By recognising early changes, disease progression can be prevented or slowed... 
...with a little bit of detective work.

Chronic Oedema Signs and Symptoms (CHROSS)

CHROSS Checker is a tool kit, consisting of an assessment chart and key cards, developed to help clinicians carrying out a full holistic patient assessment to easily identify the skin changes that occur as a result of underlying venous and lymphovenous disease.
Venous and Lymphatic Disease Progression

The venous and lymphatic disease progression tool (Timmons et al. 2008) helps to explain the relationship between early venous and lymphatic disease symptoms and how this can develop into more complex conditions if left unchecked.

Improved quality of life and medical advances have meant that many of us are living to a greater age, which has increased the chances that the venous and lymphatic systems become damaged through the ageing process, trauma, cancer or immobility. This can result in either venous hypertension and associated venous symptoms, and/or signs of failure on the lymphatic side, resulting in the formation of oedema. Compression hosiery helps counteract this by applying a firm, continuous, graduated pressure to the muscles and veins in your legs, as well as supporting and encouraging lymphatic return.

These three different stages in disease progression highlight the relationship between early stages in either venous or lymphatic disease, which may progress towards severe leg conditions if left inappropriately managed. A clear example of this can be shown by patients who have had a DVT (Deep Vein Thrombosis) having a considerably increased risk of developing post-thrombotic syndrome (Brandjes et al. 1997) in the future, resulting in chronic venous insufficiency and recurrent ulceration (Lindholm 2002).
### Venous and Lymphatic Disease Progression stages

<table>
<thead>
<tr>
<th>Prevention</th>
<th>Early/medium intervention</th>
<th>Intensive management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients in this stage are starting to show the early signs of venous/lymphatic disease, such as spider veins, venous dermatitis or mild swelling, which will require preventative treatment. Management at this stage will slow down or control the condition from getting worse over time.</td>
<td>Patients in this stage have progressed to exhibit signs of established venous/lymphatic disease such as atrophie blanche or mild hyperkeratosis, with a possible healed or open leg ulcer. This may be accompanied by an increased chance of more widespread or long-standing oedema (swelling). Clinical intervention at this stage will help alleviate the deterioration of symptoms and provide effective support for their venous and/or lymphatic failure.</td>
<td>Patients at this stage will be exhibiting advanced venous or lymphatic disease such as recurrent ulceration and scarring, significant limb shape distortion, chronic oedema, skin folds and/or severe hyperkeratosis. Patients will require intensive management of the underlying condition and skin care.</td>
</tr>
</tbody>
</table>

**Using the CHROSS checker tool:**

1. The CHROSS Checker Form should be used as a prompt to check for skin and limb changes as part of the holistic patient assessment.
2. The compression products recommended should be used as part of an overall management plan, which includes medical management of underlying disease(s), skin and wound care, and patient education.
3. Vascular status must be determined before applying compression. If in doubt, do not use and refer for specialist advice.
4. If no ticks are recorded, the limb is healthy and no action is needed, other than a good skin care regimen.
5. In the ‘Early/medium intervention’ and ‘Intensive management’ phases, before managing with hosiery, a period of treatment with compression bandaging may be required.
6. For more information on the signs/symptoms listed, including photographs and description, refer to the accompanying key cards.

**NB:** Please use this tool in conjunction with the CHROSS Checker Form. These items are not designed to be used independently of one another.
Tired, achy, heavy legs

**Definition:**
Legs that become tired quickly, ache and/or feel heavy after periods of standing/immobility

**Cause:**
The back flow of venous blood in early venous or lymphovenous disease, but these symptoms can also occur in post-thrombotic limbs

**Action:**
Prevention: skin care, compression hosiery
**Hosiery recommendation**

**With oedema**

ActiLymph® European Class hosiery

Mild disease: Class 1 (18–21mmHg)**

or

Moderate disease: Class 2 (23–32mmHg)**

**If limb measurements do not match stock sizes, use ActiLymph® Made to Measure hosiery**

**Without oedema**

Activa® British Standard hosiery

Mild disease: Class 1 (14-17mmHg)**

or

Moderate disease: Class 2 (18-24mmHg)**

**If limb measurements do not match stock sizes, use Credalast® Made to Measure hosiery**
Spider veins
(also known as telangiectasias or thread veins)

Definition:
Dilated capillaries on the skin, that resemble spider legs

Cause:
They occur in the early stages of venous disease
as a result of mild venous hypertension

Action:
Prevention: skin care, compression hosiery
Hosiery recommendation

With oedema

ActiLymph® European Class hosiery

Mild disease: Class 1 (18–21mmHg)††

or

Moderate disease: Class 2 (23–32mmHg)††

††If limb measurements do not match stock sizes, use ActiLymph® Made to Measure hosiery

