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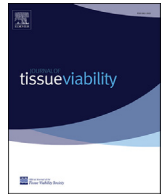
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Developing the tissue viability seating guidelines

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ABSTRACT

Background: Costs for the prevention and management of pressure ulcers have increased significantly with limited published advice from health and social care organisations on seating and preventing pressure ulcers. At the request of the UK Tissue Viability Society the aim of the publication was to develop a practical guide for people, carers and health and social care professionals on how the research and evidence base on pressure ulcer prevention and management can be applied to those who remain seated for extended periods of time.

Methods and findings: The evidence base informing the guidelines was obtained by applying a triangulation of methods: a literature review, listening event and stakeholder group consultation. The purpose was to engage users and carers, academics, clinicians, inspectorate and charities, with an interest in seating, positioning and pressure management to: gather views, feedback, stories, and evidence of the current practices in the field to create a greater awareness of the issue.

Conclusion: The new guidelines are inclusive of all people with short and long-term mobility issues to include all population groups. The document includes evidence on where pressure ulcers develop when seated, risk factors, best possible seated position and what seat adjustments are required, the ideal seating assessment, interventions, self-help suggestions and key seating outcomes. The updated TVS CPGs have been informed by the best available evidence, the insights and wisdom of experts, stakeholders and people who spend extended periods of time sitting.

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1. Introduction

Sitting is a customary, universal activity of daily living with many people spending a high proportion of the day seated. Harvey, Chastin and Skelton's [1] systematic review found that older adults aged over 60 spend on average 9.5 hours a day sitting. The consequences of prolonged sitting in relation to cardiovascular disease, diabetes and deep vein thrombosis which have been well documented [2]. However, the link between sitting and the development of pressure ulcers is less well established in contemporary literature even though people with decreased mobility being more susceptible to pressure ulcer formation [3,4].

Organisations in England who submit data to the NHS Safety Thermometer [5] reported that there were 130,917 (old and new) pressure ulcers during 2016/17, but it was not stated how many of these were associated with sitting. Current literature [6] suggests that when a person is seated the bones of the pelvis and the seated surface compress the soft tissue in the gluteal region resulting in tissue distortion and deformation. Tissue distortion and deformation occurs when seated, because the body weight is distributed over a smaller surface area resulting in higher pressures which can occur after a period of 1–2 hours [7]. Despite the long established awareness of the impact of being seated on tissue distortion and deformation, NICE [8] have highlighted the lack of robust evidence to inform clinical decision making with regards to the provision, supply and use of seating equipment.

In 2008, the Tissue Viability Society (TVS) commissioned the development of clinical practice guidelines for seating and pressure ulcers to assist health care professionals in identifying and

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providing suitable interventions to address this issue [9]. Since then there have been an increasing number of publications on the prevention and management of pressure ulcers in people who sit for extended periods of time. However, most of these publications did not have any end user collaboration in their development [3,10,11]. In 2016 The TVS commissioned an update of the clinical practice guidelines for seating and pressure ulcers to include the most up to date evidence and practice. The review of these guidelines was undertaken in line with the NICE [12] key principles for developing guidelines in order to ensure methodological rigour, with a specific focus on the inclusion of lay members and consultation. The review of the guidelines also complied with the international standards for guideline development by respecting the views, rights and unique contribution that ordinary people can make to the creation of healthcare related policy and decision making as they are the end users of care. This was accomplished by involving people who remain seated for extended periods of time in every step of the update of the clinical practice guidelines for seating and pressure ulcers [13]. This paper discusses the method and process which underpinned the update of the TVS clinical practice guidelines for seating and pressure ulcers.

2. Need for the review

Since the publication of the original TVS clinical practice guidelines for seating and pressure ulcers (CPGs) [9], a number of important developments have occurred that have underscored the need for these guidelines to be updated. Pressure ulcers have become the focus of considerable quality improvement efforts across the world as pressure ulcers are widely perceived to be an adverse healthcare related patient outcome [14–16]. In many countries, pressure ulcer related quality improvement efforts have entailed the implementation of measures such as skin care bundles [17–19] which provide little guidance on the care of patients who are seated for extended periods of time.

