



**Compression in the Treatment of Lymphedema:**  
**Existing Federal Precedent and Evidence of Effectiveness**  
**with Reduced Healthcare Expense**

**The Lymphedema Treatment Act** seeks coverage for compression bandages, supplies, and garments used to reduce lymphedema related swelling, maintain reductions, and prevent complications. Compression is an integral component of the standard of care for the treatment of lymphedema known as Complete Decongestive Therapy (CDT).

**The Lymphedema Advocacy Group** presents the following supportive materials regarding compression, organized into three sections including:

1. existing federal action or precedent,
2. evidence for the effectiveness of compression,
3. reduced healthcare expense.

Materials prepared by Julie Hanson MD, FAAP, CLT-LANA, Lymphedema Advocacy Group Board Member and Medical Advisor.

For questions please contact Heather Ferguson, Lymphedema Advocacy Group Founder and Executive Director, at [Heather@LymphedemaTreatmentAct.org](mailto:Heather@LymphedemaTreatmentAct.org).

# Section 1: Existing Federal Action or Precedent Regarding Compression

## 1. CMS Decision Memo on Pneumatic Pumps<sup>1</sup>

Regarding compression for the treatment of lymphedema the memo notes:

- Standard management of lymphedema typically includes positioning (elevation), manual lymphatic drainage, exercise, and compression garments or wraps.
- A pump may be an appropriate therapy for certain patients that have not been able to reduce limb swelling by conservative treatment. Such conservative treatment must include the use of a compression garment.
- Patients should use compression garments between pump sessions to prevent reaccumulation of fluid.

## 2. MEDCAC Meeting on Lymphedema Treatment Protocols (2009)<sup>2</sup>

- A Medicare Evidence Development Coverage Advisory Committee (MEDCAC) meeting was held on November 18, 2009. The committee reviewed the Agency for Healthcare Research and Quality's (AHRQ) technology assessment of the efficacies of lymphedema diagnosis and treatment protocols. They also heard scheduled testimony of 15 leading experts on lymphedema as well as a number of unscheduled stakeholders and experts.
- The committee reported that the greatest confidence, for the best outcome, was in Complete Decongestive Therapy<sup>3</sup>, of which compression is an integral component (page 14 of meeting transcript)<sup>4</sup>.
- When isolating individual modalities of treatment, the committee reported the highest level of confidence was found in compression (page 5 of meeting tables)<sup>3</sup>.

## 3. Tricare Coverage of Compression for Members of the Military<sup>5</sup>

- "Medical grade compression (pressure) stockings are a covered benefit as durable medical equipment. TRICARE covers two pressure stockings per limb per calendar year when medically necessary"\*.

\*The Lymphedema Advocacy Group has received considerable feedback indicating that most Tricare patients are able to receive the benefit of the above described number of garments for their lymphedema.

#### **4. Women's Health and Cancer Rights Act (WHCRA) of 1998<sup>6</sup>**

- The Women's Health and Cancer Rights Act of 1998 (WHCRA) provides protections for individuals who elect breast reconstruction after a mastectomy.
- Under WHCRA, group health plans offering mastectomy coverage must provide coverage for certain services relating to the mastectomy, in a manner determined in consultation with the attending physician and the patient.
- The required coverage includes:
  - All stages of reconstruction of the breast on which the mastectomy was performed;
  - Surgery and reconstruction of the other breast to produce a symmetrical appearance;
  - Prostheses; and
  - Treatment of physical complications of the mastectomy, including lymphedema.
- This "treatment" does typically include compression garments.
- The WHCRA does not apply to Medicare or Medicaid\*.

\*Thus patients, who previously benefitted from compression, face the high likelihood of losing their primary daily treatment upon transitioning to Medicare.

## **Section 2: Evidence for the Effectiveness of Compression**

#### **5. National Lymphedema Network Position Statement on The Diagnosis and Treatment of Lymphedema (2011)<sup>7</sup>**

The statement indicates:

- The gold standard for the treatment of lymphedema is known as Complete Decongestive Therapy.
- Compression Bandaging is always a requisite part of Complete Decongestive Therapy.
- Following achievement of maximal volume reduction with Complete Decongestive Therapy, patients should be fitted with a compression garment.

#### **6. Cochrane Database of Systematic Reviews ~ Physical therapies for reducing and controlling lymphoedema of the limbs (2008)<sup>8</sup>**

- The review concluded that the use of compression bandaging *and* garments was more effective than garments alone. Additionally, they noted that when comparing no treatment to the use of compression garments alone, the garments were deemed beneficial.

