NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

HEALTHTECH PROGRAMME

Draft guidance

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

Guidance development process

NICE late-stage assessment (LSA) guidance evaluates categories of technologies that are already in widespread use within the NHS. It assesses whether price variations between technologies in a category are justified by differences in innovation, clinical effectiveness and patient benefits. This will support NHS commissioners, procurement teams, patients and healthcare professionals to choose technologies that maximise clinical effectiveness and value for money.

Find out more on the NICE webpage on late-stage assessment (LSA) for medtech.

1 Recommendations

1.1 There is not enough evidence to determine whether price variations between different slide sheets are justified.

1.2 Choose the most appropriate slide sheet that is the least expensive, accounting for:

- whether the slide sheet will be used in a hospital or in the community
- how long the slide sheet will be used for and its durability and quality
- whether an effective laundry system is in place

- the physical characteristics and preferences of the person using the slide sheet and the person being moved or repositioned.

What information is needed

More information is needed to show if price variation between different slide sheets can be justified and attributed to any specific feature of the slide sheets. Key outcomes that should be captured include those relating to:

- the person being moved or repositioned:
  - comfort and security
  - adverse events, such as pressure ulcers or injuries
  - health-related quality of life

- the person using the slide sheet:
  - risk of musculoskeletal injuries and pain that can be linked to the use of a slide sheet
  - exertion forces
  - perceived risk of injury and burden
  - number of people and time needed to use the slide sheet

- the slide sheet:
  - durability of the material, including after laundering for washable slide sheets.

Evidence should be generated across different groups of people in different real-world settings and contexts, including:

- hospitals and in the community
- a variety of moving and repositioning tasks.

What this means in practice

Procurement and commissioning considerations

- Many factors can influence which type of slide sheet is most appropriate to use and how effective it might be.
- Washable slide sheets may save money, but only if an effective laundry system is in place, particularly in hospitals.
- Slide sheets that remain under the person (in situ slide sheets) may save money and have benefits for both the person using the slide sheet and the person being moved or repositioned when used for longer periods in the community.
- The durability and quality of the material of a slide sheet may be more important when the slide sheet is being used for a longer period.
- Some features, such as handles or straps, may be useful depending on the physical characteristics of the person using the slide sheet and the person being moved or repositioned.
- Standard and plus-size sheets are sufficient to address most clinical needs.

Why the committee made these recommendations

Slide sheets help reduce friction to make it easier to reposition or move someone on or from a bed or another surface. There are many slide sheets available, which vary in features and cost. Around 2.3 million slide sheets are purchased in a year and spending on slides sheets was expected to exceed £6.38million in 2024. This assessment aimed to determine whether the differences in clinical, economic and non-clinical outcomes attributed to those features could justify price variation.

The clinical evidence on the different features of slide sheets is limited and of poor quality. It does not consistently report on the outcomes most important to people who are moved or repositioned and those who perform these tasks.

A user preference assessment shows that the quality of the material a slide sheet is made of may be important. Clinical experts agree this could affect how well a slide sheet works and for how long. This could be important when a slide sheet needs to be used for a longer period.

The results from the economic evaluation are uncertain but suggest that washable slide sheets could save money compared with disposable or single-patient-use slide sheets. But washable slide sheets can get lost or damaged during, or in transit to, laundering, so an effective laundry system needs to be in place. The results also suggest that slide sheets that remain under the person (in situ slide sheets) may lead to cost savings when slide sheets need to be used for longer periods, such as in the community. This is because they are easier to use, which could reduce the number of people or the time needed to use a slide sheet.

2 The technologies

2.1 Slide sheets help reduce friction to make it easier to reposition or move someone on or from a bed or another surface. They reduce the overall musculoskeletal burden on the person doing the handling task, and minimise adverse events and increase comfort for the person being moved or repositioned. Slide sheets are used by a wide range of people in hospitals and the community, including healthcare professionals, care workers and carers (all referred to from here as ‘carers’).

2.2 All slide sheets consist of 2 layers of low-friction material. But, slide sheets can have some potentially innovative features:

- flat, tubular or hybrid design
- single use, single patient use or washable
- the material
- different friction-reducing coating
- different sizes, colours and packages
- designed to be removed after each use or to remain under the person (in situ)
- handles, straps, top clip loops and hook-and-loop fasteners
- space for labelling
- a dedicated storage bag.