Over the last 10 years, the important contribution that patients and members of the public can make to research and clinical practice has been highlighted in a number of studies [20–22], papers [23–25] and reports [26–29] on different elements of healthcare. There has also been a global shift in healthcare with a greater emphasis on a prudent approach to population healthcare in which patients and the public are active participants in the co-production of care alongside healthcare professions in order to minimise unwarranted variations in care and to ensure the consistent delivery of safe high quality patient centred care [30–33]. Recent studies and reviews [34–38] have shown that making the correct judgements and decisions about pressure ulcers or any other aspect of wound care requires an ability to gather relevant information, an appropriate standard of clinical expertise an appropriate mental focus and state of mind as well as the due consideration of the preferences and wishes of the person receiving care. Up to date clinical practice guidelines based on the best available evidence are integral to ensuring that patients and their families consistently receive safe high quality care because they enhance healthcare professionals' judgement and decision making and reduces unnecessary variation in care [35,36,39].

The majority of contemporary of national and international guidelines [8,40] on pressure ulcer prevention and treatment do not provide detailed clinically focused guidance on how the care of people who are seated for extended periods of time especially with regards to the use of chairs and wheelchairs which incorporate preference s and views of the end users. For example, the NICE guidelines [8] refer to the need to give due consideration to the needs of people who are seated for long periods of time and are at risk of developing pressure ulcers. In order to ensure that people

who spend extended periods of time sitting consistently receive safe high quality care underpinned by evidence based decision making by healthcare professionals; it was imperative that the TVS CPGs were updated to with due consideration of the most up to date evidence and views of end users. The revised TVS CPGs set out specific guidance on seating and pressure ulcers which can be used to improve the quality of skin care that patients receive and to reduce the incidence of pressure ulcers especially in people who are seated for extended periods of time.

3. Stages of the process

3.1. Literature review

A scoping exercise was completed to map key concepts within seating since the original guidelines were developed [41]. This enabled the authors to set the parameters for a search of the literature in order to provide a framework within which to identify recent developments in the evidence base and provision of healthcare. A literature search was conducted in May 2016 and repeated in September 2016 using a PICO framework (See Fig. 1). Inclusion criteria comprised of articles published between 2008 and 2016, written in English and involved adult participants only. The search included the use of databases (CINAHL, PubMed, the Cochrane Library and Google Scholar), grey literature and hand searching using the terms in Fig. 1. From the initial search 554 citations were abstract screened by the authors and of these twenty-two were used to inform the cushion and chair selection content of the guidelines.

3.2. Stakeholder involvement

Within research there is a growing body of evidence to support the use of stakeholders in the development of clinical guidelines [8,12]. Stakeholders are defined as people or organisations who will have a specific interest in the subject or are affected by the outcomes [12]. This group of people should include supporters and critics in order to provide a balanced view [12]. Stakeholders were identified from the Tissue Viability Society trustees, service users, clinicians, policy makers, inspectorates, academics and charities. Patient engagement was seen as a key element of the process of developing the revised guidelines to ensure 'face validity and meaningfulness' (p.8) for the people for whom the guidelines were intended [13]. This meant that consideration was given to the definitions and language used and key elements of the guidelines, to empower the voice of the end user. The final group of stakeholders included: seven TVS trustees, two service users and three academics.

3.3. Listening event

Following the initial stakeholders meeting questions emerged related to equipment and measurement that required further clarification. A Listening event was arranged to gather the views and opinions of the wider community in relation to the findings. Listening events are used extensively in the healthcare arena to ensure that different perspectives are heard and explored [42]. They assist in strengthening the guidelines by acknowledging individual opinion and ensuring any resulting guidelines are developed to represent the identified end users and current evidence base [42].

A keynote speaker was invited to set the context of the event and give specific background in relation to product design, industry, healthcare and ultimately the end user. Academics, clinicians (all professions), inspectorate, charities, users, and carers with

