

# The Use of Polymeric Membrane Silver Dressings in Chronic Burns and Burn Related Wounds

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## INTRODUCTION

In the past, an acute wound healing model has been applied to chronic wounds, but it is now known that chronic wound healing is different from acute wound healing<sup>1</sup>. Whilst it is now being recognised that chronic wounds heal differently to acute wounds and often 'stick' in the inflammatory and proliferative phases, there is little or no recognition of chronicity in burn or surgical wounds. Teot & Otman<sup>2</sup> argue that these wounds can evolve, when poorly managed or in specific situations, into chronic wounds. Chronic burns or donor sites often continue to be managed as acute-wounds and are often dressed with conventional "burn" products. These wounds have similar problems in terms of quality of life, cost and nursing time, however little is written about this in the literature. Dressings commonly used in other chronic wounds may offer better alternatives for these burn related chronic wounds, and may allow for more continuous care when patients return to the community.

## Aim

This poster sets out to evaluate polymeric membrane silver dressings on chronic burn-wounds through a prospective evaluation. A Likert-scale was used to assess pain and ease of application, pain in-situ, pain on-removal, ease of removal and acceptability of the dressings to staff and patients.

## METHOD

Seven patients with ten chronic non healing burn and burn related wounds were identified. (Table1). They were treated with polymeric membrane silver dressings. These dressings have a polyurethane matrix which contains components that draw and concentrate healing substances from the body into the wound bed to promote rapid healing while facilitating autolytic debridement. The liquefied slough is absorbed by the dressing, eliminating the need for manual wound bed cleansing. The surfactant, glycerol and starch copolymer work synergistically promoting wound-cleansing and healing. The nanocrystalline silver-particles are embedded in the foam matrix and are not released onto the wound surface<sup>3</sup>.

At each dressing change, patient comfort levels, ease of application and removal, conformability and ability to manage exudate were assessed using a 10 point Likert scale with 0 being poor and 10 being excellent. Pain levels were also measured using a 10 point Likert scale, with 0 being extreme pain and 10 being no pain. Nursing staff also documented the acceptability of the dressings.

Table 1: Demographics Chronic Burns

	Chronic Burns
Number of Patients	7 patients with 10 wounds
Mean Age	Mean Age 49 years
Male:Female Ratio	4:3
Range of duration of chronic burns	3-18 months

