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## **Abstract**

Lymphoedema is a progressive, debilitating condition caused by reduced or damaged lymphatic function. The condition can have a profound effect on individuals' quality of life and wellbeing. Lymphoedema's complex, enduring nature necessitates prevention wherever possible, early detection, self-management and integrated interventions based on the four cornerstones of care. Lymphoedema prevalence is increasing, particularly amongst older people. As the population of nursing and care home residents is ageing, lymphoedema prevention and management should be a serious concern for those working in nursing and residential care.

## **Introduction**

Lymphoedema, now frequently referred to under the umbrella term chronic oedema (Moffatt et al. 2017), is a progressive, incurable, debilitating condition. It is caused by reduced or damaged lymphatic function (Taghian et al. 2014) and characterised by mild to severe high-protein tissue swelling of one or more limbs and, in some cases, the trunk, head or genital areas (Hardy 2006). Lymphoedema may lead to mobility problems and pain and generate a sense of heaviness and skin texture changes in the affected limb. Individuals with lymphoedema have an increased risk of recurrently developing cellulitis and the condition can severely compromise their quality of life, functional independence and general sense of wellbeing (Noble-Jones et al. 2014; Watts and Davies 2016).

A recent study suggested that 3.99:1000 of the population may be affected by lymphoedema. In those over 85 years this increases to 12:1000 (Moffatt &

Pinnington 2012). In all probability prevalence is underestimated as lymphoedema awareness and understanding amongst healthcare professionals and the public remains limited. Consequently, lymphoedema is frequently not recognised (Todd 2014), diagnostic delay is common and appropriate preventative interventions amongst 'at risk' groups are rare (Watts and Davies 2016). Rising obesity, chronic illnesses and increasing life expectancy means lymphoedema prevalence will increase (Christensen et al. 2009). Prevalence is likely to be greater amongst older people. Thus lymphoedema prevention and management should be an important everyday concern amongst those working in nursing and residential care given that the population of residents is ageing (Office for National Statistics 2014).

### **Causes of lymphoedema and associated risk factors.**

Awareness and understanding of the causes of and risk factors for lymphoedema is essential. This is because the diverse range of causes of lymphoedema means it is highly likely that staff will encounter residents who are at risk of developing this life-long condition. Accordingly, early identification of residents at risk of developing lymphoedema, resident education and preventative strategies should be a core component of routine everyday care.

Lymphoedema is caused by an inherited or acquired atypical lymphatic system and affects people of all ages (Ridner 2009). Depending on where lymphatic damage originates, it is characterised by enduring regional swelling of either the head / neck, upper and lower limbs and genitalia (Todd 2017a). Lymphoedema is categorised as either primary or secondary. Primary lymphoedema is associated with lymphatic malformation as a consequence of congenital or genetic factors (Brouillard et al.

2014). Secondary lymphoedema is connected with damaged lymphatic vessels or nodes. Cancer treatments are the leading cause of secondary lymphoedema (Brayton et al. 2014). However, concern is growing about the connection between chronic conditions, notably chronic cardiac and renal diseases, morbid obesity and lymphoedema (International Lymphoedema Framework 2012).

Several predisposing risk factors for developing lymphoedema have been identified, including obesity, chronic skin disorders and advanced cancer (International Lymphoedema Framework 2006). In upper limb lymphoedema risk factors also include: surgery with axillary lymph node dissection, for example extensive breast cancer surgery / axillary node clearance and postoperative axillary radiotherapy. In lower limb lymphoedema predisposing risk factors include: surgery with inguinal lymph node dissection; post-operative pelvic radiotherapy; orthopaedic surgery; immobility or prolonged limb dependence and chronic cardiac and kidney disease (International Lymphoedema Framework 2006).

### **Preventing and Managing lymphoedema in residential care**

Lymphoedema's complex, enduring nature necessitates prevention wherever possible, early detection, self-management and integrated interventions based on the four cornerstones of care (Box 1). Nevertheless, older people can find self-management time consuming, burdensome and challenging in practical terms and may well require assistance and support (Watts and Davies 2016). Furthermore, factors associated with the ageing process, for example impaired functional and or cognitive capacity, mean that nursing and residential care staff have pivotal roles in lymphoedema prevention, early detection and management.

## **INSERT BOX 1**

Consequently staff must be aware of the actions required to prevent (stage 0) and manage mild (stage 1) lymphoedema (Table 1) and work collaboratively with residents, community nursing services and general practitioners. It is vital to access specialist lymphoedema services for assessment and management support for residents with moderate (stage 2) and severe (stage3) lymphoedema (Table 1). To facilitate this nursing and residential care staff must know the local referral pathways and contact details for specialist lymphoedema services.

### **Insert table 1**

#### *Hygiene and skin care*

Meticulous hygiene and skin care are fundamental components of lymphoedema prevention and management. In residential care it is important to aim at preventing lymphoedema, particularly amongst residents at risk of developing the condition. In those who are living with lymphoedema dry, thick, hard, scaly and flaky skin is not unusual and tissue inflammation, bacterial and fungal infections are serious risks. Cracked skin is a haven for bacteria to lurk and render skin vulnerable to cellulitis. It is essential to prevent further skin damage (Wigg and Lee 2014) as cellulitis can spread to deeper tissues and/or systemically through the body (Ezzo et al. 2015) and lead to serious illness and hospitalisation (Todd 2018).

