Developed by the British Columbia Provincial Nursing Skin & Wound Committee in collaboration with NSWOCs/WCs from:

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Compression Therapy for Venous Insufficiency: Guideline

HA Endorsement **British Columbia & Yukon**	• Endorsement done: FNHA as reference, FHA, IHA, NHA & VCH/PHC. • Endorsement pending: ISLH, PHSA & Yukon; until endorsement has been granted by your health authority (HA) please follow your HA's current document.
Indications for Decision Support Tool	• The guideline addresses the application of compression therapy for clients with recognized venous leg insufficiency or mixed venous/arterial insufficiency; it does not address the application of compression for the treatment of lymphedema. • Clients needing compression therapy may require an interprofessional approach to provide comprehensive evidence-based assessment and treatment. This clinical practice guideline focuses solely on the role of the nurse as one member of the interprofessional team providing care to clients.

Practice Level
British Columbia & Yukon
	British Columbia: a nurse, within their respective college's scope of practice, may apply compression therapy as per the following:
	• For compression therapy (wraps or stockings) greater than 20 mmHg (high compression):
	  ○ Have an order from a physician/Nurse Practitioner(NP), or a Nurse Specialized in Wound Ostomy Continence(NSWOC)/Wound Clinician(WC), for the compression therapy.
	  ○ Have successfully completed additional education for the application of greater than 20 mmHg compression therapy.
	  ○ Have health authority or agency policies and/or standards in place to support this practice.
	  ○ Follow an established Compression Therapy decision support tool.
	• For compression wraps 20 mmHg or less (low to moderate compression):
	  ○ Decision to apply an Unna Boot wrap is to be done in consultation with an NSWOC/WC or MRP.
	  ○ Only nurses who have competency in doing compression wraps can apply an Unna Boot wrap.
	  ○ Have health authority or agency policies and/or standards in place to support this practice.
	  ○ Follow an established Compression Therapy decision support tool.
	• For compression stockings or tubular bandages 20 mmHg or less:
	  ○ A physician/NP or NSWOC/WC order is not required.
	  ○ Compression therapy additional education is not required for the application of 20 mmHg or less compression.
	  ○ Have health authority or agency policies and/or standards in place to support this practice.
	  ○ Follow an established Compression Therapy decision support tool.
	• Registered nurses, who have successfully completed a wound management education program as outlined by the British Columbia College of Nurses & Midwives may provide an order/clinical direction for, and carry out, compression therapy without an order when health authority/agency policy and/or standards support this practice.
	Yukon: Registered Nurses, Registered Psychiatric Nurses and Licensed Practical Nurses refer to organizational policy and practice in accordance with regulatory bodies.

Bookmarks	• Need to Know/Indications, Precautions & Contraindications • Definitions

Note: This is a **controlled** document. A printed copy may not reflect the current, electronic version on the CLWK Intranet (www.clwk.ca). Any document appearing in paper form should always be checked against the electronic version prior to use; the electronic version is always the current version. This DST has been developed as a guide to support nursing practice in British Columbia, however it is not a substitute for education, experience & the use of clinical judgment.

	• Related Documents
	• Assessment & Determination of Treatment Goals
	  ○ Assessment Prior to Initiating Compression Therapy
	  ○ Determination of Treatment Goals
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	  ○ Client Care Management
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Need to Know/ Indications	• Venous insufficiency is chronic disease, and the most common signs and symptoms are edema and lower limb ulcers. Abnormal venous valves (reflux), deep vein thrombosis, obstruction, calf-muscle pump failure, immobility, obesity, pregnancy, leg fractures/trauma may all contribute to venous insufficiency, venous hypertension, edema, and possible ulceration.
	  ○ Venous leg ulcers can significantly impact quality of life. Venous disease may lead to lack mobility and inability to participate in social and work activities increase risk of pain.[23,33]
	  ○ Compression is the gold standard treatment for venous leg ulcers and edema.[24] Sustained therapeutic compression therapy decreases lower leg venous Hypertension by improving calf muscle pump efficiency, enhancing venous valve function and reducing edema.
	  ○ Client's initial introduction to compression therapy wraps may affect their opinion of the treatment and affect their willingness to participation in the care plan. Engage the client in the development of the care plan as well as provide initial and ongoing compression therapy education.
	  ○ Compression therapy is achieved through the use of compression wraps, compression garments, stockings or bandages. Depending upon the compression device, these provide low – moderate (5-20 mmHg) or high (greater than 20 mmHg) compression.
	  ○ Evidence suggests that compression therapy increases venous ulcer healing compared to no compression, that high compression is more effective than low compression, and low compression is better than no compression.[3,10 16,24,28, 34,36]
	• Prior to initiating compression therapy of:
	  ○ Greater than 20 mmHg, a lower limb assessment (basic & advanced) including an ABPI and/or TBPI must be done.
	  ○ 20 mm/Hg or less, a lower limb assessment (basic & advanced) must be done but an ABPI and/or TBPI is not required if the pedal pulses are palpable or present with a hand-held doppler and capillary refill is normal.
	• To promote healing and prevent venous leg ulcer recurrence, therapeutic compression must provide sufficiently high compression to eliminate edema, be graduated from ankle to calf (elastic compression therapy only) and continue over a lifetime.
	• Compression wraps are classified as elastic (long-stretch), or (short-stretch or rigid), and can be applied in 1, 2, 3 or 4 layers depending on the product used (see Appendix A).
	• The degree of compression produced by a compression wrap over time is determined by the interaction among the:

	○ Physical structure and elastic properties of the wrap. ○ Size and shape of the limb to which it is applied. ○ Skill and technique of the professional applying the wrap. ○ Nature of the physical activity undertaken by the client. • While first line compression therapy usually involves wraps, compression garments, (i.e., stockings, reusable inelastic devices, or tubular sleeves) provide effective second line therapy when clients cannot tolerate compression wraps and are used to prevent the recurrence of a healed ulcer. • Although compression therapy should ultimately reduce lower limb pain or discomfort, there may be some initial discomfort especially over the first 1-3 weeks of compression as the edema reduces. Significant pain, numbness or tingling indicate circulatory problems and require immediate removal of the compression wraps and consultation with a NSWOC/WC or physician/NP. • Compression therapy can be used when clients have venous insufficiency combined with arterial insufficiency (mixed etiology). This therapy requires close monitoring by the NSWOC/WC and physician/ NP. Co-occurring peripheral arterial disease (PAD) occurs in as many as 25% of client with venous leg ulcers.[6] The incidence of PAD increases with age. • Antiembolic stockings, (e.g., TED stockings) and tensor wraps should not be used for compression therapy. • Adverse effects of compression therapy wraps include pressure damage, slippage, exudate strike through, blistering, impaired circulation, exacerbation of heart failure, increased pain, and allergic/sensitivity reactions. • Risk factors for venous leg ulcer recurrence include reduced ankle mobility, poor adherence to ongoing compression therapy, and an increase in number of previous ulcerations. Studies indicate that over 50% of active venous leg ulcers are recurrent.[43] • If venous insufficiency is not treated, over time it can progress to lymphedema.[44,48]
Precautions	If any of the following precautions are present, compression therapy should be carried out with caution, in collaboration with a NSWOC/WC and physician/NP and with close monitoring: ○ Treated wound infection. ○ Moderate to mild arterial disease (an ABPI of 0.50 – 0.89) combined with venous insufficiency (mixed etiology). ○ Following vascular surgery, (i.e., post arterial bypass graft to the lower limb), compression therapy must be ordered by the vascular surgeon. ○ The loss of protective sensation in the feet. ○ Managed organ failure, (i.e., heart, liver, or renal). ○ Severe pain or untreated pain. ○ Treated deep vein thrombosis or phlebitis.
Contra-indications	If any of the following contraindications are present, compression therapy should not be carried out: ○ Uncompensated organ failure, (i.e., heart, liver, or renal). ○ Untreated deep vein thrombosis or phlebitis. ○ Severe arterial disease (ABPI 0.49 or less) unless ordered by a vascular surgeon or physician. ○ Ischemic rest pain. ○ Untreated wound infection. ○ Clients unable to manage compression therapy due to cognitive impairment, mental health concerns or a lack of available support to put on and remove compression garments.

