

Foreword

Intelligent design, a term coined by early theologians as a proof of God, asserted that something with a complex design must have had a designer. Subsequently, early twentieth century creationists relied on intelligent design to counter Darwin's theory of evolution. In this publication, I dare to usurp and repurpose the phrase for application to the evolution of dressings designed for the care of complex hard-to-heal wounds.

In the beginning, wound care and surgical dressings consisted of dry or moistened plain gauze. The wet-to-dry dressing flourished on the surgical ward and, unfortunately, has yet to become extinct. Far from the ideal dressing, gauze provided little or no barrier protection, but rather served as a Petri dish promoting bacterial growth on the service [surface?] of the wound. Gauze dressings required frequent changes and, although inexpensive to purchase, the nursing effort required to provide daily or twice dressing changes offset any savings. Finally, the removal of gauze dressing traumatised the wound and frequently resulted in increased pain.

Dressings on the next step of the evolutionary ladder targeted exudate management. They consisted of foams, gels and hydrocolloids that provided a moist environment favorable for wound healing. Alginates and Hydrofibers emerged to control the large amount of exudate from draining wounds. A vast improvement over gauze, these moisture-balancing dressings allowed the clinician to choose a wound covering that matched the needs of the wound.

Atraumatic dressings with a silicone-ulcer interface reduced the pain associated with removal and decreased trauma to the healing wound at dressing change.

The new generation of dressings exemplify the principle of 'Intelligent design' as it applies to treating wounds. The goal is to maximise wear time, control exudate, prevent bacterial proliferation in the wound and dressing, and provide an atraumatic ulcer interface that minimises patient discomfort. This supplement highlights the features and clinical effectiveness of an 'intelligently designed' dressing, Mepilex Border Flex. The wound contact layer of soft silicon minimises trauma and pain. The second foam layer absorbs exudate. The third, spreading layer, distributes the fluid throughout the dressing. On top of this, a retention layer traps bacteria and proteases, preventing them from re-entering the wound. Finally, a fifth backing layer protects the wound from external contamination while allowing water to evaporate from the dressing. This multifunctional five-layered dressing extends wear time and promotes healing.

This publication reviews the challenges associated with exuding wounds and how dressings with 'intelligent design' can address these challenges. A review of the Mepilex Border Flex technology is followed by case examples.



Thomas E. Serena MD FACS