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# Exploring the acceptability of using low-friction bedding for patients with burns: Qualitative results from the SILKIE study

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ABSTRACT

*Background:* Skin grafts following deep burns are needed to ensure healing. Grafts that fail and require re-grafting cause significant distress to patients and additional costs for the NHS. Shearing, which leads to graft loss, may be reduced through the use of low-friction bedding. A feasibility study was conducted to assess proof of concept for the use of low-friction bedding for patients with burns. Patient, parent and staff views on the acceptability of this material were explored through semi-structured interviews.

*Method:* Patient views were gathered through telephone interviews (n=17; 11 adult patients and 6 parents of child patients). One patient completed the questionnaire in written form because of hearing difficulties. Staff views were gathered at two time points: at the start of the study through open-ended questionnaires (n=20) and at the end of the study through focus group (n=12) and telephone interviews (n=3). Data were analysed using framework analysis.

*Results:* Three themes were identified describing both patient and staff views of the sheets: *Slippery feel of the sheets; leaking wounds and sheet changes;* and *movement and friction.* Overall patients' views of the sheets were positive; they were comfortable to use the sheets and experienced reduced pain and itching. However, issues related to the slipperiness were highlighted. Staff views were largely negative because of difficulty in use, lack of absorbency, and increased workload.

*Conclusion:* The use of low-friction bedding is acceptable to patients undergoing a skin graft following a burn injury; however, problems related to sliding down the bed and soiling of sheets need addressing. Staff were supportive of the concept of low-friction bedding; however, they reported significant challenges in day-to-day use of sheets. Low-friction bedding presents a promising alternative to standard cotton sheets for patients with burns and those at risk of pressure sores; however, further work is needed to address current challenges in use.



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## 1. Introduction

Skin grafts are required to ensure healing after burns that are deep or take longer than 21 days to heal. Each year, approximately 1000 skin grafts are undertaken in England and Wales; 75% in adults and 25% in children [1]. Approximately 20% will fail completely or partially, with some wounds needing re-grafting [2]. Further surgery, taking skin from another part of the body, longer hospital stays, and increased scarring are all consequences that can be distressing for patients and expensive for the NHS [3,4].

Graft loss can be caused by rubbing or stretching the skin, which shifts new graft cells, thereby causing failure of attachment to the wound. It is thought that friction between dressings and bed sheets can cause this rubbing or stretching that results in shearing [5]. Further, it is believed that if dressings and patients were able to slide over the sheet when the patient moves in bed, then the graft may have more chance of 'taking'.

In the UK, bedding and clothing with reduced friction have been successfully used to reduce pressure sores by minimising friction between the skin and hospital bed [6–9]. It is likely that similar products could be used within burns services to prevent graft loss. Currently, no burns service that undertakes skin grafting has assessed a package of care involving low-friction bedding. However, dressings with a low friction covering have been used in some burns services for skin grafts and are anecdotally believed to improve skin graft success rates.

In 2015, a feasibility non-randomised study based in Bristol, UK (called SILKIE), was conducted to report whether it is possible to use low-friction bedding within the burns service following a skin graft. A range of low-friction medical products are available, including bedding and clothing. They are reusable and washable and designed to offer greater ease of movement and comfort to patients whilst in bed, including patients suffering from fragile skin conditions and patients with skin grafts. The sheets have a low-friction panel that covers most of the flat area of the mattress. Clinicians at two sites raised potential safety concerns about slips and falls from bed due to the bedding and tissue viability concerns including moisture lesions and fungal infections. Risk assessments were carried out at each site for manual handling including slip/fall risks; infection control and tissue viability teams at each site had to 'sign off' the use of products based on their own assessment of these risks. The aim of the study was to explore the feasibility of using a reduced friction nursing package including low-friction bedding to reduce shearing and thereby reduce skin graft loss in the first few days post surgery in patients with burn injuries. Bedding used included a bedsheet and pillow case. Results of the trial are being prepared for publication.

As part of this work, an integrated qualitative study was carried out to explore staff and patient views of the sheets. This paper presents these qualitative findings.

## 2. Method

### 2.1. Patients

Patients were recruited to the SILKIE feasibility study from specialist burns services at three hospital trusts (Site A for children, Site B for adults, and Site C for adults and children). Eligible participants were in-patients undergoing a skin graft for a burn injury who stayed at least one night in hospital, were not ventilated, were not on inotropes, did not have a vacuum-assisted closure (VAC) dressing, were able to speak and understand English or a translator was available, and had the mental capacity to give informed consent to undertake an interview. This included adult patients, parents of children under 16 years of age, and young people aged 16–18 years. Patients eligible for inclusion in the interview study were approached by a member of the study team at each site and provided with a patient information sheet. Details of interested patients were then passed on to the research team. All interested participants were contacted by phone and invited to take part in a telephone interview. Purposive sampling was used to ensure maximum variation in the sample with regard to demographic characteristics. In total, 36 potential participants were identified, and 18 participants were not interviewed for the following reasons: six could not be contacted, four declined, eight patient details were not sent on. Recruitment and final sample size were guided by the concept of 'information power' [10]. Given the specificity of the sample, focused study aims, and data collection methods, a sample size of 17 patients was considered sufficient. A CONSORT diagram of patient recruitment is shown in Fig. 1.

### 2.2. Staff

Nursing staff from all sites with experience of using the SILKIE sheets or who were involved in organising the study were invited to provide feedback on their experiences. Feedback was gathered at two time points, at the start and end of the study. At the start of the study, staff were asked to complete feedback forms, and at the end, they were invited to take part in focus groups or one-to-one interviews. Small focus group sessions were held at sites A and B; staff at site C were interviewed individually by telephone.

Topic guides for the semi-structured interviews were developed using reviews of the literature, study team knowledge and clinical experience. The patient topic guide covered experiences of using the sheets, the impact of the sheets on their skin graft, and experiences post-discharge. The staff topic guide covered practical experiences of using the sheets, their views on patient impact, training to use the sheets and laundry and sheet changes.

Telephone interviews were conducted between December 2015 and November 2016 by one female researcher (KW) with extensive experience of qualitative research. All participants provided written consent. One patient completed an open-ended questionnaire because of hearing difficulties that prevented a telephone interview. Staff focus group sessions were conducted jointly by two researchers KW and JI. JI was the senior qualitative researcher of the study.

Data were recorded using an encrypted audio recorder. Data collection and analysis were conducted in parallel after the first 5 interviews. Interviews and focus groups were recorded, fully transcribed and then imported into the software package NVivo 10. Data were analysed using a framework analysis approach [11,12]. The Framework Method is appropriate for thematic analysis of interview transcripts

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