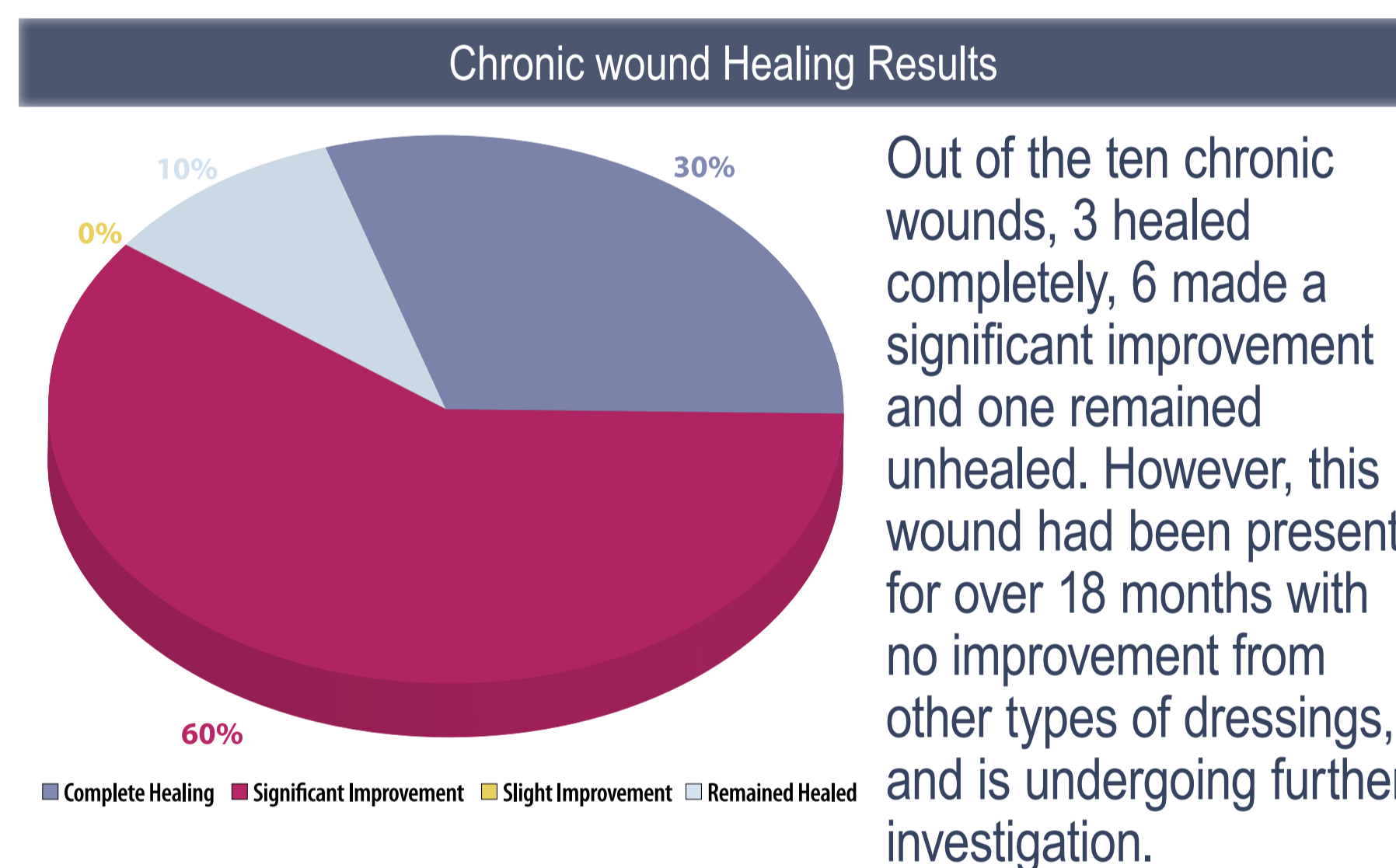
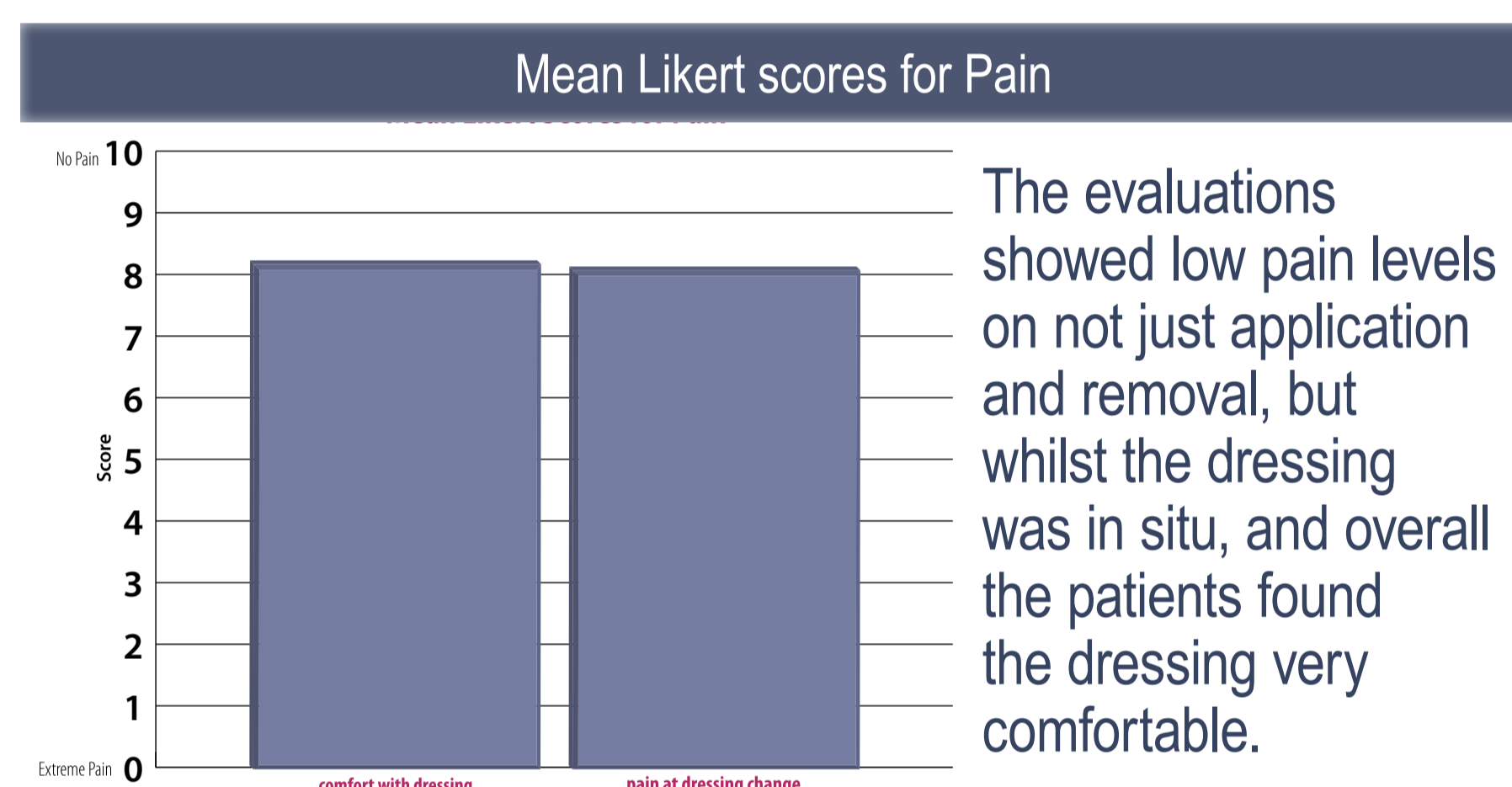
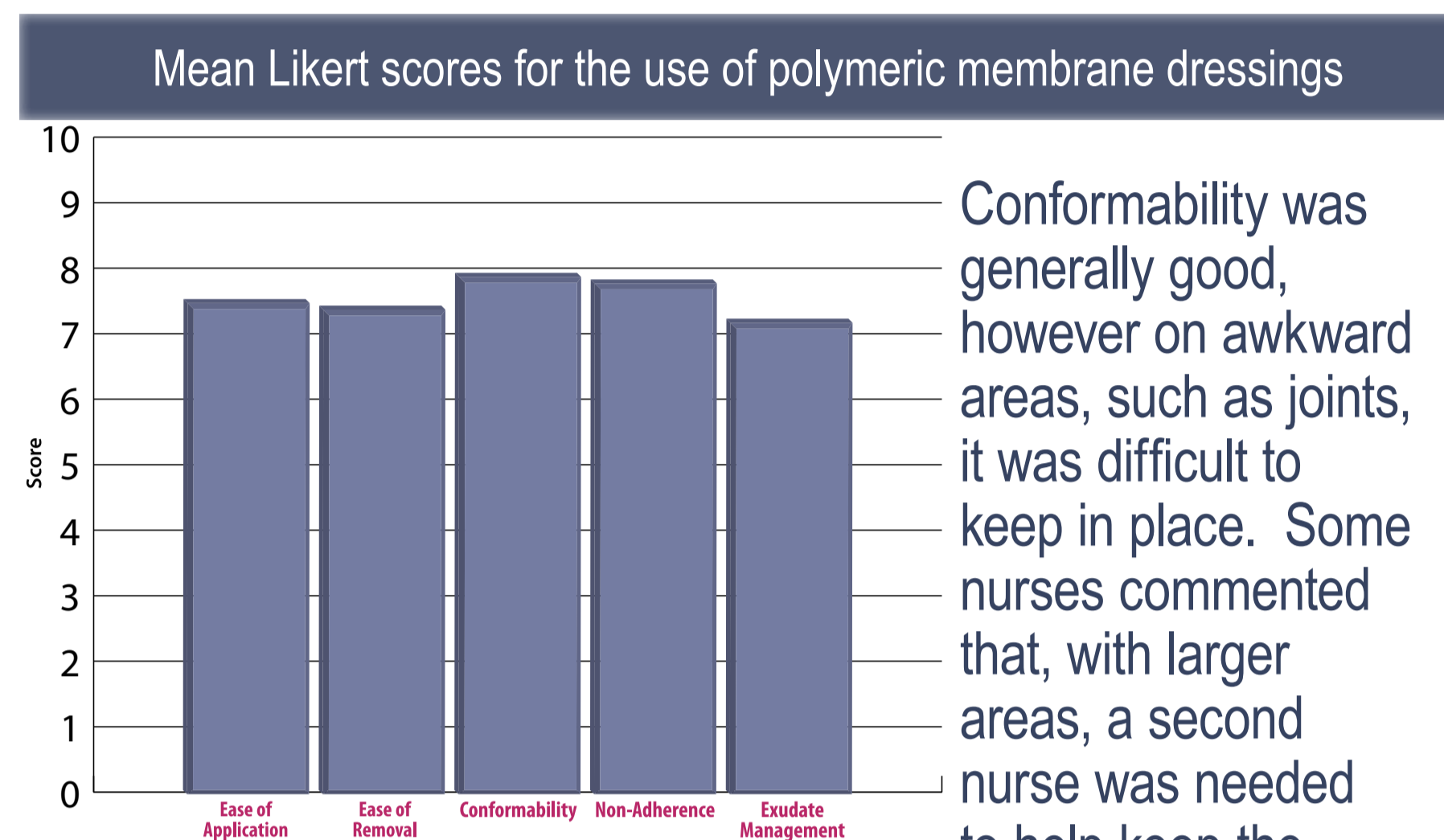
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PolyMem® Silver Wound dressing, Manufactured by Ferris Mfg Corp, Burr Ridge, IL 60527 USA. This case study was unsponsored. Ferris Mfg. Corp. contributed to this poster design and presentation.

