

# Unna problem with the economics:



COFLEXCS06R01

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

Leah Yarboro DPT (Renew Wound Care - Mount Airy, NC)

Laura Swoboda DNP (Carthage College - Kenosha, WI; Skin Gurus - Milwaukee, WI)

### 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 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.

Outcomes (assessed at baseline and follow-up unless otherwise noted):

- **Clinical:** Wrap comfort, Itch, Odor, Peri-wound condition
- **Patient-Reported:** Health Related Quality of Life (HRQoL; single-item validated global health quantitative questionnaire on a Likert scale)
- **Utilization:** Visit frequency, Care environment
- **Economic:** Cost per patient per year

Statistical comparative analysis and product specifications suggest several key benefits of the advanced two-component system (TLC). Visit frequency calculations at scale per patient per year calculated by assuming an average visit rate of \$187 USD for established patients.

### Results:

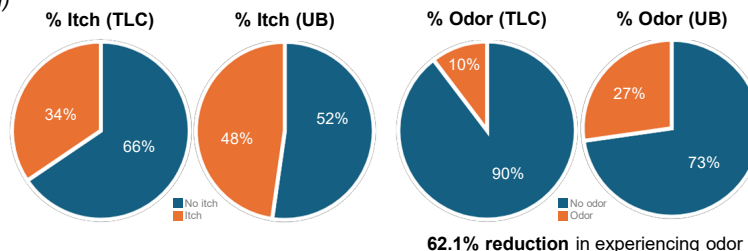
Overall higher wrap comfort was reported in the TLC group (TLC: x3.68; UB: x3.34). Odor and itch were common issues in both groups.

- Odor prevalence was noted less frequently with TLC (TLC: 10.3%, n=3; UB 27.7%, n=12). TLC demonstrated a **16.9% absolute reduction** in odor and a relative reduction of **62.1%** compared to UB (Fisher's Exact Test, p=0.9).
- Itch was reported by 42.5% of patients. Itch severity was noted as slightly lower with TLC (TLC: x1.66; UB: x1.52), however the differences were not statistically significant (Chi-square analysis, p=0.38).

Peri-wound condition was less likely to require additional intervention / treatment in the TLC group (TLC: x1.41; UB: x1.86).

Overall HRQoL was poor in both groups (TLC: x2.47; UB: x2.70).

Patients receiving TLC were noted to required fewer dressing changes per week (TLC: x1.52; UB: x1.64); **Reduction of ~6.24 visits per patient 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 micro-climate following tx (Right)

### TLC Case Exemplar:



Complete application (Left), Interface layer (TLC Zinc) (Middle), Dermal micro-climate following tx (Right)

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

### Discussion:

TLC demonstrated comparable or improved patient centered outcomes with reduced resource utilization compared to the traditional UB compression.

Patients treated with TLC experienced fewer peri-wound interventions and lower reported odor and itch, suggesting improved dermal micro-climate management and treatment tolerance. These findings are clinically relevant, as symptom burden is a known contributor to reduced adherence and frequent wrap changes. While UB may have a lower upfront material cost, the value of TLC was reflected in reduced visit frequency and decreased need for additional interventions. Improvements in patient comfort and symptom control translated into meaningful reductions in healthcare utilization, supporting improved cost in use.

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)