

TIME AND LABOR COSTS OF COMPRESSION THERAPY WRAP SYSTEM FOR LOWER-EXTREMITY EDEMA: RESULTS FROM A SINGLE CENTER

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BACKGROUND

- Prevalence of lower-extremity edema of all etiologies is nearly 20% among [1]
- The healthcare burden of managing lower-extremity edema is nearly \$5 billion per year or \$7,679 per treated patient per year. [2]
- Multilayer compression therapy is the standard of care for the management of lower-extremity edema. However, it can be time consuming to apply and patient compliance is often poor. [3]
- A two-layer bandage (2LB) system has been shown to achieve similar or better outcomes and may increase compliance compared due to patient report comfort to a four-layer bandage (4LB) system. [4-6]
- However, the medical time and labor costs associated with the application 2LB and 4LB systems is unknown.

OBJECTIVE

- The objective of this case study was to assess the time and labor costs associated with the application of a 2LB versus 4LB compression therapy system.

METHODS

- An observational two-group post-test study took place at a single high-volume wound care center located in Dayton, OH on a single day
- All patients presenting with lower-extremity edema of all etiologies who were indicated compression therapy by the treating physician were included in the study.
- Patients were assigned to 2LB or 4LB in a 1:1 manner through the course of the day.
- The 2LB system was the Urgo K2™ dual compression system manufactured by Urgo Medical North America, and the 4LB system was the PROFORE Multi-layer compression bandaging system by Smith and Nephew.

METHODS (CONT.)

- An independent observer timed the wrap application. The timer was started at the opening of the wrap kit and stopped at the completion of the application of a single limb wrap. The time for primary and secondary dressings was not included.
- The time per application was summarized for each cohort and reported as mean, standard deviation, 25th percentile, median, 75th percentile, minimum and maximum.
- A two tailed t-test was performed to assess the statistical significance of the difference. Alpha was set at 0.05.
- The average hourly wage of the three medical technicians plus a 30% overhead rate was multiplied by the application time to determine the labor cost associated with the compression wrap application. The 30% overhead rate represented the center's overhead rate.
- The study received a waiver from institutional review.

RESULTS

- A total of 38 patients (19 2LB and 19 4LB) received a compression wrap.
- The average time per application was 1:05 and 2:08 minutes (p value <0.001) for the 2LB and 4LB systems respectively [Table 1].
- The average difference was 1:03 minutes per application and totaled 19:57 minutes.
- The average time and corresponding cost to apply the 2LB system was 50% less than a 4LB system [Figure 1]. The average time and cost per patient were calculated from a 1:1 randomized sample of 38 patients. The 2LB system took 50% less time and cost per application compared to a 4LB system.

Table 1. Summary of Compression Wrap Application Time per Patient

	2 LB	4LB
Sample, N	19	19
Average	1:05	2:08*
Std. Deviation	0:06	0:36
25th Percentile	1:01	1:54
Median	1:05	1:58
75th Percentile	1:09	2:02
Minimum	0:55	1:40
Maximum	1:15	4:12

*p value <0.001

Figure 1a: Average Time to Apply Compression Wrap

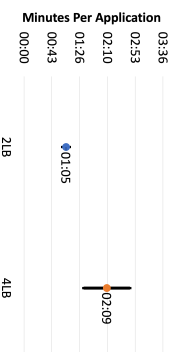
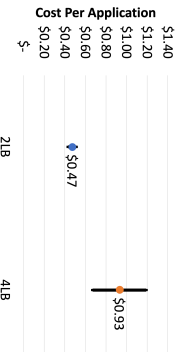


Figure 1b: Average Cost to Apply Compression Wrap



DISCUSSION

- This center typically sees about 940 compression wrap indicated patients per month. Using only the 2LB system this would translate into labor cost savings of \$427 dollars and 16:27 hours per month, which may allow an additional 65 patient visit opportunities (4 patients per hour) and translate into an additional \$15,210 revenue per month.
- Further, the use of 2LB system may lead to substantial environmental savings through reduced bandage material usage, and disposal costs.

CONCLUSION

- This study found that substantial decreases in costs associated with the 2LB system were present and may create opportunities for additional revenue or cost savings compared to a 4LB system.

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