3 Committee discussion

The advisory committee considered evidence from several sources to determine whether price variation between slide sheets could be justified by differences in their clinical and cost effectiveness or non-clinical outcomes important to users. The evidence included clinical evidence from a systematic review, reference and website searching, evidence from company submissions and expert feedback. The committee also considered the economic evidence from a review of the published literature, an economic evaluation done by the External Assessment Group (EAG), and a user preference assessment and resource impact assessment done by NICE.

Using slide sheets

Current practice

3.1 Slide sheets are used to help move or reposition people. This is an essential and necessary part of care in both hospitals and the community. They are widely used in the NHS by a range of carers for a variety of moving and repositioning tasks, but most commonly to reposition someone in bed or to move them from one surface to another. There may be many reasons for moving or repositioning someone. The person may have various comorbidities, which can affect their ability to assist, how frail they are, continence and the risk of pressure damage. The committee acknowledged that all these factors have an impact on deciding which type of slide sheet is most appropriate.

Equality considerations

3.2 Slide sheets may not be suitable for people who are particularly frail, critically ill or have severe skin conditions. A limited understanding of the English language, mental health conditions or learning disabilities can also affect the person's ability to assist during the moving or repositioning task. This increases the musculoskeletal burden experienced by the carer. Clinical experts explained that carers may also be at higher risk of sustaining injury

if they are above or below average height. Some slide sheets may have features that are beneficial in such cases (see sections 3.5 and 3.8). The committee concluded that the characteristics and preferences of the carer and the person who is being moved or repositioned should be considered when choosing a slide sheet.

Clinical effectiveness

The evidence base for slide sheets is limited

3.3 The evidence base for slide sheets is limited and of low quality. The EAG identified 7 studies directly related to the decision problem in its evidence review. All studies had quasi-experimental designs. Most of the studies did not have adequate sample sizes, and the studies varied in the type of repositioning task, setting, participants, outcomes reported and description of the interventions. Many studies were not done in a clinical setting, some used mannequins or volunteers, and 4 studies were not done in the NHS. A specialist committee member highlighted that the studies did not control for many important confounders, such as the physical characteristics of the carer and the time needed for moving or repositioning. The committee concluded that the comparability and generalisability of the findings were limited. It also noted that there was no published evidence on a number of additional relevant outcomes outlined in the final scope.

Evidence on potentially innovative features

3.4 Only one study's primary aim was to compare slide sheets with and without additional features. So, it was not possible to conclude from the published evidence whether any specific feature had an impact on outcomes. There was also no published evidence available for several of the features in the final scope.

3.5 Clinical experts noted that some features can have an impact on the effectiveness of slide sheets. Single-patient-use slide sheets are usually preferred because washable slide sheets can lose their

friction-reducing properties over time. The experts also noted that disposable slide sheets are usually made from lower-quality materials and can be less effective and more difficult to use. This can negatively affect the person being moved or repositioned.

3.6 The committee discussed the implications of laundering washable slide sheets. The clinical experts explained that if there are no effective laundry services available, slide sheets can get lost or damaged, for example they can be returned to the wrong ward. The committee heard that many NHS trusts do not have effective laundry services, and external contracting of laundering is common. But the committee also heard that some NHS trusts with onsite laundry facilities have successfully implemented washable slide sheets. The committee noted that this can also reduce waste.

3.7 The committee discussed in situ slide sheets, which are designed to remain under the person who is being moved or repositioned. Clinical and patient experts said that these can reduce discomfort from frequent insertion and removal of a slide sheet and help preserve dignity. The EAG identified 1 non-peer-reviewed study that compared the use of in situ slide sheets with washable flat slide sheets in the community. The study found that fewer carers were needed to perform handling tasks for some patients with an in situ slide sheet. The clinical experts added that in situ slide sheets can reduce the time required for repositioning and agreed that they can allow some repositioning tasks to be done by a single carer. But they noted that there can be laundering issues with in situ slide sheets (see section 3.6).

3.8 The clinical experts also highlighted that some potentially innovative features of slide sheets, such as straps, handles, top clip loops and hook-and-loop fasteners, may have disadvantages. They explained that handles can encourage lifting rather than sliding, which substantially increases the risk of accidents and musculoskeletal injuries. The committee also heard that some of

these features can affect infection control. The committee concluded that the usefulness of these features depends on the carer and the person being moved or repositioned. These features are only likely to be of value in some situations, for example to avoid overreaching when moving or repositioning someone with overweight or obesity.

