A Comparative Assessment of Fluid Strike-Through in Adhesive Foam Dressings

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Introduction & Aim:
A key element of chronic wound care is patient quality of life and comfort. Visibility of wound fluid through a dressing can be embarrassing for patients, and can lead to premature dressing changes-increasing the cost of care. This study therefore compared a selection of foam dressings to evaluate how visibility of fluid through the dressing when on a simulated leg wound model.

Methods:
Dressings were taped to an inverted simulated leg model. The model was connected to a syringe pump which infused with Solution A (142mmol sodium ions, 2.5mmol calcium ions) coloured with blue food dye for visibility at a rate of 1.6ml/hr to simulate a moderately exuding wound. Dressings were left in place for 24 hours. Over this duration, the dressings were photographed for strike-through (visibility of wound fluid), and also any signs of bulging or leakage.

Results and discussion:
Visibility of wound fluid through each dressing varied dramatically. Dressing B showed the greatest level of visibility with the entire pad distinctly showing the fluid fed in, and pooling noted within the lower border. This was followed in order of visibility by Dressing A, Dressing D, Dressing E, Dressing F and then, with the least visible strike-through, Dressing C (See figure 1).

Dressings A, B & E all leaked fluid out of the bottom of the dressing prior to the 24 hour time period. All other dressings were able to handle the entire volume of fluid fed in.

The visibility of strike through can be seen as both a positive and negative feature. All dressings had at least some visibility as the dressing began to reach capacity. This is beneficial to understand when a dressing may need changing. However, too much visibility of fluid is more of a negative feature-with fluid from a wound being openly visible to a patient, who may find this indiscreet.

The fluid handling capabilities of a dressing can limit visibility of wound fluid as this will prevent pooling of fluid to a specific area in a dressing; however this feature is most commonly linked to dressing construction as strike-through is often visible before a dressing reaches capacity (See dressing A figure 1).

Conclusion:
Strike-through is an important feature in dressing selection, helping to select more discrete products to improve patient comfort, and avoid premature dressing changes.

Performance of dressings on a 24 hour simulated wound model varies dramatically. 3 out of 6 dressings leaked fluid prior to the end of the model having reached capacity, or not used the full dressing pad for absorption. Strike-through varied significantly between dressings, with some dressings masking the visibility of fluid more effectively than others.

Simulated wound models can be an effective method of understanding how a dressings may perform in a clinical environment.