## **7. *The Breast* ~ Supportive Care After Curative Treatment for Breast Cancer (survivorship care): Resource Allocations in Low and Middle income countries. A Breast Health Global Initiative 2013 Consensus Statement (2013)<sup>9</sup>**

- As part of the 5th Breast Global Initiative Summit, an expert panel including researchers and providers from the Dana-Farber Cancer Institute (Harvard), Belgium, Brazil, Lebanon, Malaysia, and The National Cancer Institute in Bethesda, MD (among others) convened to develop resource stratified and evidence based recommendations on the provision of supportive services for breast cancer after curative treatment.
- Regarding lymphedema, the panel found that the evidence supports the use of compression bandages and garments as the most “basic” level of care to be provided in countries with even the most sparse of resources. They define “basic” as “core resources or fundamental services absolutely necessary for any breast health care system to function”.
- The recommendations support the use of compression as a first line treatment for lymphedema.

## **8. International Lymphedema Framework ~ Compression Hosiery (Garments) in Lymphedema (2006)<sup>10</sup>**

The authors reviewed the published evidence for efficacy of compression garments and noted the following:

- Several studies demonstrated the effectiveness of compression for initial decongestion of lymphedematous limbs.
- Studies with follow-up periods of six months to five years showed that compression garments are effective in reducing and/or maintaining lymphedema of the arm and leg both in primary and secondary lymphedema.
- Noted that:
  - “The importance of long term compression therapy in lymphedema has been demonstrated by several authors”
  - Compression for lymphedema is a “widely accepted and important part of management”.

## **9. International Lymphedema Framework ~ Compression Management, A Position Document on Compression Bandaging (2012)<sup>11</sup>**

The authors note the following regarding compression bandaging:

- Lymphedema requires constant compression, if discontinued edema will recur rapidly.
- Compression removes edema by a reduction in capillary filtration, an increase in lymphatic drainage, a shift of fluid to non-compressed areas, and via a breakdown of fibrosclerotic tissue.
- Patient understanding and adherence are critical to sustained outcomes.
- Once swelling is maximally reduced, long term compression garments are required.

## **10. National Breast and Ovarian Centre (Australia) ~ Review of Research Evidence on Secondary Lymphoedema: Incidence, Prevention, Risk Factors, and Treatment (2008)<sup>12</sup>**

After literature review, the authors note the following regarding compression:

- Evidence supports long term use of compression as effective in reducing and/or controlling limb swelling.
- Compression is “an essential component of combination physical therapies” and that conservative treatment (including compression) “leads to significant reductions in limb volume”.

## **11. *Lymphatic Research and Biology* ~ The Standard of Care for Lymphedema: Current Concepts and Physiological Considerations (2009)<sup>13</sup>**

- The author notes:
  - “It is well known that lymphedema, left untreated, will progressively become worse. The earlier lymphedema is detected and properly treated, the better will be the outcome. Early detection and treatment can lead to near normalization of a swollen limb or an edematous trunk, and a greater chance of minimizing or avoiding significant complications. Complications include fibrosis, infection, pain, range of motion limitations, negative body image, and an array of activity limiting sequelae.”
  - “The Standard of care of Phase I Complete Decongestive Physiotherapy includes manual lymphatic drainage, short stretch compression bandaging, decongestive exercises, skin care, and sometimes the use of intermittent pneumatic compression (pumps).”

- In Phase II of Complete Decongestive Physiotherapy, the author lists compression among five integral components as follows: “appropriate fitting and consistent wear and care of compression garments, bandages, or alternative compression systems”.
- “Poor patient compliance in performing home self care is a major factor contributing to the loss of gains so diligently achieve during Phase I. Such losses (and in fact reversals) may trigger complications, including fibrosis, inflammation, cellulitis, diminished range of motion and pain.

## **12. *Support Cancer Care ~ The Treatment of Lymphedema Related to Breast Cancer: a Systematic Review and Evidence Summary (2004)*<sup>14</sup>**

- Cancer Care Ontario’s Supportive Care Guidelines Group (SCGG) employed systematic review methodology to produce an evidence summary on this topic.
- The authors concluded that “Patients should be advised that lymphedema is a lifelong condition and that compression garments must be worn on a daily basis. Patients can expect stabilization and/or modest improvement of edema with the use of the garment in the prescribed fashion.”

