



## **Compression in the Treatment of Lymphedema: Evidence for Effectiveness and Reduced Healthcare Expenditure**

*Lymphedema is a chronic progressive condition characterized by the accumulation of lymph fluid (swelling) in various parts of the body due to malfunctions in the lymphatic system. It is estimated that 500,000 Canadians are living with lymphedema and approximately 193,000 of them in Ontario. That is more than those afflicted by AIDS, ALS, Multiple Sclerosis, Muscular Dystrophy and Parkinson's combined.*

**Compression** is an integral component of the evidence-based standard of care for the treatment of lymphedema known as **Complete Decongestive Therapy (CDT)**. Compression supplies required to treat lymphedema include: standard fit and customized gradient compression garments, multi-layer compression bandaging systems, compression wraps and other compression supplies and devices.

The documents outlined below summarize several position papers, reviews and consensus documents, which

- Recognize the necessity of compression for patients with lymphedema.
- Reveal the complications of untreated chronic lymphedema: recurrent bacterial infections (cellulitis, including the risk of life-threatening septicemia), ulceration and other forms of loss of skin integrity, reduced mobility and other functional problems, work disability, financial and other psychosocial issues. Less commonly, lymphedema may lead to angiosarcoma.
- Compression therapy reduces disease progression, complications, co-morbidities and consistently reduces the incidence of cellulitis at significant cost savings to the health care system.

### **1. International Lymphedema Framework (2012): *Compression Therapy: A Position Document on Compression Bandaging***

The authors note the following regarding compression bandaging and garments:

- 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.
- Once swelling is maximally reduced, long term compression garments are required.
- The cost-effectiveness of care through improved clinical outcome and appropriate use of health resources.
- The potential to reduce episodes of cellulitis requiring hospitalization.
- Minimize the risk of cellulitis/erysipelas risk reduction to avoid factors that may exacerbate lymphedema or induce complications pain management and psychosocial support

### **2. International Lymphedema Framework (2010): *Compression Hosiery (Garments) in Lymphedema***

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

- Studies with follow-up periods of six months to five years indicate that compression garments are effective in reducing and/or maintaining lymphedema of the arm and leg both in primary and secondary lymphedema.
- Compression hosiery (garments and arm sleeves) are an integral part of lymphedema management with strong evidence to support their use.
- Outcomes are less optimal in lymphedema management when compression therapy is not used.

### 3. **International Lymphedema Framework (2006): *Best Practice for the Management of Lymphedema***

The authors indicate the following regarding compression bandaging and garments:

- Multi-layer lymphedema bandaging is a key element of intensive therapy regimens. For some patients it may also form part of their transition, long-term or palliative management.
- The main use of compression garments is in the long-term management of lymphedema, usually following a period of intensive therapy. Compression garments are also used for prophylaxis or as part of initial treatment.
- Compression treatment prevents disease progression. In most severe cases of lymphedema, lymphangiosarcoma, a rare form of lymphatic cancer, can develop and that can metastasize widely.

### 4. **National Lymphedema Network Position Statement (2011): *The Diagnosis and Treatment of Lymphedema***

- 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.

### 5. **Cochrane Review (2008): *The Effectiveness of Various Lymphedema Therapies***

- 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.

### 6. **Journal of the American Physical Therapy Association (2012): *Breast Cancer Related Lymphedema: Comparing Direct Costs of a Prospective Surveillance Model and a Traditional Care Model***

- Modelled 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 early identification and initiation of compression was calculated to significantly reduce healthcare costs.

### 7. **Rehabilitation Oncology Journal: *Effect of Complete Decongestive Therapy on the Incidence Rate of Hospitalization for the Management of Recurrent Cellulitis in Adults with Lymphedema (Outcomes and management costs in patients hospitalized for skin-structure infections)***

- Lymphedema was recognized as one of the most potent risk factors for the development of recurrent cellulitis, which frequently requires hospitalization.
- The study revealed that 18 months of treatment, primarily consisting of compression including bandaging and custom garments, reduced the cumulative average annual number of hospitalizations among the study participants from 8.5/year down to 0.67/year.

### 8. **Institut national d'excellence en santé et en services sociaux – Québec (2011): *Treatment of Cancer-related Secondary Lymphedema***

- This document published by INESSS (the body that does scientific reviews for the Quebec MOH) recommended compression treatment and formed the basis for the Quebec reimbursement program.
- Wearing compression garments on a long term basis appears essential for maintaining the volume losses achieved during the intensive phase. The approach must be customized to patients' needs.

#### References

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