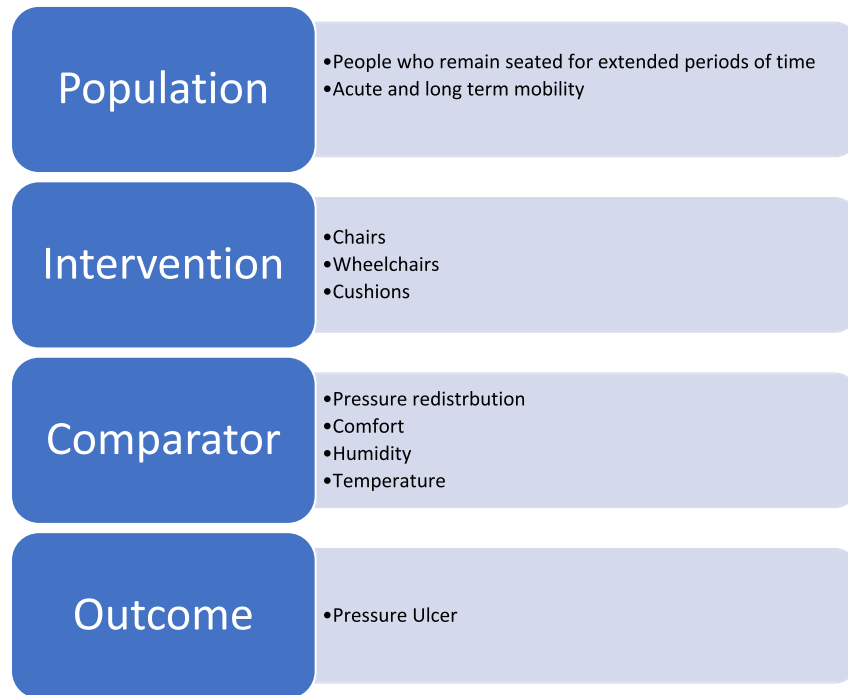


Fig. 1. PICO Framework.

an interest in seating, positioning and pressure management were invited to attend. The intention of the event was to gather views and feedback on the first draft of the document, gather further evidence of current practices in the field and to create greater awareness of the complexities of the issue using a nominal group technique [42]. The presence of users and their carers was essential for collecting opinions of the effectiveness of current commercially available seating products for service users who remain seated for extended periods of time, short term or long term.

The listening event took the form of five rotational workshops designed to elicit the views and opinions of the participants. Each workshop was facilitated by a specialist in the field. The topics of the workshops were:

- Risk and skin assessment tools
- Choosing a cushion
- Choosing a chair
- Choosing a Wheelchair
- Pressure mapping and anthropometric measurements

The findings of these round table discussions were aggregated and checked with the participants to ensure the views were representative and had been reported accurately. The benefits of working together included the sharing of information and understanding individual needs to ensure the guidelines were applicable to all.

3.4. Drafts

The drafted guidelines underwent several rounds of peer review to ensure that the content and tone was appropriate and focused. The peer review process is well defined in the literature on guideline development as a method to enhance the quality in the end product [42].

TVS Trustees, clinical experts, academic and Independent practitioners from different disciplines and communities and end

users were consulted to ensure that the guidelines were relevant and applicable for different settings and populations. The first draft was discussed at the Listening Event previously mentioned. Each subsequent version of the document was sent to specified individuals who represented key stakeholders for comment and review then modified and resent to check validity. The final draft was reviewed by a wider group again for final comments. By this stage, few amendments were put forward, suggesting that the guidelines were in a stable form. In total four drafts of the document were reviewed.

4. Content: variations from 2009

4.1. Terminology

It was imperative that the language used within the document was easily readable for all and this was founded upon conclusions from stakeholder meetings, a listening event and best practice [43]. From this the term 'people' was expressed by the service users as their preferred term and was then incorporated throughout the guidelines. Further terminology changes were included in a glossary providing both professional and lay terms which can be accessed from the full document.

4.2. Where do pressure ulcers develop when seated?

Common sites for pressure ulcer development when seated were documented in the original guidelines. However, the authors added elbows, back of the head and between the knees as these are common sites where pressure ulcers may develop due to the armrests, headrest and inappropriate positioning in the chair.

4.3. What is the best possible seated position and what seat adjustments are required?

There was a consensus agreement from the stakeholders and

listening event attendees that the term 'best possible seated position' was a more accurate representation of an individual's holistic requirements. The term 'correct' infers flawless and error free, however achieving it is virtually impossible for anyone. Addendums to the seated position included: headrest, backrest, seat to back angle, leg rest and footplate to ensure credence is given to the full body and not just the pelvis and trunk.

