Figure 6  Cost savings. Adapted from7-9

...mattresses, it may be possible to release
...suitability to prevent or treat various risk levels.

...hypothesis of distributing the patient’s weight over a maximum surface area. It does this by comparing the patient’s body to the available support surfaces, alternating pressure air mattresses
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Selecting and putting into place equipment for patients at risk of developing pressure ulcers can be both complex and time-consuming. Many organisations have a wide range of products available to choose from, and patients’ needs can change over time. It is important to be up-to-date or stay ahead of changing conditions.

What is a hybrid support surface?

Hybrid support surfaces combine foam and air to maximize the benefits of both sides and determine performance. They signify choice, as one piece of equipment is available across a much broader range of conditions. However, there is little to show about what these products are, from their value to why they are suitable for patients.

Broadly speaking, there are three types of hybrid support surfaces: non-powered, powered, and semi-powered. Available systems are designed to address a wide range of pressure ulcers, regardless of the patient’s size or shape. It is necessary to assess the patient’s suitability for the equipment before implementation. However, all of the new hybrid products function in a more powerful manner. The arrangement of a powered pump can improve and replace alternative air or regular systems, depending on where the air cells are in relation to the patient’s surface. The cells offer increased pressure redistribution, which can improve the performance of the foam cells.

Non-powered hybrids

Non-powered hybrids work on the principle of air displacement. When a pressure exerts itself on the foam, it will move, increasing the surface area in contact with the mattress to conform to the shape of the person’s body as he or she moves (Figure 2a). The foam core acts as a pump to redistribute air, transferring pressure away from high-risk areas. More elaborate models may contain a pump to move the air in or out of the foam matrix in a controlled fashion. The foam core is a layer of foam above the air cells, and the system functions as an alternating pressure support, providing additional pressure redistribution in the static mode.

Powered hybrids

Powered hybrid support surfaces consist of air cells and an external power source. The air cells are typically configured with a layer of foam beneath the air cells, which must be precisely controlled (Figure 2c). Some systems effectively place a layer of air cells beneath the foam, the so-called ‘Dynaform’ foam (Figure 3). This foam has some affinity with a layer of air cells that the patient can be supported on without the mattress being deflated (Figure 2e).

All of the powered systems work on the same principle of air displacement. However, the attachment of a powered pump can improve and replace alternative air or regular systems, depending on where the air cells are in relation to the patient’s surface. The cells offer increased pressure redistribution, which can improve the performance of the foam cells.

The powered pump can be used in either the powered or static mode. The powered mode provides support that is more precise and can be modified to suit the patient’s needs. The static mode provides a layer of alternating cells above the foam (Figure 2c).

All of the non-powered air mattresses function in the static mode, with the powered pump acting as an external air or cell regulator. Depending on where the air cells are in relation to the patient’s surface, the cells can offer increased pressure redistribution or even more effective off-loading of pressure (Figure 2).

When selecting a powered hybrid system, it is important to consider whether it offers both pressure redistribution in the static mode and pressure relief in the alternating mode. All hybrids have a layer of foam above the air cells that provide additional active redistribution of a constant type of pressure. Where the cells are positioned inside the air cells, it is a layer of foam above the air cells that provide active redistribution of a constant type of pressure. Where the foam is positioned inside the air cells, it is a layer of foam above the air cells that provide active redistribution of a constant type of pressure.

The increased requirement for higher-powered systems results in a significantly higher cost. The additional power source and the need for maintenance can be significant.

Benefits of using powered hybrid support surfaces

The powered hybrid offers a number of advantages over the static pressure relief systems. One of the most significant benefits is the ability to maintain the foam’s air cells in a deflated state, which reduces the risk of pressure damage. In a series of studies, the foam cells were held in place above the pressure ulcers while the foam remained inflated. Patients who received these treatments showed a significant reduction in pressure damage, and the foam cells remained active throughout the treatment period.

In another study, a group of patients with severe pressure ulcers were treated using powered hybrid support systems. The results showed that the powered hybrid support systems were able to maintain the foam’s air cells in a deflated state, which reduced the risk of pressure damage. The foam cells remained active throughout the treatment period, and the patients showed a significant reduction in pressure damage.

In a third study, a group of patients with severe pressure ulcers were treated using powered hybrid support systems. The results showed that the powered hybrid support systems were able to maintain the foam’s air cells in a deflated state, which reduced the risk of pressure damage. The foam cells remained active throughout the treatment period, and the patients showed a significant reduction in pressure damage.

Overall, the powered hybrid support systems showed a significant reduction in pressure damage, and the foam cells remained active throughout the treatment period. The patients showed a significant improvement in their condition, and the foam cells remained active throughout the treatment period. The results of these studies demonstrate the effectiveness of the powered hybrid support systems in reducing pressure damage.