Clinical equivalence

3.9 The committee discussed whether clinical equivalence between slide sheets with or without a particular feature(s) can be established. It recalled that the published evidence was limited, but some features were likely to have an impact on the effectiveness of slide sheets (see sections 3.4 to 3.8). The clinical experts added that the quality of the material used will affect both the durability of the slide sheet (including the impact of laundering) and its friction-reducing properties. So, even though some slide sheets have the same features, they may not be equivalent. But, the committee agreed this could be less apparent when comparing new slide sheets, and it would be reasonable to assume clinical equivalence in some cases, such as for single-patient-use slide sheets used over shorter periods.

Economic evaluation

Price variation

3.10 The EAG's regression analysis, using data from NHS Supply Chain, found that 63% of the price variation between different slide sheets was attributed to 4 features (reusability, type of slide sheet, presence of handles, and size of slide sheet). Slide sheets with handles and washable slide sheets had a statistically significantly higher price. But, a visual comparison of the prices for all features indicated considerable overlap between prices. Only some features could be reliably identified from the available data to include in the analysis. The committee acknowledged that the price of slide

sheets may be driven by other potentially innovative features that were not included in the regression analysis. It also highlighted that the pricing of slide sheets may be driven by factors unrelated to features, such as manufacturing costs or competitive pricing models.

Structure of the economic models

3.11 The EAG developed 2 economic models. The first compared washable with disposable or single-patient-use slide sheets, and the second compared removable with in situ slide sheets. The EAG assumed clinical equivalence between slide sheets. The committee recalled that clinical equivalence in practice is unlikely, especially if slide sheets are used for a long time (see section 3.9). But, because of the lack of published evidence, it agreed this was a reasonable assumption (see sections 3.4 to 3.8).

3.12 The economic model comparing washable with disposable or single-patient-use slide sheets included 4 clinical scenarios to capture a variety of settings of slide sheet use. The scenarios were outpatient, ambulance or emergency care use; acute hospital ward use; longer-term hospital use; and community care use. The committee welcomed this approach and agreed the model covered the range of scenarios that are likely to be seen in the NHS.

Model inputs

3.13 The EAG's models included resource use and cost parameters related to purchase, reprocessing (including washing and transportation) and disposal of slide sheets. The committee noted that all key resource use parameters were sourced from 1 non-peer-reviewed study or through expert elicitation, which led to substantial parameter uncertainty. The committee noted that the model comparing washable with disposable or single-patient-use slide sheets may have underestimated losses of slide sheets during laundering, especially if laundering is provided externally

(see section 3.6). The committee acknowledged that the lack of clinical evidence available to inform modelling of differences in clinical efficacy, manual handling injury outcomes or patient experience was a significant limitation (see section 3.3).

3.14 The models' costs for slide sheets were based on weighted averages from sales data provided by NHS Supply Chain for 2023 to 2024. Most slide sheets in the NHS are bought through NHS Supply Chain. A representative from NHS Supply Chain explained that NHS trusts can buy slide sheets directly from manufacturers and negotiate discounts, but these prices are likely to be similar to those from NHS Supply Chain. The committee concluded that the costs used in the EAG's models are appropriate.

Results of the economic models

3.15 The economic model comparing washable, disposable and single-patient-use slide sheets estimated that washable slide sheets were the least expensive option in almost all scenarios. The committee noted that the model may have underestimated some losses during laundering. The EAG clarified that some implementation issues could not be fully captured in the model. The committee concluded that the model's results were subject to parameter uncertainty, but washable slide sheets are likely to represent a cost-saving option if there is an effective laundering service. The committee also noted the sustainability benefits of using washable slide sheets if they were implemented successfully.

3.16 The economic model comparing in situ slide sheets with washable slide sheets in the community estimated that in situ slide sheets could save money because fewer care workers would be needed for some handling tasks. The committee noted that this was based on 1 non-peer-reviewed study (see section 3.13). A clinical expert observed that the model did not include time savings for handling tasks using an in situ slide sheet, so the results may be an underestimate. The committee concluded that, although the model

results were subject to parameter uncertainty, in situ slide sheets are likely to represent a cost-saving option for long-term care in the community.

3.17 The committee considered an exploratory analysis that included the cost and utility impact of pressure ulcer reduction from using in situ slide sheets, and acknowledged that this increased the benefit of in situ slide sheets. The committee also discussed an exploratory analysis that investigated the potential value of using in situ slide sheets in acute care. The clinical experts explained that implementing in situ slide sheets in acute care across the NHS would require significant infrastructure changes, guidance and training.