Definitions	**Additional education** – Structured education such as workshops, courses or programs of study that provide the competencies (theory and skill) required to carry out a specific activity. **Ankle brachial pressure index** (ABPI) – A numerical figure that indicates the amount of arterial blood flow to the extremity determined by Doppler ultrasound or an automatic ABPI system by comparing the ankle systolic pressure and the brachial systolic pressure with the ABPI being a ratio of the two. ABPI is used to evaluate the presence of peripheral arterial disease prior to determining the safe and appropriate level of compression therapy needed to treat venous insufficiency. **Ankle flare** – A crown of dilated blood vessels around the medial ankle; present in venous insufficiency. **Antiembolic stockings** – Worn by non-ambulatory or post-surgical patients to help prevent pooling of blood in the legs that can lead to a venous thrombosis. They should not be used for compression therapy. **Arterial insufficiency –** Insufficient arterial blood flow to the lower extremities caused by occlusive atherosclerotic plaques or emboli, damaged, diseased, or weak arteries, arterio-venous fistulas, aneurysms, hypercoagulability states and heavy use of tobacco. Signs of arterial insufficiency include pale, cyanotic or mottled skin over the lower legs/feet, absent or decreased sensation, tingling, diminished sense of temperature, muscle pain, reduced or absent peripheral pulses, atrophy of muscles in the lower legs and possibly arterial ulcers. **Atrophie blanche** – Painful, white areas of extremely thin, fragile skin dotted with tiny blood vessels which are at greater risk for skin breakdown. Sometimes it presents with venous insufficiency**.** **Capillary refill** – Length of time taken to return to normal colour after pressure applied to a toenail, fingernail or skin causes the area to blanche. Normal capillary refill is affected by age, gender, and ambient temperature. Normal refill time is less than or equal to 2 seconds in children and less than or equal to 3 seconds in adults, however normal refill times increase with age and is usually higher in adult women than men. Abnormal values may indicate dehydration or impaired peripheral perfusion. **Cellulitis** – Infection of the dermis and subcutaneous tissue characterized by localized erythema, pain, swelling and warmth. **Champagne bottle deformity –** Chronic venous insufficiency and recurring edema cause a woody fibrosis that prevents expansion of the tissue in the ankle giving the leg the appearance of an inverted champagne bottle. **Charcot Foot –** A progressive, degenerative disease of the foot joints characterized by edema, pain, hemorrhage, heat, bony deformities, bone fragmentation and joint instability. Acute Charcot foot requires immediate treatment. **Client** – This term includes recipients of care; in the acute (patient), community (client) and residential (resident). **Client/family** – Family is two or more individuals who come together for mutual aid. Families are self-defined, and family is 'who the client says their family is'; this is individualized.[55] **Cohesive wrap –** A type of wrap that adheres to itself but doesn't adhere to the skin. **Compression therapy –** Application of elastic or inelastic wraps or garments that exert sustained external pressure over the lower extremities to relieve venous congestion thereby reducing edema and promoting the return of venous blood to the heart. Compression Therapy is effective in reducing edema and healing venous ulcers. **CWSM –** Refers to "Circulation, Warmth, Sensation and Movement" and is the standard test used to check vascular status.

Edema – The accumulation of fluid in extra vascular tissue. It occurs as a result of complex interactions involving the capillary walls and the hydrostatic and osmotic pressure gradients which exist between the blood pressure in the vessels and the surrounding tissue.

Elastic/long-stretch wrap – A wrap that contain elastomeric fibers (extension 90-140%) and capable of stretching and returning almost to its original size. It provides medium to high compression depending upon the system selected and can sustain pressure for up to a week with only a slight reduction in pressure when client is at rest due to its inherent defined resting pressure.[24]

Elasticity – Determines the ability of a wrap that is subject to a force to resist any change in length and return to its original length once the applied force has been removed.

Erythema – Redness of the skin caused by dilation of the capillaries. It is often a sign of inflammation or infection.

Extensibility -The extensibility of a wrap, determines the change in length that is produced when the wrap is subjected to an extending force. Extensibility is usually expressed in the form of a percentage which relates the stretched to the un-stretched length.

Gaiter area – The distal two thirds of the lower leg, extending from mid-calf to just below the ankle. Venous ulcers are often found in this area.

Garments (compression) – Compression garments include stockings, reusable devices, and tubular sleeves. They generally provide lower compression than wraps and are often used as a lifelong preventive measure to avoid the recurrence of ulcers and edema.

Hemosiderin Staining – Leakage of red blood cells into surrounding tissue due to venous hypertension in the lower leg. Over time presents as reddish-brown skin pigmentation.

Induration – Hardening of the skin and subcutaneous tissues of the lower leg due to inflammation. It may be secondary to infection.

Inelastic compression wrap – A wrap made of non-stretch material such as zinc paste, impregnated gauze, or short-stretch wraps.

Inelastic/short-stretch wrap – A wrap that provides little or no elasticity and therefore minimal stretch (extension 40-90%); the wrap exerts low pressure at rest but high pressure during activity.[24]

Intermittent claudication – Characterized by pain, cramping, burning, and aching in the calf or upper thigh during exercise and caused by insufficient arterial blood flow to the extremity. May occur when the ABPI is less than 0.8 but may not be evident if client has peripheral neuropathy or walks slowly. It is relieved by rest in 2 to 10 minutes.

Lipodermatosclerosis – (also called woody fibrosis) Deposits of fibrin and fat in the deep dermis caused by chronic edema. This leads to woody induration and a loss of tissue compliance in the gaiter area which reduces skin perfusion and may cause ulceration; often presents as a “champagne” shaped lower limb.

