

NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

HealthTech Programme

GID-HTE10051 Slide sheets for repositioning or moving a person: late- stage assessment

Final scope

1 Introduction

The topic has been identified for late-stage assessment (LSA) by NICE. LSA aims to assess technologies that are in widespread or established use in the NHS. Over time, technologies in use often undergo continuous or incremental innovation and adaptation. LSA will assess whether price variations between technologies are justified by the incremental differences and advancements, and which technologies represent value for money. It will support clinical practitioners, managers and commissioners in using NHS resources as effectively as possible and ensure that patient and system benefits are maximised.

The technologies identified for this assessment are slide sheets available for use in the NHS. The evaluation will assess the clinical and economic benefits of innovations in slide sheets used for moving or repositioning a person, as well as evaluating how product features impact outcomes and user preferences.

1.1 Background

Patient handling is an essential and necessary part of care in hospitals and community settings, as well as of supporting people in their own homes. Patient handling tasks can be broadly categorised into moving (transferring) and repositioning tasks. People may need to be moved laterally from one

surface to another, for example from one hospital bed to another or from a confined space onto a transfer board. People also need to be frequently repositioned within the same bed to prevent pressure ulcers ([NICE, 2014](#)) and other adverse events associated with not being able to move unassisted. Repositioning relieves pressure, promotes circulation, allows investigation of skin condition and allows air to reach the skin to avoid problems with the collection of moisture ([Gillespie et al. 2020](#)). Repositioning in bed is typically done once every 2 hours and so has been reported to account for almost half of all patient handling tasks ([McCoskey, 2007](#)). Repositioning is also done to increase comfort by sliding the person up a bed. A person may also need to be repositioned for sanitary and hygiene purposes, such as washing, and for changing clothes and bed linen.

Moving and repositioning tasks are done by a wide range of caregivers including, but not limited to:

- nurses, midwives, health care assistants and hospital porters
- physiotherapists and occupational therapists
- paramedics and ambulance crews
- radiographers, anaesthetists and other clinicians
- social care workers and home carers.

There is a risk that lifting or moving tasks can cause injuries to the person being moved, such as damage to the skin, bruising or cuts ([NHS England, 2024](#)). Poor moving and handling practice can also lead to discomfort and a lack of dignity for the person being moved ([HSE, 2024](#)).

Handling tasks can also put the handler at significant risk of musculoskeletal injury. Injuries to the back are most common, however, other injuries or accidents can also occur ([NHS England, 2024](#)). A review found that the lifetime prevalence of lower back and shoulder pain among nurses is 65% and 54%, respectively ([Davis and Kotowski, 2015](#)). Musculoskeletal burden has also been found to be very common among informal carers ([Darragh et al. 2013](#)). Musculoskeletal injuries result in costs to the healthcare system and productivity loss, as well as job dissatisfaction in the longer term. In the 10

years between 2009 and 2019, the NHS spent more than £57 million on claims related to manual handling ([NHS Resolution, 2020](#)).

Assistive devices decrease the lifting forces experienced by the handler ([HSE, 2013](#)). There are two types of assistive technologies: mechanical aids and small aids. Small aids are non-electrical assistive devices such as bed ladders, anti-slide mats, transfer boards, turn tables, handling belts, slings and slide sheets.

1.2 Current management

There are various pieces of legislation that outline safety requirements for moving and handling, with a focus on reducing risk through risk assessments:

- The Health and Safety at Work etc Act 1974.
- The Manual Handling Operations Regulations 1992.
- The Management of Health and Safety at Work Regulations 1999.
- Provision and Use of Work Equipment Regulations 1998.
- Lifting Operations and Lifting Equipment Regulations 1998.

A clinical review by the NHS Clinical Evaluation team ([NHS, 2018](#)) established the following best practices for the use of assistive technologies:

- Any use of an assistive device should be accompanied by a risk assessment prior to use.
- All bony prominences should be covered by a slide sheet throughout the movement or repositioning task, paying particular attention to the head and heels.
- A slide sheet must remain double layered at all times, as the forces involved greatly increase once the sheet is single layered.
- During lateral transfers a transfer board must be used to bridge the gap between the two surfaces.
- A minimum of 3-4 people are needed to carry out a lateral patient transfer, with 1-2 required for vertical movements.
- For repositioning in a chair a one way glide sheet is more appropriate to use.

Slide sheets are widely used in the NHS. The guide to [The Handling of People \(2011\)](#) recommends the use of slide sheets for repositioning a patient in the bed, moving a person up the bed and for lateral transfers of a person. The use of slide sheets is not advocated in repositioning of a person in a chair, sitting to sitting transfers or rolling or turning in bed.

2 Technologies

This section is based on information provided to NICE by companies, experts and information available in the public domain.

