

Effect of Ovine-Based Collagen Extracellular Matrix Dressings on Outcomes in an Outpatient Wound Care Center.

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Introduction:

- Cost efficiency in today's stringent healthcare arena requires appropriate and judicious use of advanced therapies such as cellular and/or tissue based products (CTPs) for chronic wound management.
- Evidence has linked dermal graft (CTP) failure to elevated matrix metalloproteinase (MMP) levels in diabetic foot ulcers (DFUs),¹ thus suggesting that protease balance for the purpose of wound bed preparation prior to CTP placement should be a clinical priority.
- An ovine-based collagen extracellular matrix (CECM) dressing,^{*} available as a HCPCS A-code,² with an intact extracellular matrix has demonstrated broad-spectrum MMP reduction.³ Results from several case series also suggest that CECM dressings may play a positive role in wound healing.⁴⁻⁶
- Considering the high cost of CTP failure - not only in expenditure for the CTP, but also in lengthened time to heal due to the failure - and the fact that there are no visual, clinical signs related to elevated MMPs,¹ we decided to take a proactive approach by implementing a CECM dressing as the first line dressing to treat chronic wounds.

Purpose:

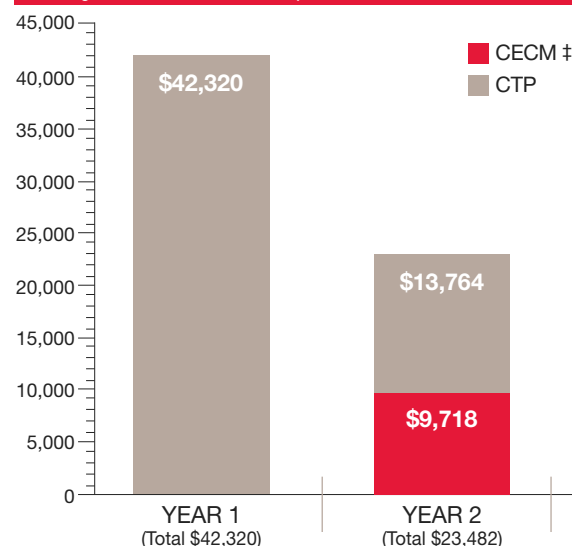
To evaluate the change in CTP usage and wound healing outcomes in chronic wounds, specifically DFUs and VLUs, following the implementation of a CECM dressing as the first-line conventional wound treatment strategy in an outpatient wound care center.

Methodology:

- Records from two years (April 2015 to March 2017) were retrospectively reviewed to determine total number and healing rate of venous leg ulcers and diabetic foot ulcers that were treated by one physician investigator in an outpatient wound clinic.
- Calculations of the actual number of wounds treated by one physician investigator included only DFUs and VLUs since they made up the majority of wounds treated at the center. Additional wound types were treated during the study time frame, but for the sake of simplicity, they were not accounted for in this analysis.
- CECM dressing expenditures were estimated by multiplying the wound center's total CECM dressing expenditures by the percentage of wounds treated by the single investigator compared to the wound center's total number of wounds treated. The investigator's actual CECM dressing unit usage was not recorded or available.

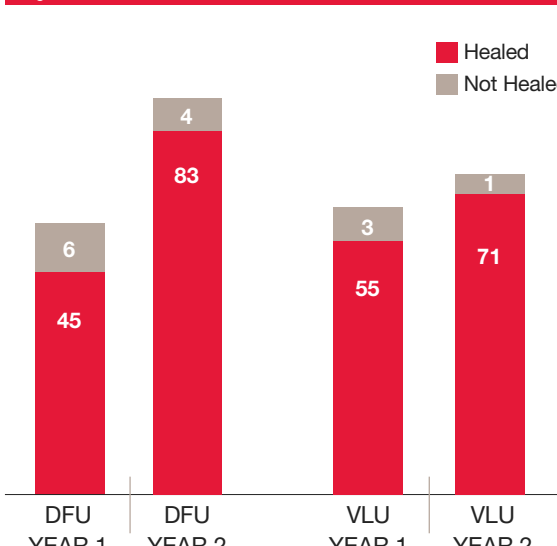
	Year 1	Year 2	Increase/Decrease from Year 1 to Year 2
Total chronic wounds treated (n)	109	159	45.9%
DFUs treated (n)	51	87	70.6%
VLUs treated (n)	58	72	24.1%
DFUs healed	45 (87.3%)	83 (96.2%)	10.2%
VLUs healed	55 (95.8%)	71 (98.8%)	03.1%
Average time to healing DFU (days)	29.5	21	-28.8%
Average time to healing VLU (days)	23.1	27.1	17.3%
CTP use (units)	34	11	-67.6%
CTP expenditure (\$)	42,320	13,764	-67.5%
CECM expenditure (\$)	0	9,718	--
Total CTP and CECM expenditures (\$)	42,320	23,482	-44.5%

Figure 1. CTP and CECM expenditures: Year 1 vs Year 2



‡ Incorporation of CECM dressings as first-line conventional treatment strategy

Figure 2. DFUs and VLUs treated and outcomes Year 1 vs Year 2



A healed wound was defined as 100% re-epithelialized with no drainage; total CTP and CECM dressing expenditures were dollar amounts invoiced to the institution for the dressings.

- Number of wounds treated, wound healing rate, and monthly expenditures for CTP and collagen dressings were compared between the 12 months prior to incorporation of CECM dressings (Year 1: April 1, 2015 - March 31, 2016) versus the 12 months after incorporation of CECM dressings (Year 2: April 1, 2016 - March 31, 2017).

Results:

- A total of 109 chronic wounds (51 diabetic foot ulcers [DFUs] and 58 venous leg ulcers [VLUs]) were treated in Year 1 and 159 wounds (87 DFUs and 72 VLUs) were treated during Year 2.
- Average time to healing for DFUs was 29.5 days during Year 1 versus 21.0 days in Year 2. For VLUs, the average time to healing was 23.1 days in Year 1 and 27.1 days in Year 2.
- Forty-five of 51 (87.3%) DFUs healed in Year 1 and 83/87 (96.2%) of DFUs healed in Year 2, while 55/58 (95.8%) VLUs healed in Year 1 and 71/72 (98.8%) VLUs healed in Year 2.
- CTP unit usage decreased by 67.6% (34 units to 11 units) from Year 1 to Year 2. In regard to total expenditures, in Year 2 the CTP and CECM dressing expenditures totaled \$23,482, which represented a 44.5% decrease from Year 1, despite an increase in number of wounds treated.

Conclusion:

Results of this analysis displayed a trend toward decreased expenditures, while maintaining similar healing rates for DFUs and VLUs with the use of a CECM dressing as the first-line chronic wound treatment protocol in a wound care center.

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*Endoform dermal template, Hollister Incorporated, Libertyville, IL

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