Mixed venous/arterial ulcers – Occurs when clients have symptoms of both venous insufficiency and arterial insufficiency in the same limb. Sometimes called mixed etiology. Compression therapy carries a higher risk of complications in the presence of arterial insufficiency and requires close monitoring and specialist involvement.

Multilayer wrap – A wrap that combines padding and elastic and/or inelastic layers and effectively achieves high compression that may have 2, 3, or 4 layers.

NSWOC: Nurse Specialized in Wound Ostomy Continence.

Patch test – A method of testing used to determine if a specific substance is causing allergic inflammation (contact dermatitis) of the skin.

	Peripheral vascular disease (PVD) – Includes diseases affecting both peripheral arteries and veins, (e.g., arterial insufficiency or venous insufficiency). **Product Information Sheet(s) (PISheet)** – Information sheets developed by the Provincial Professional Practice Stream – Wound Ostomy Continence. PISheets are found on the Connecting Learners With Knowledge (CLWK). **Pitting edema** – Peripheral edema in which external pressure leaves a persistent depression in the tissues. Pitting occurs when the pressure against the skin pushes the excess fluid out of the interstitial tissues. **Stemmer's Sign –** An inability to lift the edematous or thickened skin fold on the dorsal surface at the base of the second (2nd) toe when pinched. A positive Stemmer's sign suggests lymphedema, but the absence does not rule this out. **Tensor wrap –** A reusable elasticized wrap used to support a strained or sprained limb; also called an ace wrap. They come in standardized lengths and widths and once wrapped around the limb they are held in place with small-toothed metal clips. They are not used for compression therapy. **Toe brachial pressure index (TBPI)** – TBPI is a non-invasive means of determining arterial perfusion in the feet and toes for those who have diabetes or renal disease which causes calcification of the arteries. It measures the amount of arterial blood flowing to the toes and is used for those with diabetes because the arteries in the toes are smaller and considered to be less affected by calcification. TBPI compares the toe systolic pressure and the brachial systolic pressure with the TBPI being a ratio of the two. **Toe Pressures** – The systolic pressure in the toes. Sometimes used to determine healability. **Varicosities –** Dilated and distended veins in the leg which become progressively larger and more painful over time. **Venous dermatitis** – A common inflammatory skin disease of the lower extremities. The skin is itchy and can be dry and scaly or can weep and form crusts. It may also be associated with erythema, hyperpigmentation, and dilated superficial veins. It is one of the earliest cutaneous indications of chronic venous insufficiency. Consequences of venous dermatitis include an increased incidence of allergic contact dermatitis, lower-extremity ulceration and lipodermatosclerosis. **Venous insufficiency** – Occurs when the venous wall and/or valves in the leg are not working effectively making it difficult for blood to be pumped from the legs to the heart. This result in blood pooling in the lower leg/ankle and edema. Symptoms include aching or tired legs, varicose veins, edema, skin changes on the lower leg and possibly venous ulcers. **WC**: Wound Clinician. **Woody fibrosis** – (also called lipodermatosclerosis) Deposits of fibrin and fat in the deep dermis caused by chronic edema. This leads to woody induration and a loss of tissue compliance in the gaiter area which reduces skin perfusion and may cause ulceration; often presents as a "champagne" shaped lower limb.
Related Documents	Guideline: Lower Limb Ulcers – Arterial, Venous & Mixed Learning Module: Application of Compression Therapy Procedure: Ankle Brachial Pressure Index – Handheld Doppler Procedure: Ankle Brachial Pressure Index – Automatic ABPI System Procedure: Monofilament Testing for Loss of Protective Sensation Procedure: Duke Boot (with self-adherent wrap) Procedure: Unna Boot (without self-adherent wrap) Assessment Tool: Lower Limb Assessment Flow Sheet (Basic & Advanced) Client Health Education Resource: Managing Your Venous Disease Client Health Education Resource: Compression Stockings

Assessment and Determination of Treatment Goals

Assessment Prior to Initiating Compression Therapy

1. Assess for Client Concerns
    a. Client/family level of understanding about compression therapy, the wound (if present) and risk factors.
    b. Impact of venous insufficiency on client's daily life and body image.
    c. Social and financial concerns and availability of support systems to address these concerns.
    d. Emotional, cognitive, behavioural or mental health concerns and availability of support systems to address concerns.
    e. Effect of client's current environment on compression therapy.
    f. Client/family preferences for compression therapy, treatment of the wound (if present), edema, risk factors and the goals of care.
    g. Acknowledge culture and traditions.
    h. Factors that impact client/family ability and motivation to comprehend and participate with compression therapy, (e.g., mental health issues, dementia, or compromised manual dexterity).

2. Assess Risk Factors for Wound Healing (if wound present)
    a. Medical conditions/diseases including autoimmune diseases, history of deep vein thrombosis or phlebitis, diabetes mellitus, renal failure, rheumatoid arthritis, osteoarthritis, stroke, hypertension, venous or arterial insufficiency, edema, varicose veins, and liver failure.
    b. Impaired oxygenation status of the skin and underlying tissue, (e.g., chronic obstructive pulmonary disease, heart failure, anemia).
    c. Previous history of lower leg ulceration.
    d. History of radiation therapy.
    e. Medications that interfere with wound healing, (e.g., non-steroidal anti-inflammatory drugs (NSAIDS), antineoplastics, systemic corticosteroids, anticoagulants, and vasopressors)
    f. Impaired nutritional status: (also see Nutrition Screening for Wound Prevention & Healing: Guideline for Nurses)
        i. Obesity, low body weight, cachexia, dehydration, restrictive diet.
        ii. Inadequate nutritional intake, including percentage (%) of intake at meals, protein/calorie and fluid intake.
        iii. Possible causes of poor intake, (e.g., difficulty swallowing, poor dentition, positioning, inability to feed self, gastrointestinal symptoms and pain).
        iv. Assess renal function if increased protein intake is indicated.
        v. If client lives with diabetes refer to Diabetes Clinic.
    g. Lifestyle factors such as cigarette and substance use. Assess motivation to quit.
    h. Foot care routines and access to foot care service.
    i. Footwear in use, (i.e., type(s) of footwear related to employment/work).
    j. Advanced age.
    k. Level of activity, especially if sedentary or engaged in frequent prolonged sitting or standing.
    l. Ability to mobilize (strength, balance, gait).
    m. History of compression therapy use, participation in this therapy and ability to apply and remove compression stockings.
    n. Allergies, especially latex allergies and product sensitivities.