## **13. *Clinical Journal of Oncology Nursing ~ Demystifying Lymphedema: Development of the Lymphedema Putting Evidence Into Practice Card (2008)*<sup>15</sup>**

- Notes that “research supports the use of compression bandaging” to reduce swelling with a 40% reduction in limb volume when combined with manual lymphatic drainage, and a 25% reduction with compression bandaging alone.
- Indicates that non-adherence with low-stretch compression bandaging and compression sleeves represent risk factors for progression lymphedema and that continued use of compression bandaging allows for further volume reduction even during maintenance therapy.

## **14. *Canadian Medical Association Journal ~ Clinical Practice Guidelines for the Care and Treatment of Breast Cancer: Lymphedema (2001)*<sup>16</sup>**

- Task force of experts including physical therapists, breast surgeons, radiation, and medical oncologists and patients living with lymphedema convened and a systematic review of the English language literature was undertaken to develop guidelines for the treatment of breast cancer.
- Found that the evidence supported the use of compression garments and that they could even be used as the “primary therapy” for lymphedema.

- Noted that CT scanning to assess the effect of compression found significant decreases in volume in patients wearing compression.

**15. *Annals of Oncology* ~ Conservative Treatment of Postmastectomy Lymphedema: A Controlled, Randomized Trial (1991)<sup>17</sup>**

- A prospective, randomized trial. Randomized patients to two groups: electrically stimulated lymphatic drainage (using an electrical stimulating device) plus compression garments or just compression garments alone for the treatment of breast cancer related lymphedema.
- Both groups improved however there were no significant differences and the authors concluded “a good result could be obtained simply and economically” in the group treated with compression alone.

### **Section 3: Evidence of Reduced Healthcare Expense**

**16. *Journal of The American Physical Therapy Association* ~ Breast Cancer Related Lymphedema: Comparing Direct Costs of a Prospective Surveillance Model and a Traditional Care Model (2012)<sup>18</sup>**

- Modeled the direct costs of caring for patients identified in the early stages of lymphedema (using primarily compression garments) through a prospective surveillance program vs. caring for them in the later stages of the disease.
- Determined that the annual direct cost to manage early stage lymphedema with compression garments and minimal therapy was \$636.19 versus \$3,124.92 in the more advanced stages.
- Thus, early identification and initiation of compression was calculated to significantly reduce healthcare costs.

**17. *Journal of Clinical Oncology* ~ Incidence, Treatment Costs, and Complications of Lymphedema After Breast Cancer Among Women of Working Age: A 2-Year Follow-Up Study (2007)<sup>19</sup>**

- This study evaluated the economic burden of managing breast cancer related lymphedema via analysis of insurance claims data on a total population of 550,000 insured, nearly 2000 of which had been diagnosed with breast cancer and 180 with breast cancer related lymphedema.

- Revealed the two year medical cost differential between breast cancer survivors with and without lymphedema was \$22,153 more spent on patients with lymphedema.
- Noted that only 3.4% of the added cost was spent on therapy or compression supplies which are known to prevent disease progression. The remaining 96.6% was spent on the cost of evaluating and treating complications.
- The authors noted:
  - “Breast cancer related lymphedema patients are likely to incur high medical costs as a result of frequent visits to physicians and/or physical therapists to seek symptom control”.
  - “Poorly managed lymphedema may lead to complications needing medical attention, which increases the costs of care”.

**18. *Rehabilitation Oncology Journal* ~ Effects of Complete Decongestive Therapy on the Incidence Rate of Hospitalization for the Management of Recurrent Cellulitis in Adults with Lymphedema<sup>20</sup>**

- Lymphedema was recognized as one of the most potent risk factors for the development of recurrent cellulitis, which frequently requires hospitalization.
- The authors remarked that enrollment in the study removed a significant barrier to idealized treatment by covering the cost of bandages and garments through the study’s funding.
- The study revealed that treatment, primarily consisting of compression including bandaging and custom garments, reduced the average annual hospitalizations among the study participants from 8.5/year down to 0.67/year, a decrease of 12 fold.

**19. *The American Journal of Infection Control* ~ Outcomes and management costs in patients hospitalized for skin and skin-structure infections (2011)<sup>21</sup>**

- Evaluated multi-hospital insurance data. Reviewed the cost of over 5,000 admissions between 2002 and 2006 for complicated cellulitis. This population included patients with an underlying conditions, such as lymphedema, which complicated the response to treatment.
- Found that the length of stay per episode was 9.5-17.2 days and cost ranged from \$40,046 - \$80,093 per hospital stay. Costs are expected to have risen modestly since that time\*.

