

## FAQs about support surfaces

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**S**upport surfaces are consistently recommended for the prevention and treatment of pressure ulcers. So patients can derive optimal benefits from support surfaces, clinicians must understand how to use them effectively. This article answers several questions about these useful tools.

### What is a support surface?

The National Pressure Ulcer Advisory Panel (NPUAP) defines support surfaces as “specialized devices for pressure redistribution designed for the management of tissue loads, microclimate, and/or other therapeutic functions (i.e., any mattress, integrated bed system, mattress replacement, overlay, seat cushion, or seat cushion overlay)”.

Support surfaces are designed to redistribute pressure on skin, tissue, and bony prominences. The redistribution of pressure (“load”) is achieved by the design of the support surface.

Examples of support surface devices for a sleeping surface include mattress replacement systems, overlays that fit on top of a standard mattress, and specialized mattresses. Examples of support surface devices for a seated surface include specialized seat or wheelchair cushions and overlays. Support surfaces may be constructed of different materials or combination of materials, such as foam products, air, gel, or liquid.



### What are some features of support surfaces?

Support surfaces fall into one of two categories:

- *Reactive support surfaces* provide redistribution by immersion and envelopment. In other words, they conform to a person’s body shape, which decreases the pressure over bony prominences.
- *Active support surfaces* shift the contact over the skin and tissue against the support surface periodically or at set intervals.

Individual support surfaces may have additional features. For example, a reactive support surface with a low-air-loss feature provides not only immersion and envelopment but also changes the microclimate (the temperature and humidity of the patient) by increasing evaporation and heat transfer from the patient’s skin.

A feature of some *active support surfaces* is alternating pressure, which changes load periodically: The powered active support surface changes the pressure on a specific area of the body by alternating higher and lower pressures.

### How are support surfaces best used?

The 2014 Prevention and Treatment of Pressure Ulcers: Clinical Practice Guide-

line, from NPUAP, European Pressure Ulcer Advisory Panel, and Pan Pacific Pressure Injury Alliance contains several recommendations related to the use of support surfaces. These guidelines form the basis for how to manage support surfaces.

### **Choose a support surface that meets the person's needs**

Factors to consider include the individual's activity, mobility, size, weight, risk for (and existing) pressure ulcers, and the need for microclimate control and shear reduction. For example, a mattress must properly fit the bed frame. If the mattress is too narrow, the patient could become entrapped.

Match the support surface to the care setting. For example, space, ventilation, door width, and ability to use a continuous power source should be considered.

### **Conduct assessments on a regular basis**

Support surfaces require ongoing assessment and monitoring:

- Assess the function of the support surface when it's initiated and each time you interact with a patient, just as you would check an infusion pump. For instance, the electrical plug for a powered support surface may have been knocked out of the socket or the setting could have been changed for transfers from the bed to the chair and not changed back.
- Remember that support surfaces have a finite functional life span, meaning they do not continue providing the expected pressure redistribution for an unlimited period of time. Follow the manufacturer's guidelines regarding testing function.

### **Resources**

- Download a table of **support surface terms and definitions**<sup>A</sup> from the National Pressure Ulcer Advisory Panel Support Surface Standards Initiative.
- Download a **quick reference guide**<sup>B</sup> for the 2014 Prevention and Treatment of Pressure Ulcers: Clinical Practice Guideline.

### **Choose materials compatible with the support surface**

Choose clothing, linens, and incontinence pads that are compatible with the support surface. For instance, specially made disposable incontinence pads will allow air movement, which maximizes the benefit of a low-air-loss mattress.

In addition, limit the number of linens and incontinence pads on support surfaces. Studies show that excess linens and incontinence pads interfere with support surface therapy. For example, Williamson and others found that multiple layers of linens and pads increased the interface pressure between the skin and the top of the mattress. In another study, Williams and others found that each additional layer of linens and/or pads on a low-air-loss support surface reduced the surface's ability to manage moisture-vapor transmission, which leads to decreased effectiveness.

### **Continue to reposition the patient**

The patient must be turned and repositioned, unless this is contraindicated by a medical condition. Individualized treatment plan and turning schedules should be developed based upon the patient's general condition related to skin and comfort measures. The care plan should reflect

the turning and repositioning schedule and a rationale if the schedule deviates from standard policy.

### Consider unique needs based on the support surface

Some support surfaces present circumstances that require special patient care. For example, dehydration may occur with some bed systems that are warmer and have a more intense airflow. When using this equipment, the patient's fluid intake may need to be increased.

### How can I promote optimal use of support surfaces?

Staff education is an integral element for providing appropriate support surface therapy. Education should include all staff members who care for the individual or the equipment. Assess the staff's knowledge before developing an educational plan, so it can be tailored to their specific needs. After education, reassess to verify staff's understanding. (See *Suggested topics for a support-surfaces education program*.)

Through better understanding of support surface therapy and its appropriate use, you can help provide patients with quality, cost-effective care. ■

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#### Selected references

ANSI/RESNA. SS-1 Support Surfaces. Section 1 Vocabulary. Arlington, VA: Rehabilitation Engineering and Assistive Technology Society of North America; 2014.

Call E, Deppisch M, Jordan R, et al. Hand Check Method: Is it an Effective Method to Monitor for Bottoming Out? A National Pressure Ulcer Advisory Position Statement; 2015. [www.npuap.org](http://www.npuap.org).

### Suggested topics for a support-surfaces education program

Here are some topics you might want to include in your education program on support surfaces:

- importance of support surface use in the prevention and treatment of pressure ulcers
- review of the organization's algorithm or decision tree for support surfaces. If no such tool exists, one should be developed.
- demonstration of each support surface
- correct assessment and reporting of support surface function
- appropriate use of linens and incontinence pads
- turning and repositioning
- daily maintenance of support surface
- documentation in the patient's health record.

McNichol L, Watts C, Mackey D, et al. Identifying the right surface for the right patient at the right time: generation and content validation of an algorithm for support surface selection. *J Wound, Ostomy, Continence Nurs*. 2015;42(1):19-37.

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Stone A, Brienza D, Call E, et al. Standardizing support surface testing and reporting; A National Pressure Ulcer Advisory Panel Executive Summary. *J Wound, Ostomy, Continence Nurs*. 2015;42(5):445-49.

Williamson R, Lachenbruch C, VanGilder C. A laboratory study examining the impact of linen use on low-air-loss support surface heat and water vapor transmission rates. *Ostomy Wound Manage*. 2013;59(8):32-41.

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#### Online Resources

A. [npuap.org/wp-content/uploads/2012/03/NPUAP\\_S3I\\_TD.pdf](http://npuap.org/wp-content/uploads/2012/03/NPUAP_S3I_TD.pdf)

B. [npuap.org/wp-content/uploads/2014/08/Quick-Reference-Guide-DIGITAL-NPUAP-EPUAP-PPPIA-Jan2016.pdf](http://npuap.org/wp-content/uploads/2014/08/Quick-Reference-Guide-DIGITAL-NPUAP-EPUAP-PPPIA-Jan2016.pdf)