3. Assess for Pain
    a. Type, location, frequency and quality of pain in the ulcer or the lower extremities or as a result of treatment.
        i. Lower limb pain, heaviness, pressure or aching especially as a result of prolonged standing.
        ii. Does leg elevation relieve or increase pain?

b. Wound etiology if wound present.
c. Presence of intermittent claudication and nocturnal (night) or rest pain.
d. Rate pain severity using client self-report, observation of non-verbal cues and/or a pain scale:
    i. Wong Baker FACES Scale,
    ii. Visual Analog Scale,
    iii. Pain Assessment in Advanced Dementia Scale (PAINAD).
e. Onset and duration of pain and precipitating or alleviating factors.
f. Current pharmacological and non-pharmacological interventions for pain and their effectiveness.
g. Impact of pain on function, sleep and mood, and quality of life, (i.e., Rate 1-10, 1 is poor quality of life, and 10 is healthy).

4. Complete a Lower Limb Assessment

A basic lower limb assessment is completed upon admission when a client presents with a lower limb wound(s) and/or signs and symptoms of venous insufficiency or arterial insufficiency.

An advanced lower limb assessment is to be done if there are any untoward findings on the basic lower limb assessment and must be done prior to starting compression therapy but an ABPI and TBPI is not required for clients for whom compression therapy of 20 mmHg or less is being considered (see Lower Limb Assessment Flow Sheet - Basic & Advanced). An advanced assessment includes:

a. Measurement of the ABPI on both legs prior to the start of compression therapy. If an angiogram has been done and the results are within normal limits, an ABPI is not required but an ABPI should be done if the angiogram results are abnormal. Note that the ABPI results must always be considered in the context of a comprehensive lower limb assessment. (see Ankle Brachial Index - Hand Held Doppler: Procedure or Ankle Brachial Index - Automated ABPI System: Procedure)
b. Assessment of foot pulses using a hand-held Doppler to palpate peripheral pulses, this is not sufficient to rule out arterial disease.
c. Measurement of the Toe Brachial Index (TBPI) (if available) if ABPI value is greater than 1.3. Note that the TBPI results must always be considered in the context of a comprehensive lower limb assessment.
d. Assessment for loss of protective sensation in both feet using monofilament testing (see Monofilament Testing for Loss of Protective Sensation: Procedure).
e. Assessment for lymphoedema by doing a Stemmer's sign.
f. Assessment of skin for the following:
    i. Venous or contact dermatitis or eczema with evidence of erythema, scaling, excoriation, weeping and/or pruritus.
    ii. Atrophie blanche, ankle flare, or varicose veins.
    iii. Colour of feet and lower legs in elevated and dependent positions.
    iv. Hemosiderin (reddish brown) staining of the lower leg.
    v. Lipodermatosclerosis - woody fibrosis.
g. Determination of the lower leg contours (shape). Assess irregularly shaped legs, (i.e., a very narrow ankle, wasted calf, or champagne bottle deformity).
h. Assessment for foot deformities, (e.g., corns, claw toes, hammer toes, and acute or chronic Charcot Foot).
i. Assessment for thickened or ridged toe nails.
j. Assessment of skin temperature with an infrared thermometer, if available.

5. Assess for Wound Infection (see Wound Infection: Guideline)
    a. Venous wounds may exhibit peri-ulcer inflammation and increased warmth caused by venous dermatitis, allergic contact dermatitis or irritant contact dermatitis. Inflammation presents as erythema, scaling, erosions, and excoriations.
    b. Localized wound infection is suspected when two or more of the following sign/symptoms are present: the wound is non-healing, has an increased amount of exudate, present with red friable tissue, has necrotic slough in the wound and/or have an odour evident after cleansing.

c. Spreading wound infection is suspected two or more of the following sign/symptoms are present: there is an onset of wound pain or increasing wound pain, increased amount of exudate, erythema and induration greater than 2cm, increased peri-wound warmth greater than 2cm, odour after wound cleansing, increasing wound size or the presence of satellite wounds.

6. Investigations (where available)
   a. If the client has absent/decreased pulses or an ABPI less than 0.9 or greater than 1.3 then consult with a physician/NP for a more in-depth assessment of peripheral circulation. Consider vascular studies, angiogram.
   b. If dermatitis and/or eczema are present, refer for patch testing, if available.
   c. If loss of protective sensation assessed with monofilament testing, then consult with a physician/ NP and/or NSWOC/WC for a more in-depth assessment of diabetic/neuropathic condition.

Determination of Treatment Goals

The treatment goals for compression therapy are determined collaboratively by a physician/NP and/or NSWOC/WC based on:

a. Any clinical precautions or contraindications that the client may have.
b. The overall assessment of the client, particularly the lower limb assessment (basic & advanced).
c. Client and/or caregivers ability to safely manage compression wraps or garments. Consider client's cognitive status, dexterity, mental health concerns and availability of support to put on and remove compression garments.

The physician/NP, NSWOC, WC or registered nurse should discuss compression therapy treatment options and goals with the client/family prior to implementation to provide education and encourage their participation their participation in the care plan.

Interventions

1. Once the treatment goals have been determined, develop a plan of care in collaboration with the client/family and interprofessional team that addresses client concerns, treatment of risk factors, management of compression, wound management (if present), client outcomes, client education and discharge plans if discharge is anticipated.

2. The plan of care should:
   a. Address the etiology and include compression therapy.
   b. Optimize client health by managing and monitoring contributing client concerns and risk factors.
   c. Establish an ongoing maintenance plan to support the client receiving compression therapy.
   d. Optimize the local wound environment, if a wound is present.
   e. Take into consideration the availability of equipment, supplies and resources.

Client Care Management

1. Address Client Concerns
   a. The plan of care should take into account client/caregiver abilities, concerns, preferences and motivation for compression therapy.
   b. Refer the client to the appropriate professional if the client has psychosocial concerns and/or requires emotional support or counseling and/or showing signs & symptoms of mental illness.
   c. Refer the client to the appropriate professional if there are financial concerns.
   d. Refer the client to the appropriate professional to support improved health and wound healing, (e.g., improved nutrition, exercise, and mobility plans).
   e. Address the impact of dementia, mental health issues and dexterity problems on client/caregiver ability and motivation to engage in compression therapy.
   f. Refer to social work, counsellor, or indigenous health representative if available for financial or psychosocial concerns and for emotional support and counselling as needed.

g. Ensure that the client/caregiver receive education to understand and participate in compression therapy.