\*Note that even at the lower end of the cost range per hospitalization, a 12 fold reduction in hospitalizations per year could be expected to decrease the cost from \$343,391/year to \$26,830/year.



**References:**

1. [https://www.cms.gov/medicare-coverage-database/\(S\(3iepps3hnwcrz5es0ppyu045\)\)/details/nca-decision-memo.aspx?NCAId=50&ver=6&NcaName=Lymphedema+Pumps&NCDId=190&ncdver=2&IsPopup=y&bc=AAAAAAAAEAAA&](https://www.cms.gov/medicare-coverage-database/(S(3iepps3hnwcrz5es0ppyu045))/details/nca-decision-memo.aspx?NCAId=50&ver=6&NcaName=Lymphedema+Pumps&NCDId=190&ncdver=2&IsPopup=y&bc=AAAAAAAAEAAA&)
2. <http://www.cms.gov/medicare-coverage-database/details/medcac-meeting-details.aspx?MEDCACId=51&fromdb=true>
3. <https://www.cms.gov/Regulations-and-Guidance/Guidance/FACA/downloads/id51a.pdf>
4. <http://www.cms.gov/Regulations-and-Guidance/Guidance/FACA/downloads/id51b.pdf>
5. [https://www.hnfs.com/content/hnfs/home/tn/prov/benefits/benefits\\_a\\_to\\_z/pressure\\_stockings.html](https://www.hnfs.com/content/hnfs/home/tn/prov/benefits/benefits_a_to_z/pressure_stockings.html)
6. [http://www.cms.gov/medicare-coverage-database/\(S\(3iepps3hnwcrz5es0ppyu045\)\)/details/nca-decision-memo.aspx?N](http://www.cms.gov/medicare-coverage-database/(S(3iepps3hnwcrz5es0ppyu045))/details/nca-decision-memo.aspx?N)
7. <https://www.cms.gov/Regulations-and-Guidance/Guidance/FACA/downloads/id51a.pdf>
8. <https://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0011841/>
9. [http://www.thebreastonline.com/article/S0960-9776\(13\)00214-2/pdf](http://www.thebreastonline.com/article/S0960-9776(13)00214-2/pdf)
10. [http://www.soffed.co.uk/lymphorg/wp-content/uploads/2016/03/Compression\\_hosiery.pdf](http://www.soffed.co.uk/lymphorg/wp-content/uploads/2016/03/Compression_hosiery.pdf)
11. <http://www.lympho.org/portfolio/compression-therapy-a-position-document-on-compression-bandaging/>
12. <http://almacen-gpc.dynalias.org/publico/Linfedema%20tras%20cancer%20de%20mama%20u%20ovario%20NBOCC%202008.pdf>
13. [https://www.ncbi.nlm.nih.gov/pubmed/?term=The+Standard+of+Care+for+Lymphedema%3A+Current+Concepts+and+Physiological+Considerations+\(2009\)](https://www.ncbi.nlm.nih.gov/pubmed/?term=The+Standard+of+Care+for+Lymphedema%3A+Current+Concepts+and+Physiological+Considerations+(2009))
14. <https://www.ncbi.nlm.nih.gov/pubmed/15095073>
15. <https://cjon.ons.org/cjon/12/6/demystifying-lymphedema-development-lymphedema-putting-evidence-practice%C2%AE-card>
16. <http://www.cmaj.ca/content/164/2/191.full.pdf+html>
17. <https://www.ncbi.nlm.nih.gov/pubmed/?term=Annals+of+Oncology%3A+Conservative+Treatment+of+Postmastectomy+Lymphedema%3A+A+Controlled%2C+Randomized+Trial>
18. <http://ptjournal.apta.org/content/92/1/152.full.pdf+html>
19. <http://jco.ascopubs.org/content/27/12/2007.full.pdf+html>
20. [http://journals.lww.com/rehabonc/Abstract/2011/29030/Effects\\_of\\_Complete\\_Decongestive\\_Therapy\\_on\\_the.3.aspx](http://journals.lww.com/rehabonc/Abstract/2011/29030/Effects_of_Complete_Decongestive_Therapy_on_the.3.aspx)
21. [http://www.ajicjournal.org/article/S0196-6553\(10\)00600-0/abstract](http://www.ajicjournal.org/article/S0196-6553(10)00600-0/abstract)