4.4. What makes an ideal seating assessment?

A four-dimensional approach to assessment was taken utilising the person, chair and cushion, carer and other factors such as the environment. In doing this the authors demonstrate that a person-centred approach to assessment should be used in order to avoid equipment abandonment [10].

4.5. Who might be involved in the seating assessment?

In order to respond to the changing landscape of seating provision the importance of interprofessional collaboration with other professionals has been highlighted.

4.6. What interventions can I expect after a seating assessment?

A person-centred approach is demonstrated throughout the document in particular in this section exploring the differences of opinion between end user and professionals in priority of necessary features in chairs and cushions. This evidence was obtained at the listening event.

4.7. Cushion and static chair selection

In order to accommodate the most recent research and product developments WaterCell technology was added to the cushion selection [3].

4.8. Tilt in space wheelchairs and chairs

Static armchairs with tilt in space facilities have been added to the document to reflect current best practice in the twenty-four hour management of pressure and posture care. More up to date research has been added on the advantages and disadvantages of tilt in space wheelchair positioning.

4.9. What self-help suggestions are there to assist in the prevention of pressure ulcer?

In line with current government initiatives regarding the importance of patient engagement [44,45] the term self-help has been used to encourage the individual to be an active participant in their care. In light of recent evidence, the action of wheelchair push ups has been excluded [46] and an addition to the SSKIN bundle 'sickness' has been added as this increases susceptibility to pressure ulcer development thereby rendering the acronym to SSKINS in this document [47].

4.10. Key seating outcomes for the long-term seated individual

In response to requests from commissioners of healthcare, patient reported outcome measures and include additional factors such as communication, comfort, stability, pressure redistribution and physiological abilities have been considered ⁽⁴⁸⁾.

4.11. Useful resources

These updated guidelines were developed for inclusivity with a resource page added for further reading enabling easy access to websites, apps and current guidance. Alongside the full document there is a shortened abridged 'at a glance version' which can be downloaded for free from the Tissue Viability Society website for use as an information leaflet.

5. Alerts

The original TVS CPG were widely acknowledged to be first to provide clear guidance on best practice on seating and pressure ulcer prevention and treatment. The original CPG were also widely used in the UK and beyond to inform and underpin the care of people who are seated for extended periods of time. The updated TVS CPGs also have a number of innovative and novel features (alerts) which in our view make them uniquely suited to inform and improve skin care of people who are seated for extended periods of time in the prevention and treatment of pressure ulcers. The alerts highlight areas such as: assessment of dark pigmented skin, assessment of specific areas of risk pertinent to people who sit for extended periods of time, contraindications of the use of footstools, selection of cushion, use of recline function, standing frames and devices and finally consideration of non-verbal cues.

6. Conclusion

This paper has set out the methods and process which underpinned the update of the TVS CPGs in line with best practice with regards to evidence synthesis, guidelines development and patient and public engagement. The update of the TVS CPGs was undertaken in an iterative process with a number of stages each of which generated novel insight, knowledge and concepts that were integrated into the final guidelines. The updated TVS CPGs have been informed by the best available evidence, the insights and wisdom of experts, stakeholders and people who spend extended periods of time sitting. The updated TVS CPGs have advanced what is known about how to deliver the best possible care to prevent and treat pressure ulcers with regards to people who are seated for extended periods of time. Therefore, the updated TVS CPGs address a gap in current knowledge and set out a clear set of standards for best practice. As with any guidelines, the TVS CPGs are based on the best available evidence at the time of publication so future pressure ulcer research and quality improvement initiatives must have a greater focus on the needs of the people who are seated for extended periods of time in order to ensure that they receive the best possible health care in the rapidly evolving healthcare context.

The updated TVS CPGs are written in easy to understand English and are designed to be used by healthcare professionals, carers and people who are seated for extended periods of time to make appropriate decisions to prevent pressure ulcers and promote comfortable seating. Therefore, it is vital that these guidelines are interpreted and utilised appropriately to ensure the consistent delivery of safe high care to people who are seated for extended periods of time which delivers the best possible pressure ulcer related outcomes.

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Conflict of interest

The authors have no conflict of interest Ria Betteridge is a former Trustee of the Tissue Viability Society and Ray Samuriwo is the current Chair of Trustees of the Tissue Viability Society.

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