact (capacitive) electrical stimulation** in the management of recalcitrant Category II, III, and IV pressure ulcers to facilitate wound healing.

This final recommendation deserves further explanation. The use of electrical currents imposed through the application of electrodes to the skin surface, have been topics for discussion for a long time. However, the selection of appropriate electrodes, their positioning relative to the pressure ulcer and the field strength of the electrical current remain challenging to implement in practice.

It is perhaps a surprise that after all the recent emphasis on pressure ulcer research there remain very few clinical practice recommendations that are **supported by strong evidence**. This was particularly marked when considering pressure ulcer treatment, where **only a single A-level recommendation** could be offered. Where recommendations were made at a lower strength of evidence there were **56 B level recommendations** and **344 C-level (expert opinion) recommendations**.

Future opportunities

While clinicians may be alarmed at the number of recommendations offered in the guidelines, not all of these are likely to be relevant in each healthcare system or care setting. A major challenge for users of the new guidelines lies in the translation of the guideline recommendations into steps that can be implemented in each country or healthcare system. There is considerable scope for national and regional groups to begin work to tailor the overall guidelines to meet local circumstances.

Two other opportunities exist for gaining involvement in the implementation of the new international pressure ulcer guidelines - the first of these lies in the translation of the guideline documents into languages other than English and the EPUAP and the NPUAP would welcome offers of assistance with this important process. The second opportunity lies in the creation of patient and carer versions of the guidelines with these important documents resting on the previous refinement of the guidelines to meet local circumstances.

While the international pressure ulcer guidelines project may have taken a long time to come to fruition and has involved many people in its creation, it stands as an important landmark in pressure ulcer area care: for the first time we have **unified, evidence-based clinical practice guidelines** that will be followed in the US and in Europe.

OTHER KEY RESEARCH

Obesity and pressure ulcer development

Another significant piece of research was undertaken recently by Sopher *et al* (2009) [3]. It brings together two well-respected research teams from Israel (biomechanics) and the UK (nursing and clinical trials). The work provides an elegant model that may help to explain changes in vulnerability to pressure ulcer development while seated, according to the the body mass index (BMI) of the individual. Within low-to-normal ranges of BMI, internal tissue loading at the ischial tuberosities remained relatively constant, with progressive increases as the BMI increased over 22kg/m². This would suggest that obese patients may be more prone to developing internal muscle damage while seated than are undernourished individuals.

The practical implications of this work rest on a realisation that obese patients are at a higher risk of pressure ulcer development than those who are emaciated, if all other risk factors, such as immobility, are equal.

An incentive system to improve pressure ulcer care

Sanada *et al* (2009) [4] report the effect of the introduction of a new incentive system within Japan that reimburses 5000 yen (around US\$45) per high-risk patient admitted to acute care where a tissue viability nurse (wound, ostomy and continence nurse) is present and key organisational criteria are met. These include a comprehensive pressure ulcer management programme, in-house training, detailed pressure ulcer documentation and the employment of a nurse with a minimum of five years' experience in managing high-risk pressure ulcer patients.

Fifty-nine hospitals participated in a prospective cohort study, with 39 having introduced the incentive programme and 20 acting as controls. The healing of severe pressure ulcers in 105 patients was monitored. The incentive programme was independently associated with a faster pressure ulcer healing rate and the introduction of the incentive programme was believed to offer potential cost savings of over 1.7 billion yen each year through faster healing of severe pressure ulcers. This is a landmark study illustrating how national initiatives could have marked effect on pressure ulcer management.

Pressure ulcer costs and malnutrition

A paper by Banks *et al* (2009) seeks to quantify the economic costs associated with pressure ulcers in the presence of malnutrition [5]. Statistical models were developed based on pressure ulcer incidence, incidence attributable to malnutrition, and extended hospital stay due to pressure ulcer development. The study found that in 2002-2003 in Queensland, Australia, 16,060 bed days were lost because patients developed pressure ulcers in association with malnutrition, and that this incurred a financial cost equivalent to over 6.9 million euros. While the model may be limited in that it considered only extensions of lengths of stay in hospital, it provides strong supporting evidence for the social and economic consequences of pressure ulcer development.

CONCLUSION

The new international pressure ulcer guidelines from the EPUAP and NPUAP provide a clear statement of what we know today. The challenge, as ever, is keeping the guidelines up to date as new knowledge emerges. With over 300 new pressure ulcer publications each year, this will be a major challenge for clinicians, policy makers and for the many volunteers who contributed to the guideline project from the EPUAP and the NPUAP.

Author details

Michael Clark, PhD, Manager, Welsh Wound Network, Cardiff, Wales

Page Points

- A collaboration between the EPUAP and the NPAUP in the US has led to the development of new international pressure ulcer guidelines
- Based on a review of all published research available on pressure ulcers, the guidelines seek to set out best practice in all areas of pressure ulcer care
- There remain very few clinical practice recommendations that are supported by strong evidence
- Each guideline recommendation was awarded a strength-of-recommendation rating, ranging from A (direct scientific evidence from robust trials), to B (direct scientific evidence from good clinical series), to level C recommendations (often based on expert opinion)
- There is considerable scope for national and regional groups to begin work to tailor the overall guideline to meet local circumstances
- Obese patients may be at a higher risk of pressure ulcer development than those who are emaciated
- National financial incentive schemes could have marked effect on pressure ulcer management
- Pressure ulcer development attributable to malnutrition may result in extended hospital stay and increased financial costs

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