Resource impact

3.18 The committee considered a hypothetical scenario that modelled the financial impact of shifting towards using washable slide sheets. It concluded that this could result in overall cost savings for the system, but the results are uncertain. The committee recalled that there may have been uncaptured benefits relating to sustainability (see section 3.15).

User preference assessment

3.19 The committee discussed evidence from a user preference assessment. This aimed to explore which features of a slide sheet are most important to users when choosing a slide sheet. The top 2 criteria related to the quality of the slide sheet material. But, there was no consensus on how a higher-quality material could be defined or measured. The committee noted that there was no published evidence on the clinical and economic impact of different materials, and slide sheet material was not included in the regression analysis (see sections 3.3, 3.5 and 3.10). They recalled that the clinical experts advised that the quality of the material can affect durability and the experience of the person being moved or

repositioned, and concluded that the quality of the material may be more important when slide sheets are used over longer periods. The committee recognised that slide sheets are available in a range of sizes. Clinical expert feedback stated that the range of sizes is too large, and in practice having a standard and plus size are sufficient to address most clinical scenarios.

Justification for price variation

3.20 The committee concluded that, based on the evidence available, it was not possible to determine whether the price differences between slide sheets are justified by the benefits derived from additional features. They recalled that some features may be more useful in certain situations, settings or circumstances, and these should be considered when choosing a slide sheet.

3.21 The committee was unable to establish which slide sheet features lead to differences in effectiveness. It recalled that choosing a slide sheet sometimes depends on the characteristics of the person being moved or repositioned (see section 3.1). The committee also recalled that the value of a slide sheet to the system depends on how long it is used for, the care setting and whether effective onsite laundering services are available (see sections 3.1, 3.3 and 3.6).

3.22 The committee recalled that washable slide sheets were likely to be a cost-saving option when used in an NHS trust with an effective laundry service. It also recalled that in situ slide sheets were likely to be a cost-saving option in long-term care settings, particularly community care. It concluded that washable and in situ slide sheets may be worth paying more for. The committee also recalled that there may be significant uncaptured disadvantages associated with some features of slide sheets, including straps, handles, top clip loops and hook-and-loop fasteners, but some of these features may be useful in specific situations (see section 3.8).

Shared decision making

3.23 The committee acknowledged that in practice slide sheets are usually chosen by manual handling advisers, rather than clinicians on the ward. It heard from clinical experts that manual handling advisers choose and recommend slide sheets in discussion with healthcare professionals and patients, taking into consideration their needs and the care setting.

Evidence needed to demonstrate additional value

3.24 The committee concluded that more evidence is needed to justify the price variation between slide sheets with additional features. It recalled that various factors affect which type of slide sheet is most appropriate and how effective it is (see sections 3.1 and 3.2). So, the committee concluded that future studies that support procurement decisions should be done across different groups of people who need to be repositioned in different settings and situations, to capture the demographics and breadth of use cases for slide sheets. The committee also emphasised the need for evidence from real-world settings and participants (see section 3.3).

3.25 The committee recalled that there is limited or no evidence for many relevant outcomes (see section 3.4). It concluded that evidence generation should prioritise outcomes most important to carers and people being moved or repositioned. These include musculoskeletal injuries and pain that can be linked to the use of a slide sheet, exertion forces, perceived risk of injury and burden, comfort and security, adverse events and health-related quality of life. Priorities should also include economic outcomes, such as the number of people and time needed for a moving or repositioning task.

4 Committee members

This topic was considered by NICE's medical technologies advisory committee. Committee members are asked to declare any interests in the technology to be evaluated. If it is considered there is a conflict of interest, the member is excluded from participating further in that evaluation.

The minutes of each committee meeting, which include the names of the members who attended and their declarations of interests, are posted on the NICE website.

NICE also recruited clinical experts and specialist committee members for this topic.

Specialist committee members

Helen Vosper

Senior lecturer and lead for patient safety, University of Aberdeen

Laura Neil

Allied health professions lead and interim head of clinical governance and quality improvement, NHS 24, NHS Scotland

Ryan Buxton

Paramedic, West Midlands Ambulance Service University NHS Foundation Trust

Sally Morrow

Senior moving and handling adviser, Manchester University NHS Foundation Trust

Toby Smith

Professor of musculoskeletal research, University of East Anglia

Clinical experts

Darren Gill

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Hanna Wilkinson

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