2. Manage Risk Factors for Venous and Mixed Venous / Arterial Insufficiency (see Lower Limb Venous, Arterial, and Mixed Ulcers: Guideline)
    a. Encourage client to take medication as prescribed.
    b. Encourage client to monitor pre-existing illnesses and conditions such as stroke, organ failure, (e.g., heart, renal, liver failure), angina, myocardial infarct, and other cardiac problems, hypertension and/or high lipid levels and consult a physician/NP if changes occur.
    c. If client smokes, support client to stop smoking and discuss referral to a smoking cessation program.
    d. Refer for harm reduction/substance use management if required and if the client consents.
    o. Encourage good nutrition: also see Nutrition Screening for Wound Prevention & Healing: Guideline for Nurses)
        i. Maximize the client's nutritional status through adequate protein and caloric intake if compatible with nutritional goals of care. Clients with chronic wounds should receive 35 kcal/kg of energy-dense foods per day, including 1.5 grams of protein/kg.[41] Assess renal function if increased protein intake is indicated.
        ii. Encourage 1500- 2000 mL of fluid daily or greater than or equal to 30 ml/kg of body weight; offer fluids every 2 hours for adult clients with dehydration, fever, vomiting, profuse sweating, diarrhea, or heavily draining wounds, unless contraindicated, (e.g., heart failure, renal failure, low body weight elderly clients). Assess for renal, liver or heart failure if increased fluid intake is indicated.
        iii. Consult with a dietitian if the wound is not improving (if present), and/or client has nutritional risk factors such as weight loss, dehydration, obesity, or poor intake.
        iv. Consult with appropriate professional if client has difficulty swallowing or poor dentition.
        v. If client lives with diabetes consult Diabetic Clinic.
    f. Promote Activity/Mobility
        i. Monitor for the risk for falls and of medications on activity/mobility; ensure assistance is available as necessary.
        ii. Ensure, in consultation with occupational therapist (OT) and physiotherapist (PT), that appropriate transfer devices and prescribed gait aids are available and are being used by the client.
        iii. If the client ambulates slowly or requires assistance or has gait problems, ensure assistance is available as necessary. Consult with OT/PT services to develop an appropriate mobility & exercise plan as well as provide/organize equipment and aids for safe transferring and mobilization.
        iv. Refer to orthotist/pedorthist specialist for a footwear assessment. Client may need specialty footwear due to compression garment.
        v. If client has diminished calf muscle:
            - Encourage the client to mobilize as much as possible and do ankle rotation exercises.
            - Consult with Physiotherapy as necessary.

3. Manage Lower Leg Edema
    a. If both cardiac and respiratory statuses are stable and arterial insufficiency or other contraindications are not present, encourage the client to lay flat and elevate the legs above the level of the heart 2-3 times daily for up to 30 minutes and elevate the foot of the bed on 5-10 cm blocks or bed risers.
    b. Support the client to discontinue use of restrictive clothing, sit with legs not crossed and avoid sitting or standing for long periods.
    c. Encourage regular walking and / or active ankle range of motion to increase activity in the calf muscle pump.
    d. Consult with a physiotherapist for an exercise plan to maximize calf-muscle pump action if impaired mobility and/or limited range of motion are present.

4. Manage/Provide Pain Relief
    a. Ensure that analgesic medication is taken regularly and in the appropriate dose to control pain. The client may experience some discomfort especially during the first 1-3 weeks of compression therapy until the edema reduces. Refer the client to a physician/NP if this pain is not well controlled or increases at any time.
    b. If not medically contraindicated, encourage to client to elevate the legs above the level of the heart as this will reduce some of the edema in the foot/lower leg and therefore diminish the discomfort.
    c. If the client is having wound pain, consider using an analgesic dressing.
    d. If the client starts to have significant lower extremity pain, tingling or other circulatory problems related to compression, remove the compression wrap or garment and consult with the physician/NP or NSWOC/WC.
    e. Reassess for the presence of pain and the effectiveness of treatment at regular intervals and adjust treatment as needed.

Compression Therapy

Compression therapy is the gold standard for the treatment of the chronic disease-venous insufficiency. Compression therapy is an evidence-based and cost-effective therapy used to reduce edema and heal venous ulcers, if present. Compression therapy is applied through the use of wraps or garments. Treatment usually starts with compression wraps and then transitions to compression garments once the edema is resolved and the wound (if present) is healed.

Current evidence suggests that compression therapy promotes venous ulcer healing compared to no compression, and that high compression (greater than 20 mm/Hg) is more effective than a lower compression.[3,10,16,24,28,34,36] However, low to moderate (5-20 mm/Hg) compression is better than no compression and therefore for some clients, a tubular stocking, (e.g., Medigrip LF or EdemaWear, or over-the-counter compression stockings), may be ordered instead of a compression wrap, see Appendix A.

Compression garments are not generally used as a first-line therapy to reduce edema, but may be used instead of wraps if:

- The client has small, uncomplicated ulcers and wishes to manage their own care. In this situation the client must take care to avoid traumatizing the ulcer when stockings are applied and removed.
- The client requires daily lower extremity skin care.
- The client is not able to tolerate compression wraps.
- Nurses are not available or do not have the required competencies to apply compression wraps.

1. Initiating Compression Wraps (see Appendix A for a list of compression wraps)
    a. For compression therapy greater than 20 mmHg, a NSWOC/WC or physician/NP must determine and order the appropriate type and level of compression therapy based on the client's overall condition, the comprehensive lower leg assessment (including ABPI and/or TBPI results), and the following considerations:
        - Caregiver skill, knowledge, and training to ensure accurate and consistent product application.
        - Client has appropriate foot wear and clothing to wear with compression wrap.
        - Client mobility/activity and foot/ankle mobility is safely supported, if the client is mobile.
        - Environmental considerations, clients' tolerance to the wrap if the climate is hot or humid.
        - Addresses any client allergies/sensitivities.
        - Respects client preferences.
    b. Compression wraps may be:[53]
        - Used for clients whose ABPI is between 0.90 and 1.30 as this value indicates no arterial insufficiency.
        - Used with caution for clients whose ABPI is between 0.50 and 0.89 as this value indicates moderate to mild arterial insufficiency.

- Used with caution and under an order from a physician/NP for clients whose ABPI is 1.31 or greater as this value indicates calcified arteries (often seen in clients with diabetes mellitus and/or with advanced small vessel disease).
- Used with extreme caution and in consultation with a vascular surgeon for clients whose ABPI is 0.49 or less as this value indicates severe to critical arterial insufficiency.

c. Compression therapy 20mm/Hg or less may be used for those clients who cannot tolerate higher compression; a lower limb assessment (basic & advanced) should be done but an ABPI and/or TBPI is not required if pedal pulses are palpable or present with a hand-held doppler and capillary refill is normal.
d. When compression wraps or stockings are not appropriate for, or tolerated by the client, the physician/NP or NSWOC/WC should assess the client and determine the most appropriate alternate treatment. This is done in consultation with other health care professionals.
e. Antiembolic stockings (TED stockings) and tensor wraps should **not** be used for compression therapy.

2. Mixed Etiology Venous/Arterial Insufficiency - Increased Risk with Compression Therapy
   a. The risk of adverse effects of compression therapy increases when both venous and arterial insufficiencies are present in the lower leg. Although sustained compression therapy may be beneficial when venous insufficiency is combined with arterial insufficiency, **the level of compression must be modified based on the severity of peripheral arterial disease.** Failure to recognize the severity of the arterial disease can result in the unsafe application of compression therapy as excess compression can further compromise the already reduced arterial blood flow.
   b. When the decision is made to use compression therapy for limbs with a mixed etiology, the decision must involve the **whole team** including the client, client's caregiver, the client's physician/NP, vascular surgeon (if available) NSWOC/WC and other members of the interprofessional team during assessment, care planning, treatment, and follow-up.
   c. This complex clinical situation requires both frequent re-assessment of effect of the compression and frequent team follow-up for evaluation of overall care plan.

