

Unna problem with the economics:



updating lower extremity compression practice from Unna boots to a two-layer system with zinc-impregnated foam, odor, and itch control

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Introduction:

The semi-rigid Unna's boot (UB) -a generic zinc oxide impregnated gauze sometimes coupled with a long stretch compression second layer- was considered the traditional gold standard in the **late 1900s**. This quality improvement study evaluated the clinical advantages and cost effectiveness of a modern two-component system with zinc-impregnated foam and cohesive wrap (TLC+) compared with UB for the treatment of lower extremity ulcers. While TLC may have a higher unit price than a standard UB, the economic advantage is demonstrated by examining key factors that contribute to total cost of care per successfully healed ulcer.

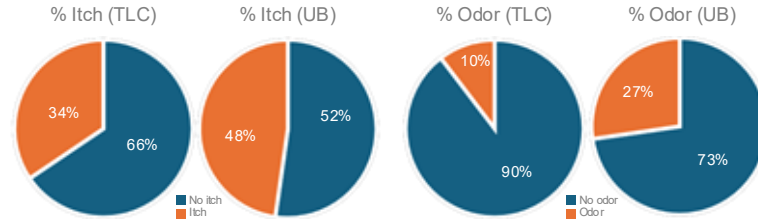
Methods:

This quality improvement study evaluated the clinical advantages and cost effectiveness of a TLC compared with UB for the treatment of lower extremity ulcers. A retrospective (n=48) / prospective (n=19) cohort design was chosen for the convenience sample of this quality improvement study. Variables assessed include economic indicators and patient related outcomes.

Improved patient comfort and compliance are demonstrated through a combination of overall reported wrap comfort, odor, itch, and peri-wound treatment and visit frequency data. Prospective evaluation of TLC implementation was evaluated at multiple sites including a patient questionnaire assessing patient health related quality of life (HRQoL) via a single validated global health screening question scored quantitatively on a Likert scale. Overall wrap comfort, itch and odor negative stimuli perceived from their wound wrap system were assessed, rating the intensity of the negative stimuli from their wound wrap system using at baseline and follow-up visits. Visit frequency of wraps was analyzed and environments encountered were catechized. Statistical analysis Comparative analysis and product specifications suggest several key benefits of the advanced two-component system. Visit frequency calculations at scale per patient per year calculated by assuming an average visit rate of 187 USD for established patients.

Results:

Overall health reported quality of life was poor in both groups (x̄ 2.704 UB; x̄ 2.47 TLC). Overall wrap comfort was increased in TLC (x̄ 3.68) compared to UB (x̄ 3.34). Both odor and itch were common issues in both groups (Odor: UB 27.7%, n=12; TLC 10.3%, n=3). Odor was noted less frequently with TLC (x̄ 1.89) compared to UB (x̄ 1.72). TLC group had a 16.9% lower absolute rate of odor. A Fischer's Exact Test revealed the TLC group had a **62.1% reduction** in experiencing odor compared to the UB group (p=0.9). Chi-square analysis noted itch variances were not statistically significant (p=0.38). Overall, 42.5% of patients experienced itch. Itch was noted less frequently with TLC (x̄ 1.655) than with UB (x̄ 1.52). The peri-wound was less likely to require additional intervention in the TLC group (x̄ 1.86) than with UB (x̄ 1.409). Patients receiving TLC were noted to require fewer dressing changes per week (x̄ 1.63 UB; x̄ 1.51 TLC). 0.12 extra visits per week or 6.24 visits per year.

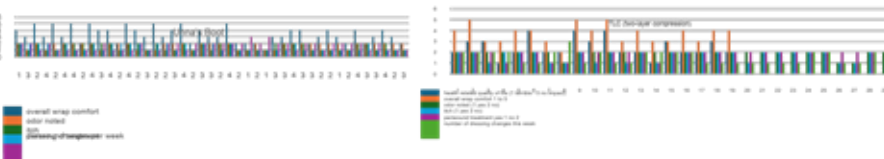


62.1% reduction in experiencing odor

Factoring visit frequency only:

UB cost an **extra \$1,166.88 USD per patient per year**

*Does not factor in additional costs such as dermatitis treatment, transportation, and patient costs which would increase UB costs



UB Case Exemplar:



Complete application (Left), Interface layer (Zinc) (Middle), Dermal microclimate following tx (Right)

TLC Case Exemplar:



Complete application (Left), Interface layer (TLC Zinc) (Middle), Dermal microclimate following tx (Right)

Note: decreased remaining hyperkeratotic plaques, erythema, and product residuum

Discussion:

The TLC dermal microclimate management was not only non-inferior but was found to require fewer peri-wound additional treatments or interventions, have less odor, and less itch. The visit frequency was noted to be an expected decrease in the TLC group.

The economic argument for the TLC system versus the traditional UB hinges on value. While UB may have a lower material cost, the TLC system cost-effectiveness is evidenced by improved health outcomes measured via the reductions in key resource utilization. This study confirms that having a wound significantly impacts one's quality of life and that healing wounds expediently utilizing therapeutic compression and dermal interfaces (TLC Zinc interface layer) has both positive economic and patient reported outcomes potential.

Though the historical practice of UB remains, the newer generation of zinc-impregnated foam cohesive wrap systems with itch & odor control also offer improved patient related outcome measures making them a clear choice for the definitive management of lower extremity leg ulcers.

Footnotes: +CoFlex TLC Zinc Two-Layer Compression (OVIK Health, LLC, Spartanburg, SC 29303)