It is therefore vital to optimise the skin condition, integrity and functionality as a barrier to infection (Box 2). Wherever possible residents should be educated about and understand the importance of scrupulous washing, careful, thorough drying and

daily moisturising, assessed and assisted in these activities as required. It is important to ensure the skin's natural sebum, secreted to prevent it from drying out, is not removed (Nowicki and Siviour 2013). Scented products should be avoided and emollients with minimal water content used to restore the skin's protective lipid layer and encourage moisture retention (International Lymphoedema Framework 2012). Furthermore, it is important to carefully observe the skin on a daily basis for breaks, cracks and indicators of infections.

## **Insert box 2.**

### *Movement and exercise*

While elevating a mildly lymphedematous limb will often reduce swelling, movement and exercise are vital components of lymphoedema prevention and management. This is to enhance lymphatic and venous flow and reduce the risk of obesity (International Lymphoedema Framework 2006). Nevertheless, both lymphoedema and advancing age can have a negative impact in an individual's functionality, mobility and thus the ability to exercise. Limited mobility can contribute to an increased risk of obesity. Furthermore, obesity is a high risk factor for lymphoedema development and progression (Todd 2017a).

Evidence indicating which types, intensity and frequency of exercise are most appropriate and beneficial in lymphoedema prevention and management is inconclusive. Furthermore, most research has focused on women treated for breast cancer. Nevertheless, the importance and health benefits of routine planned,

structured and purposeful exercise in older adults, including those living in care homes are increasingly understood. Staff may wish to explore how increased exercise may be built into residents' routines, in addition to any formal, structured exercise classes within the home.

### *Compression therapy*

Compression therapy is at the heart of lymphoedema prevention, long term-management and avoidance of recurrence. Without compression previously treated lymphoedema will recur and existing lymphoedema will worsen. Compression involves the application of pressure to reduce oedema using bandages, hosiery or adjustable wrap systems. It works in several ways including stimulating lymphatic contraction, facilitating lymph drainage, preventing venous backflow and moving fluid to non-compressed areas (International Lymphoedema Framework 2012; Todd 2017a).

Lymphoedema specialists or community nurses with specialist lymphoedema preparation and who are also prescribers are important expert resources, particularly in terms of compression. It is essential that staff work with these appropriately prepared individuals to ensure best outcomes for residents who may either be at risk of or are living with lymphoedema. This is because they will have the appropriate skills and knowledge regarding the indications for use and fitting, the style and construction of hosiery, bandages and wraps available and how to assess and correctly measure the limb(s) (Lee and Wigg 2013). Following thorough, holistic resident assessment suitable compression can be prescribed and applied (Todd 2017a; Todd 2018).

A range of compression garments (for example, sleeves and gauntlets), hosiery, bandages and adjustable wrap systems is available for prescription (Table 2). Many are available on Drug Tariff (Todd 2018). This may present some residents with a small element of choice in compression therapy decision-making and this, in turn, may help with therapy adherence (Grey 2013).

### **Insert table 2**

Adherence can be a challenge for several reasons (Moffatt et al. 2009; Brown 2011), including, for example, a lack of appreciation of the benefits of compression and cosmetic appearance. It is vital therefore to understand how compression works, why bandaging may be required and why it is important to wear compression garments every day, throughout the day and into the evening (Hobday 2016). Reduced dexterity, strength and even pain, together with arthritis and even obesity can mean that applying (donning) and removing (doffing) compression garments independently is problematic. To assist in this process a range of devices is available (Box 3). Residents who are prescribed compression should be provided with an appropriate donning device (Balcombe et al. 2017). However, using these devices requires strength and dexterity and residents may still require some assistance.

### **Insert box 3**

It is usual for people to be prescribed two pairs of hosiery. The accumulation of emollients and body oils means that regular washing of garments is required. The proper care of prescribed garments and hosiery is of the utmost importance and staff



should note and follow manufacturers' guidelines regarding washing, drying and replacement of the product (normally after six months) (Elwell 2016). The fabric may cause some residents skin irritation or allergy. This should be brought to the lymphoedema specialist's attention so that the skin can be assessed and if necessary hosiery made of an alternative fabric prescribed. In the event of any acute cellulitis compression should be removed until infection has subsided (International Lymphoedema Framework 2006).

### *Lymphatic massage*

There are two main forms of lymphatic massage: manual lymphatic drainage, often referred to as MLD, and simple lymphatic drainage, sometimes referred to as self-massage (International Lymphoedema Framework 2006). Manual lymphatic drainage is a gentle massage technique provided only by trained lymphoedema specialists (Muller et al. 2018). Simple lymphatic drainage is a simplified version of MLD. Specialist lymphoedema practitioners can teach residents and their carers to apply the technique, unless it is contraindicated (Box 4)

### **Insert box 4**

### **Conclusions**

Rising life expectancy, chronic illness and obesity mean lymphoedema prevention and management should be an area of interest for nursing and residential home staff. It is essential that staff are aware of lymphoedema's causes and risk factors. Prevention and safe, effective management based on the four cornerstones of care

cannot be emphasised enough. Furthermore, it is imperative that staff work in partnership with residents and specialist lymphoedema and primary care services so as to optimise resident's health, wellbeing and quality of life. Finally, accessible, sustainable lymphoedema education for nursing and residential care staff is urgently needed to enable them to provide proactive, resident-centred individualised care and optimise residents' quality of life.

### **Key points**

1. Lymphoedema is a progressive, incurable, debilitating condition caused by reduced or damaged lymphatic function.
2. Its causes, risk factors, prevention and management should be core concerns for those working in nursing and residential care homes.
3. Lymphoedema's complex, enduring nature necessitates prevention wherever possible, early detection, supported self-management and integrated interventions based on the four cornerstones of care.

### **Key words**

Lymphoedema; chronic oedema; assessment; management; residential care; nursing home

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