3. Applying Compression Wraps
   a. Application techniques vary according to the type of compression wrap used (see Appendix A), therefore apply compression wraps according to the manufacturer's instructions and the PISheets.
   b. Frequency of wrap changes is determined by product specifications, volume of exudate, and the rate of decrease in edema. Wraps may require frequent reapplication in the early stages of treatment until the edema is significantly reduced.
   c. Flex the ankle as near as possible to 90 degrees when applying the wrap to avoid restricting ankle joint mobility.
   d. Encourage the client to wear comfortable flat shoes to support optimal ankle flexion. The client may initially require shoes without laces to accommodate significant edema and the compression wrap.
   e. Teach the client to monitor for adverse effects and provide education about the changes to expect when wearing compression.

4. Ongoing Re-assessment for Clients with Venous Insufficiency and Compression Therapy
   a. Reassess the following within 48 hours of initiating compression therapy:
      i. The presence of adverse effects (see #11 below).
      ii. The client's tolerance for compression therapy.
      iii. A reduction in edema and increase in wound exudate (if a wound is present) that necessitates more frequent compression wrap changes.
      iv. Any slippage of the compression wrap.

b. If it is not possible to see the community client either in the clinic or at home within 48 hours then follow-up with a telephone call if the client/caregiver is able to answer questions about adverse effects and expected changes.
c. Once problems are addressed, if present, continue to assess the client as follows:
    i. Complete a basic lower leg assessment each week including calf circumference, edema and monitor for adverse effects when the wrap is changed.
    ii. If the wrap is changed more than once a week, assess amount of edema each time the wrap is changed.
d. Contact the NSWOC/WC or physician/NP:
    i. Immediately if increasing pain or circulatory problems are present.
    ii. If there is no decrease in the ankle and calf circumference within one week (indicates that the edema is not resolving)
    iii. If the wound does not show measureable improvement within 3 weeks of the initial compression wrap.

5. Ongoing Re-assessment for Clients with Venous/Arterial Insufficiency(Mixed) and Compression Therapy
    a. Reassess the following within 24 hours of initiating compression therapy:
        i. Concerns with peripheral circulation (CWSM).
        ii. The client's tolerance for compression therapy.
        iii. The presence of adverse effects, (i.e., increased pain, decreased mobility).
        iv. Any reduction in edema and increase in wound exudate (if a wound is present) that necessitates an increase in the frequency of compression wrap reapplication.
        v. Any slippage of the compression wrap.
    b. If it is not possible to see the community client either in the clinic or at home within 24 hours then follow-up with a telephone call if the client/family is able to answer questions about adverse effects and expected changes.
    c. Once problems are addressed, if present, continue to assess the client as follows:
        i. Complete a basic lower leg assessment each week including calf circumference, edema, peripheral circulation (CWSM) and monitor for adverse effects when the wrap is changed.
        ii. If the wrap is changed more than once a week, assess CWSM and amount of edema each time the wrap is changed.
    d. Consult with the NSWOC/WC or physician/NP:
        i. Immediately if increasing pain or signs of circulatory problems are present.
        ii. If there is no decrease in the ankle and calf circumference within 1 week (indicates that the edema is not resolving).
        iii. If the wound does not show measurable improvement within 3 weeks of the initial compression wrap.

6. A comprehensive lower limb assessment (basic and advanced), including an ABPI, should be completed every 6 months for clients receiving compression therapy greater than 20 mmHg. It is also to be completed immediately if either of the following occur:
        i. Increasing lower leg and/or foot pain unrelated to infection.
        ii. Increasing signs of arterial insufficiency, (e.g., delayed capillary refill, cold skin temperature, absent or diminishing peripheral pulses).

7. Provide Skin Care
    a. Following the removal of the compression wrap, wash the feet and lower legs with warm water and a pH balanced skin cleanser and gently pat the skin dry. Dry carefully between the toes. A combined cleanser-moisturizer is preferable. If not available, then apply a moisturizer to the skin after cleansing.
    a. Avoid hot water, bar soap and excessive scrubbing or friction during hygiene care. Ideally use a soft cleansing cloth to cleanse the leg.
    b. While cleansing and moisturizing, assess the skin on the foot and lower leg for pressure damage and other complications.

c. Apply a skin protectant if maceration from excessive exudate is evident.
d. Avoid skin care products that contain potential sensitizers or known common allergens such as lanolin, latex, paraben, perfumes, alcohol-based products, and topical antibiotics such as neomycin or polysporin.
e. Assess skin problems such as maceration, dryness, itching, allergic or contact dermatitis, or eczema and consider one or more of the following as treatment:
    i. Apply a moisturizer to the skin.
    ii. Ensure adequate exudate control to avoid maceration of the skin.
    iii. Review all products being used if contact dermatitis or eczema occurs.
    iv. Use a skin protector product to protect the skin from irritation from the padding or from the wrap.
    v. Zinc based wraps or zinc ointment may be used to treat pruritus and venous dermatitis lesions.
        - Apply zinc oxide ointment directly over the affected areas.
        - Zinc oxide impregnated gauze can be applied as a compression wrap for the affected foot and leg
        - Zinc can also be an irritant, monitor the client when it is first applied, a test patch is recommended.
        - Consult with NSWOC/WC or physician/NP if skin problems do not resolve.

8. It is recommended to continue compression wrapping for 1-2 weeks after the ulcer(s) is closed to avoid damaging the fragile, recently closed wound area. Caution when putting on or removing compression garments. The client can be transitioned to compression garments prior to the wound closing if edema is reduced, if leg measurements have stabilized, and if the exudate is well managed. The peri-wound skin and the wound must be protected at all times.

9. Transitioning from Compression Wraps to Compression Garments
    a. In consultation with the client/caregiver all aspects of the transition from compression wraps to garments are determined by the physician/NP or NSWOC/WC.
    b. When the process of transition has been determined, the nurse provides adequate education for the client/family concerning all aspects of the long-term use of compression garments.
    c. Compression stockings are the most common type of compression garment but are not always a practical option for clients with a high risk for pressure damage. Clients with arterial insufficiency, thin or altered limb shape, ankle or foot deformities and significant dependent edema are at greater risk for pressure damage or circulatory problems. Consult with a NSWOC/WC for clients who are at risk.
    d. The client should be measured and fitted for the strongest compression garment they can comfortably tolerate. Measurement and fitting for garments must be done by a Certified Fitter.
    e. Assess the client's ability to apply and remove compression garment. If the client is unable to apply/remove the garment independently then consider having the client's family or Home Support apply/remove the garment. If these options are not available then considered a garment with lesser compression but one that the client can get on and off independently.