## RESULTS

The evaluations showed that the Polymeric Membrane silver dressings were easy to apply and remove, with good conformability and little or no trauma on removal.



Infections of *Pseudomonas Aeruginosa* and *Staphylococcus Aureus* are common problems when managing burns and chronic non-healing wounds<sup>4</sup>. Antimicrobial dressings are used as appropriate to help minimise this problem. The polymeric membrane silver dressings performed as required, as none of the patients in these evaluations developed infections.

In the chronic group, one patient appeared to have a reaction to the adhesive, found on the border of the polymeric membrane silver oval dressing, which caused further breakdown of the wound. Following this, investigations revealed the patient had an allergy to adhesives which was previously unknown.

## Feedback from the Staff

All nursing staff were happy with the product, but some nurses felt that it would be beneficial if the dressing had an adherent layer, making application easier, as it was difficult to get the polymeric membrane silver dressing to stay in place on awkward sites whilst the retention dressing was being applied in the awkward to access areas such as axilla, upper arm, buttocks etc.

## DISCUSSION

This evaluation demonstrates that polymeric membrane silver dressings are a useful adjunct in the management of chronic non-healing burn-wounds. Pain is a major issue with these injuries, and it is difficult to manage<sup>5</sup> and can negatively impact on the patients' well-being and also on healing. It appears from the results that the Polymeric Membrane Silver dressing is beneficial in pain management. It caused minimum pain on application and removal. A number of patients experiencing pain in their wounds were included on the trial, in all cases; the patient's overall pain experience was improved.

The significant levels of exudate generally produced by these wounds can become dried and crusty on the wound surface and is painful to remove. The surfactant present in these dressings precludes this, diminishing the need for potentially painful manual wound cleansing procedures.

## CONCLUSION

Polymeric Membrane dressings seem to offer good clinical advantages when used in chronic burn and burn related wounds:

- Patients reported an overall reduction in pain when using these dressings. Given that chronic wounds are painful injuries; this reduction in pain could have a positive effect on wound healing and overall return to normal function.
- Many wounds showed healing despite having been treated with numerous other dressings in the past.

Increased recognition of chronicity within Burn Care needs to be developed and as demonstrated in this initial study, products traditionally used in chronic wound management may have an advantageous place in managing the chronic burn wound. Larger sizes are needed to improve the ease of use of this product in this patient group, and we understand from the manufacturer, larger sizes are likely to be made available.

Four month old donor site. Previous treatments included various silicone and silver dressings as well as silver sulphadiazine but kept on deteriorating.



Left: Donor site after polymeric membrane silver dressings have been used for 5 weeks. 40% of the donor site is now covered with healthy granulation tissue.



Right: The donor site closed completely after 12 weeks treatment with polymeric membrane silver dressings. The patient commented during the treatment over the reduction of pain.



Extravasation injury on a burn patient. After 2 surgical debridements followed by topical negative therapy it was still deteriorating. Photo shows the wound prior to commencing polymeric membrane dressings.



Left: Photo shows the wound after 1 weeks treatment.



Right: It closed completely three weeks later.