2.1 Purpose of the technologies

Slide sheets are friction reducing devices that assist the repositioning or moving of a person on or from a hospital bed or another surface. The aim is to reduce the overall musculoskeletal burden on the person doing the handling task. Additionally, slide sheets aim to minimise adverse events and increase comfort for the care recipient, by protecting vulnerable tissues from friction, shear and 'stiction'.

Slide sheets are used for several moving and repositioning tasks:

- Moving a person laterally from one surface to another, for example from one hospital bed to another or from a confined space onto a transfer board.
- Repositioning a person within the same bed to prevent pressure ulcers and other adverse events, increase comfort or for sanitary and hygiene purposes.
- Slide sheets can also be used for inserting a sling, helping with changing clothes or for exercise and rehabilitation.

Usually, at least two handlers are needed to perform a moving or repositioning task with a slide sheet but this will depend on the risk assessment.

In a healthcare setting, manual handling advisers will advise wards on which slide sheets to procure, taking into consideration the cost, design and technology features, facilities available to the handler and training. Then, the handler will choose a slide sheet based on characteristics of the person being

moved or repositioned. For example, the handler may need to match the size of the slide sheet to the care recipient's dimensions, consider the type of material, or safety features needed. Whether the user has received appropriate training may also drive the choice of which slide sheet is used. The handler may have limited choice between available slide sheets.

Benefits of using slide sheets include reduced perceived exertion, reduced calculated spine compression and shear loading, reduced activity in some muscles and reduced peak force required ([Pay et al. 2021](#)). A study has shown that repositioning with a slide sheet takes longer than without one, but is more effective in terms of total personnel time and subjective evaluations of fatigue ([Omura et al. 2019](#)).

2.2 Technology features

Basic technology requirements

A slide sheets system consists of 2 layers of low friction material. As a person is moved, one layer stays in contact with them while the other stays in contact with the supporting surface. This allows the material to slide against itself, reducing friction ([NHS Clinical Evaluation Team, 2018](#)).

Slide sheets can be flat, tubular or hybrid (a combination of both flat and tubular). Flat slide sheets are single pieces of fabric which are typically used in pairs. They provide flexibility as they allow for 360-degree movement including up, down, turning and swivelling. Tubular slide sheets are continuous tubes of fabric, essentially a single sheet sewn into a cylinder. The open edge of a tubular slide sheet can be on any side, but is typically on the longer one. Hybrid slide sheets are flat sheets offset and stitched together to form a tube.

Slide sheets can be single-use, single patient-use or reusable. Single-use slide sheets are disposed after each use. Single patient-use sheets are disposed after multiple uses with the same person. Reusable slide sheets can be laundered for decontamination and must withstand cleaning to national infection control guidelines. Slide sheets are available in different materials,

that can affect the thickness and softness of the product. The friction-reducing properties of slide sheets can be from a coating, for example silicone, or the friction-reducing material within the slide sheet. Laundering may worsen the friction reducing properties of a slide sheet if it is based on a coating.

Slide sheets are available in different shapes and sizes. NHS Supply Chain requires all products to be provided in the following sizes (width x length):

- ≤100cm x 100cm
- 100cm x 200cm
- 140cm x 200cm
- 100cm x 220cm
- 140cm x 220cm.

Experts have advised that slide sheets with a length of less than 150cm are rarely used for moving or repositioning tasks.

Slide sheets can come in packages of a single slide sheet (e.g. a tubular slide sheet), a pair (e.g. two flat slide sheets to be used together) or multiple slide sheets (e.g. a pack of 50).

Additional features, adaptations and potential innovations

Slide sheets can have additional features such as handles for gripping or straps for securing a part of the slide sheet to a mattress or bed. Single patient-use and reusable slide sheets are usually stored near the patient while they are in use. The slide sheet may have a method for indicating which patient the product belongs to, for example a storage bag which can hang on a bed or be placed in a patient's locker.

In situ slide sheets are designed to stay under the patient without needing to be removed after each use. Using an in situ slide sheet may allow for a moving or repositioning task to be done by a single carer.

Providing different colours and labelling can be used to distinguish different sizes, single-use from reusable slide sheets or different types, for example flat from tubular slide sheets. It can also be used to indicate the friction-reducing side of a slide sheet.

Transfer sheets, one-way glide sheets, air assist devices and other assistive technologies that do not consist of 2 layers of low friction material that work together to reduce friction are out of scope for this assessment.

2.3 Current NHS market for the technologies

There are a large number of slide sheets available to the NHS with a wide range of characteristics (such as size, type, material and additional features). There are at least 30 companies providing over 187 products (including different sizes and variants) to the NHS across a range of procurement routes:

- Slide sheets are listed as lot 9 in NHS Supply Chain's Pressure Area Care and Patient Handling framework.
- Purchases made directly from a supplier.
- Purchases made through a community loan store.

