Achieving Improved Wound Healing Time and Costs Savings in the Outpatient Wound Care Setting by Utilizing an Extracellular Matrix

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Introduction

CareMore Health LLC is a care provider and also a health insurer. CareMore Nurse Practitioners are cognizant that delivery the very best clinical practice in wound care must be offset by the financial costs to all our insured members. CareMore has embraced new technologies to enhance wound care while managing costs. An ovine extracellular matrix (ECM)* is one such technology that has been used in our general practice for 5 years. The ECM technology works at all phases of wound healing, to stabilize the wound bed, resolve inflammation through modulation of wound proteases and finally by rebuilding healthy tissue through constructive remodeling.[1] While this technology has been in general use in our clinic for some time, the financial implications of this technology on our business and our members has not been explored. In this study we found that both the clinical and economic benefits of ovine extracellular matrix (ECM) technology were profound, with both cost savings over standard of care (SOC) and improvements in wound healing rates. While this limited dataset provides only a snapshot of improvements at our clinical center, the data supports further health economic modeling and clinical studies to embed to the use of ovine extracellular matrix (ECM) technology more widely.

Methods

Medical records were reviewed for both the prospective (n=11) and retrospective groups (n=20). Clinic visits and home health visits were recorded, along with debridement, wound size, wound closure, use of systemic or topical antibiotics (Abs), negative pressure wound therapy (NPWT) and compression therapy. Based on the treatment interventions, total costs at 4 weeks were estimated based on Table 1.

Conclusion

Health economics analysis of the use of ECM technology revealed significant savings to our wound care practice relative to SOC. Reduced clinic costs were directly related to the clinical performance of the ECM technology, with more closing in a 4 week period using ECM technology over SOC.

Results

In the 4 week period wounds receiving ECM in the prospective group had an average wound size reduction of 66% and 4 wounds (n=4/11) closed within the study period (Figure 2). In contrast, none of the wounds receiving SOC in the retrospective group closed and on average wounds *increased* in size by 33%. Total average 4 week treatment costs for the prospective and retrospective arms were $998.41 and $3,971.80, respectively. The ~300% cost increase between the two study groups was mainly attributable to an increased average number of home health (HH) visits received by the retrospective group (Figure 3). Participants in this study group received on average 18 HH visits in the 4 week period as compared to an average of 2 HH visits received by the prospective group. Additionally, when wounds in the retrospective group received collagen dressings (Figure 3; average total collagen costs $149.50), these were typically used on a daily basis in contrast to ECM that was utilized less frequently (e.g. 3-7 days), resulting in a cost saving (Figure 3; average total ECM costs $31.82). The study included a variety of different wound etiologies across the two study arms (Figure 1). One limitation of the study was that wound types (or ages) were not matched between the two study arms.

Table 1.

E/M - Clinic	Cost for a single clinic visit. Includes clinic overhead, average rate for physician or NP interaction, support staff and dressing change disposables (e.g. gloves, saline, pads etc)	$ 175.50
E/M - Home Health	Cost for a single at home visit, typically via Home Health or equivalent service. Includes average rate for NP interaction (or equivalent professional) and dressing change disposables (e.g. gloves, saline, pads etc)	$ 150.00
Debridement	Cost for a single debridement activity - either mechanical or surgical (i.e. excisional debridement).	Cost included in the E/M – Clinic visit
Compression	Cost for a compression stocking (per limb) (application of compression stocking included in E/M costs)	$15.00
Moist Gauze	Cost of moist gauze dressing + saline	Cost included in the E/M – Clinic visit
ECM or other collagen (e.g. collagen/ORC) dressing	Based on ASP $10	$ 10.00
Systemic or topical Abs	Based on average cost of systemic antibiotics or topical (e.g. creams, gels)	$ 15.00
NPWT		$ 107.00

Figure 1.A. Retrospective Group

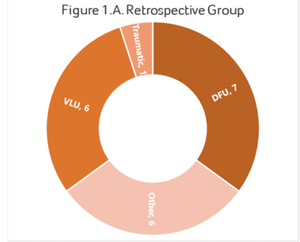
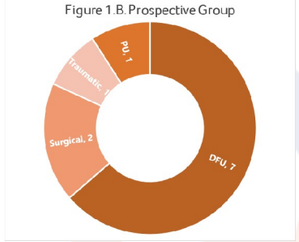


Figure 1.B. Prospective Group



ECM Dressing
Prospective

66% Average wound closure

4 Wounds closed

$998.41 Average cost to treat

Standard of Care
Retrospective

33% + Average wound closure

0 Wounds closed

$3,971.80 Average cost to treat

Figure 3.A. Retrospective Group

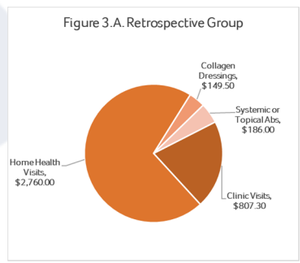
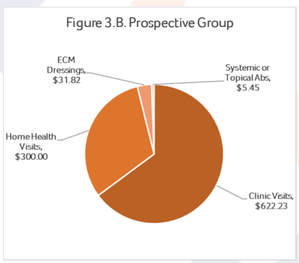


Figure 3.B. Prospective Group



References and Disclosures

1. Bohn GA, Schultz GS, Liden BA, et al. Proactive and Early Aggressive Wound Management: A Shift in Strategy Developed by a Consensus Panel Examining the Current Science, Prevention, and Management of Acute and Chronic Wounds. *Wounds*. 2017;29(11):S37-S42.

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*Endoform Natural Dermal Template; www.appulsemed.com