Appendix Q: Support Surface Selection Tool

The following is one method of how to select the appropriate support surface for people with pressure injuries. This is not an exhaustive list but rather an example of a tool for support surface selection identified within the systematic review, AGREE II appraised guidelines, by the expert panel or external stakeholder feedback.

The term “pressure ulcer” used in this appendix, refers to “pressure injury.”

Support Surface Selection Tool


With an evidence-based practice background (scientific evidence, expert knowledge and patient preference), clinicians still require a user-friendly guide to translate this information into practice to potentially improve patient care outcomes. The Support Surface Selection Tool was first developed in 2008 to respond to this need. This tool stratified the types of support surfaces (active support surfaces and reactive support surfaces) based on the risk of the client developing pressure ulcers or the number of ulcers the client has and their mobility status. Feedback from clinicians indicated that while the tool was helpful, further assistance was required to select the additional features. As a result, two decision trees were created to help with the selection of specific features of active and reactive support surfaces.

As illustrated in Figure 1, a validated risk assessment tool should be utilized to determine the type of support surface required for an individual client (i.e. the columns across the top of the chart in Figure 1). If the client currently has pressure ulcers, choose the description in the first row which best fits the client’s clinical status. Note that the heels are excluded from this clinical description as heels are best managed independently from the bed surface (RNAO, 2007; NPUAP & EPUAP, 2009).

Next determine the client’s usual degree of mobility in bed by selecting the appropriate row listed down the side of the chart. Where the column of “risk” intersects with the row of “mobility”, a specific type of support surface is recommended; either a reactive support surface or an active support surface. If a reactive support surface is recommended, go to the reactive support surface decision tree (Figure 2). If an active support surface is recommended, go to the active support surface decision tree (Figure 3). Follow the decision tree to identify other specific features that may benefit the specific client. Recognize that this algorithm is not designed to replace clinical judgment, but is designed to assist the clinician to choose features for their client based on a comprehensive assessment of each individual client. Specific examples of support surfaces can be added in to the last box of the decision tree based on the surfaces available in your setting.
### Figure 1

| Ability to change position in bed (i.e. bed mobility) | At risk  
Redness present which fades quickly when pressure removed | Moderate risk  
Pressure ulcer (excluding the heels) where the client can be positioned off the ulcer | High Risk  
Pressure ulcer (excluding the heels) and redness over another area | Very High Risk  
Multiple pressure ulcers (excluding the heels) or the client can not be positioned off of an ulcerated area |
| --- | --- | --- | --- |
| Total assist to change position in bed | Reactive Support Surface (non powered) (e.g. air/gel/foam overlay) | Reactive Support Surface (e.g. air/gel/foam overlay) | Active Support Surface  
Multi-Zoned Surface (e.g. alternating pressure mattress, rotational surface) or a powered reactive support surface (e.g. low air loss) | Active Support Surface  
Multi-Zoned Surface (e.g. alternating pressure mattress, rotational surface) |
| Moderate assistance with bed mobility required. | Reactive Support Surface (non powered e.g. air/gel/foam overlay or high density foam mattress) | Reactive Support Surface (e.g. foam overlay with air section insert in the area of the wound) | Reactive Support Surface (non powered e.g. foam overlay with air section insert in the area of the wound) | Active Support Surface  
Multi-Zoned Surface (e.g. alternating pressure mattress, rotational surface) |
| Client independent with or without a device with bed positioning (light assist may be required) | Reactive Support Surface (e.g. High density foam mattress) | Reactive Support Surface (e.g. foam overlay with air section insert) | Reactive Support Surface (non powered e.g. air/gel/foam overlay) | Active Support Surface (if the controls can be placed within the client’s reach) |

**Users guide:**

1. With a validated risk assessment tool, determine the patient level of risk OR grade the patients with ulcers based on the clinical descriptors
2. Assess the level of mobility in bed and follow the column and row intersection to determine the appropriate reactive or active support system
3. For more information on reactive surfaces see figure 2 and for more information on active surfaces see figure 3

**Figure 2 Reactive Support Surface**

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**Overlay**

An additional support surface designed to be placed directly on top of an existing surface.

- May be less disruptive with sleeping when there is a bed partner (can be put on one side of the bed).

**Mattress Replacement**

A support surface designed to be placed directly on the existing bed frame.

- Does not raise the height from the floor to the top of the mattress.
- Old mattress may require storage.
- Check compatibility with the old bed frame.

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**Non Powered**

Any support surface not requiring or using external sources of energy (for e.g., A/C or D/C).

- Less noisy than powered.
- May be less complicated to operate.
- May require less maintenance.
- Does not require a grounded outlet or other electrical cords.

**Powered**

Any support surface requiring or using external sources of energy (for e.g., A/C or D/C).

- Requires a power source and may require a grounded outlet.
- May require adjustment.

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**Zone**

A segment with a single pressure redistribution capability.

- Easy to use, does not usually require adjustment.
- Consideration: Use for clients where moisture is an identified problem. Need to monitor patient for dehydration.

**Multi Zone**

A surface in which different segments can have different redistribution capabilities.

- Consideration: Determine whether or not the client's body fits in the appropriate zones.

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**Low Air Loss**

- Only use for clients where moisture is an identified problem. Need to monitor patient for dehydration.

**Non Low Air Loss**

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Active Support Surface

Surface

- A powered support surface with the capability to change its load distribution properties, with or without applied load.

Considerations

- Does not raise the height from the floor to the top of the mattress.
- Does not allow the bed to be used in the full flat position.
- Requires storage or repositioning.

Examples

- Low Air Loss
- Alternating Air
- Rotational
- Overlay
- Mattress Replacement
- Active Support Surface

Low Air Loss

- A feature of a support surface that provides a flow of air to assist in managing the microclimate of the skin.

Considerations

- May fit on a bed which is a non-standard hospital bed size.
- Increases the height to surface height.

Examples

- Alternating Air
- Rotational
- Overlay
- Mattress Replacement
- Active Support Surface

Alternating Air

- A feature of a support surface that provides pressure redistribution via cyclic change in loading and unloading as characterized by rate, duration, amplitude and rate of change parameters.

Examples

- Alternating Air
- Rotational
- Overlay
- Mattress Replacement
- Active Support Surface

Rotational

- A feature of a support surface that provides rotation about a longitudinal axis as characterized by degree of patient turn.

Examples

- Alternating Air
- Rotational
- Overlay
- Mattress Replacement
- Active Support Surface

Overlay

- An additional support surface designed to be placed directly on top of an existing support surface.

Examples

- Alternating Air
- Rotational
- Overlay
- Mattress Replacement
- Active Support Surface

Mattress Replacement

- Support surface designed to be placed directly on top of an existing bed frame.

Examples

- Alternating Air
- Rotational
- Overlay
- Mattress Replacement
- Active Support Surface

Active Support Surface

- A powered support surface with the capability to change its load distribution properties, with or without applied load.

Examples

- Alternating Air
- Rotational
- Overlay
- Mattress Replacement
- Active Support Surface