10. Applying Compression Stockings
    a. Apply compression stockings as soon as possible after getting out of bed.
    b. Remove the compression stockings before going to bed; wash the lower legs if needed and apply a skin moisturizer.
    c. Stockings can be difficult to apply to a recently moisturized leg and moisturizer can break down the fibers in the stockings. Avoid using a moisturizer that contains petrolatum just prior to putting on the stocking as it reduces the longevity of compression stockings.
    d. Stockings must be washed and cared for according to manufacturer's instructions. Washing compression stockings refreshes the elasticity.
    e. Stockings should be replaced every 6 months if one pair is used daily and replace yearly if the client has 2 pairs of stockings.

f. Tips for application:
    i. Grasp the stocking by the heel pocket and turn the stocking inside out until the heel is visible. Insert the client's foot completely into the stocking foot easing the stocking onto the foot and heel rather than pulling from the top of the stocking.
    ii. Client toenails should be trimmed and filed regularly.
    iii. Textured rubber gloves should always be used as they provide a more secure grip on the stocking.
    iv. Use donning/doffing devices to help put the stockings on, (e.g., rigid frames and low friction donning devices).
        - Consult with the OT/PT services if the client requires assistance to access or use donning/doffing aids.
        - Ensure that the application device is designed for the style of stocking used (open or closed toe) and the ability of the client or caregiver.
        - Ensure that donning/doffing device is in good condition.
    v. Consider Home Support if client require assistance with stocking application.

11. Assess/Treat the Adverse Effects of Compression Wraps and Garments:
    a. Slippage of wraps or garments:
        i. Slippage can often occur at the beginning of compression therapy as the edema reduces significantly in a short period of time. Wraps may need to be redone more frequently during this time.
        ii. Assess for tourniquet effect due to slippage; remove the wrap, assess the skin for any damage and reapply the wrap.
        iii. Assess for bands of swelling or forefoot puffiness. This may be due to many factors such as heart failure, weight gain or the effects of medication; assess and treat the cause. If the swelling and puffiness are due to wrap or stocking slippage, remove and reapply the compression therapy.
        iv. If the garment is slipping, have the Certified Fitter reassess the size of the stocking.
    b. Pressure damage:
        i. Areas at risk for pressure damage include the tibial crest, the dorsum of the foot, around an ankle deformity, around deformed toes or bunions.
        ii. Ensure the wrap is not too tight and that the overlap of the wrap is correct as per the PISheet instructions.
        iii. As the edema reduces bony prominences may become more pronounced; apply extra padding over any bony prominences.
        iv. If signs of pressure damage such as bruising, redness or blistering occur; consult with a NSWOC/W.
    c. Circulatory problems:
        i. Monitor for impaired circulation including pale, cool or numb extremities distal to the wrap or garment. If present, immediately remove the garment or wrap and consult the NSWOC/WC or physician/NP.
        ii. Teach the client /caregiver at home to recognize circulatory problems and remove the wrap / garment promptly and call the nurse.
        iii. Monitor for dyspnea, chest pain and other indications of heart failure.
        iv. If toes are edematous rewrap the compression wrap and monitor closely. If edema does not resolve, consult with a NSWOC/WC.
    d. Increased pain:
        i. Monitor for changes in pain intensity / type of pain and ensure that the pain is not related to impaired circulation as mentioned above. Compression therapy may initially cause some discomfort but over time, as edema subsided, the discomfort diminishes.
        ii. Ensure that the client has an effective analgesic regimen or consult with a physician/NP for pain management.
        iii. If pain cannot be controlled following initiation of compression, consult with a physician/NP and discuss changing wrap or garment to one with less pressure.

iv. Ensure other reasons for pain, (e.g. infection or dermatitis are treated).

e. Allergic/sensitivity reactions:
   i. Determine if the client is allergic/sensitive to a component of the wrap (e.g., latex).
   ii. Consider patch testing, if needed.
   iii. Review the ingredients in the cleansing and moisturizing products and wound dressings.
   iv. Remove, discontinue, and document the product causing the reaction.

f. Blistering:
   i. Blistering is caused when the epidermis becomes separated from the dermis due to excessive shear. This can occur if wraps or garments slip or are applied too tightly.
   ii. If the blister is intact, consult with a NSWOC/WC to determine the most appropriate treatment. If the fluid has drained out of the blister, cover it with an appropriate dressing for protection before reapplying the wrap.

g. Exudate strikethrough (if a wound is present):
   i. Apply a more absorbent dressing over the wound, such as foam, alginates or hydrofibers that wick exudate vertically to protect the wound margins.
   ii. Change the wrap and dressing more frequently.
   iii. Check the periwound skin frequently for maceration.

12. Consult with a NSWOC/WC or physician/NP if:
    a. There is no improvement in the amount of edema within 1-2 weeks, the ulcer size increases, or a new ulcer occurs.
    b. There is an acute onset of pain, numbness and/or tingling.
    c. Signs and symptoms for infection (erythema, induration, increased warmth, and increased pain) occur.
    d. There is a change in the arterial status of the lower limb and/or an increase in signs and symptoms of arterial insufficiency over time, (e.g. diminished or non-palpable pulses, changes in ABPI, changing colour and temperature of the skin).
    e. If there is development of a new rash or pruritus.
    f. Shortness of breath, (i.e., heart failure).
    g. Redness and pain in lower limb not associated with wound, (i.e., deep vein thrombosis).
    h. The client is unable to tolerate or participate in the compression therapy.

Strategies to Prevent Venous or Mixed Venous/Arterial Ulcer Recurrence

1. Once the wound has closed, provide education to the client/family about the need for life-long compression.
    a. See section below regarding for information on client education and resources.
    b. The client should be measured and fitted for the strongest compression garment they can comfortably tolerate. The measurement and fitting for stockings must be done by a Certified Stocking Fitter.
    c. Support the client to make permanent lifestyle changes, such as smoking cessation, increased mobility, regular leg elevation and an optimal body weight.
    d. Support the client/caregiver to address the psychosocial and financial issues related to lifelong compression management.

2. Assess and support the client's ability to wear compression garments:
    a. Assess client's ability to apply and remove compression garments.
    b. Regularly monitor client's adherence to the use of compression garment and intervene if they experience problems
    c. Assess client's need for/use of a device which assists them to put on the garment; consult with a certified stocking fitter as necessary. Facilitate assistance to apply and remove the garment, if needed. Refer to OT if needed.
    d. Assess client's mobility level while wearing their compression garment. Refer to PT if needed.

3. Teach the client and family about the management and care of compression garments including:
    a. Following manufacturer's instructions for the care and cleaning of compression garments.
    b. The need to remove compression garments and bathe and moisturize the skin at night. Caution with petrolatum based products as they can damage stockings over time if applied at the same time as the stockings.
    c. The need to reapply clean garments the following morning upon getting out of bed.