Around 80% of all sales in the NHS are through NHS Supply Chain. Most sales through NHS Supply Chain's framework are in acute trusts with a minority procured for community hospitals. NHS Supply Chain's spend on slide sheets between May 2023 and May 2024 was just over £7 million. The market leaders held 80% of the market.

There is price variation across the types of slide sheets available to the NHS. Individual product costs range from just over £1 each to over £180, with the majority being between £1 and £12.

3 Decision problem

Population	Any person who is temporarily or permanently unable to move unassisted and has to be repositioned or moved, and the caregivers performing the handling task
Subgroups	If the evidence allows, the following subgroups may be considered: <ul style="list-style-type: none"> • People who need longer-term care • People who are particularly frail or with a poor skin integrity.
Intervention	Flat, tubular, hybrid and in situ slide sheets that are available for purchase in the NHS.
Comparator(s)	Slide sheets without additional or innovative features. The comparator may differ between subgroups.
Healthcare setting	Hospital and community care settings
Outcomes	<p>Outcome measures for consideration may include, but are not limited to:</p> <p>Caregiver related outcomes</p> <ul style="list-style-type: none"> • Measures of musculoskeletal injury (e.g. rate or risk) and pain related to injury • Perceived risk and burden (e.g. using the Borg scale). <p>Patient related outcomes</p> <ul style="list-style-type: none"> • Adverse events, such as skin tears and pressure damage • Patient reported outcomes, including health-related quality of life and comfort. <p>Technology related outcomes</p> <ul style="list-style-type: none"> • Biomechanical measures of horizontal (pushing) and vertical (lifting) forces • Incidences when the technology does not function • Microclimate and breathability. <p>Costs and resource use</p> <ul style="list-style-type: none"> • Cost of the technology and associated lifecycle costs • Cost of treating adverse events • Number of carers needed to perform a moving or repositioning task • Time for performing the moving or repositioning task. <p>In addition, user preference and non-clinical outcome measures will be assessed as part of a user preference assessment.</p>
Economic analysis	An appropriate health economic model will be developed, where possible. Costs will be considered from an NHS and Personal Social Services perspective.

	<p>Sensitivity and scenario analysis should be undertaken to address the relative effect of parameter or structural uncertainty on results.</p> <p>The time horizon should be long enough to reflect all important differences in costs or outcomes between the technologies being compared.</p>
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3.1 Potential equality issues or considerations

NICE is committed to promoting equality of opportunity, eliminating unlawful discrimination and fostering good relations between people with particular protected characteristics and others.

Slide sheets may not be suitable for people who are particularly frail, critically ill or who have severe skin conditions, for example burns or ulcers.

The musculoskeletal burden felt by caregivers when using slide sheets is heavily dependent on the ability of the care recipient to assist during the moving or repositioning task. Some people, for example those with limited understanding of the English language when no interpretation support is available, or people with mental health conditions or a learning disability may be unable or less able to assist their caregiver, as well as those who are particularly frail, critically ill, with a physical disability or reduced mobility.

Some of the conditions which lead to a person needing assistance to move or reposition themselves may be considered a disability. In addition, the prevalence of most conditions that lead to a person needing assistance to move or reposition themselves rises with age. Older people or people with underlying skin conditions may be more likely to have fragile skin that is prone to tearing. They may also be at a higher risk of pressure ulcers. People with overweight or obesity may be at higher risk of pressure ulcers. The proportion of people with overweight or obesity is higher in men than women.

Caregivers may be at higher risk of sustaining injury when moving and handling patients if they are shorter or taller than average.

Age, disability and gender are protected characteristics under the Equality Act 2010.

4 Stakeholders

4.1 Healthcare professional organisations

The following healthcare professional organisations have been identified as stakeholders for this evaluation:

- Chartered Society of Physiotherapy
- National Back Exchange
- Royal College of Nursing
- Royal College of Occupational Therapists
- Society of Radiographers
- Society of Tissue Viability.

4.2 Patient and carer organisations

NICE's [Public Involvement Programme](#) has identified the following organisations:

- Age UK
- British Geriatrics Society
- Carers UK
- Hospice UK
- Living Made Easy
- National Back Pain Association.

4.3 Additional non-clinical professional organisations

The following non-clinical professional organisations have been identified as stakeholders for this evaluation:

- Association of British Healthcare Industries (ABHI)
- British Healthcare Trades Association (BHTA)
- Chartered Institute for Ergonomics and Human Factors
- NHS Supply Chain.

5 Authors

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Appendix A. Related Guidance

- **Related Guidelines:**

[Home care: delivering personal care and practical support to older people living in their own homes](#). (2015). NICE guideline 21.

[Pressure ulcers: prevention and management](#). (2014). Clinical guideline 179.

- **Related Quality Standards:**

[Home care for older people](#). (2016). NICE quality standard 123.

[Pressure ulcers](#). (2015). NICE quality standard 89.