4. Provide ongoing compression therapy clinical follow-up:
    a. Stockings should be replaced every 6 months if one pair is used daily, and replace yearly if the client has 2 pairs of stockings.
    b. Encourage the client to have a follow-up comprehensive lower limb assessment including an ABPI every 6 months prior to getting new stockings or if there is:
        i. Increasing lower leg and/or foot pain unrelated to infection.
        ii. Increasing signs of arterial insufficiency, (e.g., delayed capillary refill, cold skin temperature, absent or diminished peripheral pulses).
    c. Ensure that a process is in place for ongoing support to help the client adhere to daily use of compression garments.
    d. Support the client to manage ongoing symptoms such as pain and decreased mobility.

Client Education and Resources

1. Teach the client/caregiver about the client's specific type of compression therapy, including
    a. That compression therapy is the life-long treatment for venous insufficiency.
    b. The use of donning/doffing aides; consult with the Certified Stocking Fitter for same.
    c. The possibility of some discomfort especially over the first 1-3 weeks of compression; discuss an appropriate analgesic regime or consult with a physician/NP for same. Untreated or poorly treated pain may decrease client participation with compression therapy.
    d. A walking and exercise plan to increase limb mobility, improve the function of the ankle joint and calf muscle pump and decrease leg edema. Encourage Active Range of Motion exercises for those with limited mobility. Consult with OT/PT as needed.
    e. If medically appropriate, the benefits of lying flat and elevating the legs above the level of the heart 2-3 times daily for up to 30 minutes and/or elevating the foot of the bed on 5-10 cm (2 - 4 inch) blocks or bed risers.
    f. Information on the following:
        i. Care of compression garments.
        ii. Appropriate lower leg hygiene and skin care.
        iii. Avoidance of products likely to be allergens/sensitizers.
    g. Teach client/caregiver about the roles of the interdisciplinary health care team.
    h. Support client to participate in smoking cessation.
    i. Support client to manage A1C, if living with diabetes mellitus.
    j. Support client in weight management strategies.

2. Teach the client/caregiver to monitor for the signs and symptoms of arterial insufficiency (numbness, tingling, and toes turning blue/cold, increased pain), and to remove the compression wrap or garments and notify the NSWOC/WC or physician/NP if they occur.

3. Teach the client to monitor for adverse effects of compression and/or ulcer recurrence and to contact the NSWOC/WC or physician/NP.

4. Provide any written materials that will support and reinforce teaching and remind the client about follow-up. (Managing Your Venous Disease and Compression Stockings)

Discharge Planning

1. When transitioning client care across settings, initiate discharge planning on admission in order to provide a safe and timely discharge, and to ensure continued-uninterrupted compression therapy and promote optimal client independence.

2. When the client's care is being transferred between facilities determine whether:
    a. The receiving facility's staff has been educated and taught to apply and remove the client's specific compression wrap or garment.
    b. Receiving facility's staff or client/caregiver can address adverse effects or can access help promptly if adverse effects occur.
    c. The required supplies are available at the receiving facility to ensure uninterrupted compression therapy.
    d. The receiving facility has been provided with a care plan or transfer document that outlines the current client care and wound management if wound is present, as well as all relevant information about compression therapy and follow-up.

3. If the receiving facility is not familiar with the specific compression wrap, the staff will need to be taught to apply the required compression wrap or another wrap needs to be considered.

4. In addition to the above, when a client is being transferred home from acute care with compression therapy in place, the client/caregiver need the necessary information to recognize and address any problems that could arise between the time the client is discharged and the community nurse's first visit.
    a. Teach the client/caregiver to monitor for adverse events and what to do if they occur.
    b. Provide the contact information for the community health unit in case of adverse events or other concerns.
    c. If it is not safe to transfer the client in the compression therapy used at the acute care facility then put the client in a low compression garment such as an elastic tubular stocking until the client can be reassessed at home.
    d. Clients receiving long-term treatment with compression stockings should be followed on an ongoing basis by a physician/NP, NSWOC, WC and/or home health nurses.

Client Outcomes

1. Intended
    a. Compression is well tolerated by the client.
    b. Compression does not cause adverse effects.
    c. Edema reduces or resolves.
    d. The client indicates that any discomfort caused by compression is manageable.
    e. The ulcer heals if it has been deemed healable.
    f. The client/family understand their role in preventing further skin breakdown through the use of life-long compression, leg elevation, and care of the lower extremity.

2. Unintended
    a. Edema does not reduce or resolve.
    b. Application of compression therapy causes unmanageable pain.
    c. Compression compromises lower limb arterial circulation or worsens co-morbid conditions.
    d. Compression therapy causes pressure damage.
    e. The ulcer deteriorates or does not heal when it has been deemed healable.
    f. The client/family does not understand their role in preventing further skin breakdown through the use of life-long compression, leg elevation, and care of the lower extremity.

Documentation

1. Document initial and ongoing assessments of the lower limbs and the wound, if present, as per agency guidelines.

2. Document care plans, clinical outcomes, and care plan revisions as per agency guidelines.

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Document Management

This guideline is based on the best information available at the time it was published and relies on evidence and avoids opinion-based statements where possible. It was developed by the Provincial Nursing Skin and Wound Committee and has undergone provincial stakeholder review.

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Appendix A: Types of Compression Therapies

Type of Compression Wrap	Indications for Use & Application
Profore ▪ Four-layer long-stretch elastic wrap system providing high compression (30-40 mmHg). ▪ A padding layer covered by a light conformable layer, followed by a light compression wrap and a cohesive wrap.	See Profore PISheet
Profore Lite ▪ Three-layer long-stretch elastic wrap system providing high compression (20-30 mmHg). ▪ Padding layer covered by a light conformable wrap and a cohesive wrap.	See Profore Lite PISheet
Coban 2 ▪ Two-layer short-stretch inelastic wrap system providing high compression (30-40 mmHg). ▪ Latex free foam padding covered with a cohesive compression wrap.	See Coban 2 PISheet
Coban 2 Lite ▪ Two-layer short-stretch inelastic wrap system providing high compression (20-30 mmHg). ▪ Latex free foam padding covered with a cohesive compression wrap.	See Coban 2 Lite PISheet
Comprilan ▪ Reusable two-layer short-stretch inelastic wrap system providing high compression (30-40 mmHg). ▪ A padding layer covered with a reusable compression wrap.	See Comprilan PISheet
Medigrip LF ▪ A latex-free elastic tubular stocking providing low-moderate (5-20 mmHg) or high (greater than 20 mmHg) compression dependent upon the size of the bandage used for the circumference of the calf when two layers are applied.	See Medigrip LF PISheet
EdemaWear ▪ A latex-free single layer tubular stocking providing low-moderate compression (5- 20 mmHg).	See EdemaWear PISheet
Duke Boot ▪ A Viscopaste wrap covered by cast padding and self-adherent wrap providing high compression (20-30 mmHg).	See Duke Boot Procedure
Unna Boot ▪ A Viscopaste wrap covered by cast padding (if needed) and a gauze wrap providing low-moderate compression (5-20 mmHg).	See Unna Boot Procedure