Without oedema

Activa® British Standard hosiery

Mild disease: Class 1 (14-17mmHg)†

or

Moderate disease: Class 2 (18-24mmHg)†

†If limb measurements do not match stock sizes, use Credalast® Made to Measure hosiery
Ankle flare

**Definition:**
Distension of the small veins of the foot, around the ankle

**Cause:**
Chronic venous hypertension

**Action:**
Prevention: skin care, compression hosiery
**Hosiery recommendation**

**With oedema**

ActiLymph® European Class hosiery

Mild disease: Class 1 (18–21mmHg) or

Moderate disease: Class 2 (23–32mmHg)

*If limb measurements do not match stock sizes, use ActiLymph® Made to Measure hosiery*

**Without oedema**

Activa® British Standard hosiery

Mild disease: Class 1 (14-17mmHg) or

Moderate disease: Class 2 (18-24mmHg)

*If limb measurements do not match stock sizes, use Credalast® Made to Measure hosiery*
Mild/Moderate hyperkeratosis

Definition:
Dry, scaly patches of skin

Cause:
Abnormal thickening of the outer layer of the skin

Action:
Prevention: skin care, debridement (Debrisoft®), compression hosiery
**Hosiery recommendation**

**With oedema**

ActiLymph® European Class hosiery

- **Mild disease: Class 1 (18–21mmHg)**
- **or**
- **Moderate disease: Class 2 (23–32mmHg)**

††If limb measurements do not match stock sizes, use ActiLymph® Made to Measure hosiery

**Without oedema**

Activa® British Standard hosiery

- **Mild disease: Class 1 (14-17mmHg)**
- **or**
- **Moderate disease: Class 2 (18-24mmHg)**

†If limb measurements do not match stock sizes, use Credalast® Made to Measure hosiery
Mild/Moderate varicose veins

**Definition:**
Swollen and enlarged veins, that may be lumpy, bulging or twisted in appearance, and blue or dark purple in colour

**Cause:**
Weak or damaged valves that cause the blood to flow backwards. The blood collects in the vein, eventually causing it to become swollen and enlarged (varicose)

**Action:**
Prevention: skin care, compression hosiery
**Hosiery recommendation**

**With oedema**

**ActiLymph® European Class hosiery**

*Mild disease: Class 1 (18–21mmHg)**

or

*Moderate disease: Class 2 (23–32mmHg)**

**If limb measurements do not match stock sizes, use ActiLymph® Made to Measure hosiery**

**Without oedema**

**Activa® British Standard hosiery**

*Mild disease: Class 1 (14-17mmHg)*

or

*Moderate disease: Class 2 (18-24mmHg)*

**If limb measurements do not match stock sizes, use Credalast® Made to Measure hosiery**
Hyperpigmentation
(also known as hemosiderin staining)

**Definition:**
A brown or rust discolouration of the skin around the gaiter area of the lower leg

**Cause:**
Venous hypertension results in the escape of red blood cells into the tissues. Over time these red blood cells, which contain haemoglobin, break down, producing hemosiderin (a yellowish-brown, iron-containing pigment) which builds up to produce brown deposits in the skin

**Action:**
Prevention: skin care, compression hosiery
Hosiery recommendation

With oedema

ActiLymph® European Class hosiery

Mild disease: Class 1 (18–21mmHg)††

or

Moderate disease: Class 2 (23–32mmHg)††

††If limb measurements do not match stock sizes, use ActiLymph® Made to Measure hosiery

Without oedema

Activa® British Standard hosiery

Mild disease: Class 1 (14-17mmHg)†

or

Moderate disease: Class 2 (18-24mmHg)†

†If limb measurements do not match stock sizes, use Credalast® Made to Measure hosiery
Venous dermatitis
(also known as varicose eczema and venous stasis dermatitis)

**Definition:**
Skin changes that occur due to pooling of the blood in the leg

**Cause:**
Venous insufficiency, a long-term condition in which the veins have problems returning blood to the heart

**Action:**
Prevention: skin care (emollients, steroid therapy), compression therapy
**Hosiery recommendation**

**With oedema**

ActiLymph® European Class hosiery

- **Mild disease:** Class 1 (18–21mmHg)**

or

- **Moderate disease:** Class 2 (23–32mmHg)**

**If limb measurements do not match stock sizes,**

use ActiLymph® Made to Measure hosiery

**Without oedema**

Activa® British Standard hosiery

- **Mild disease:** Class 1 (14-17mmHg)**

or

- **Moderate disease:** Class 2 (18-24mmHg)**

**If limb measurements do not match stock sizes,**

use Credalast® Made to Measure hosiery
**Varicose eczema**  
(also known as venous dermatitis and venous stasis dermatitis)

**Definition:**  
Common inflammatory skin condition of the lower leg

**Cause:**  
When the valves in the legs do not work properly, blood pressure in the limb increases and causes damage to the overlying skin. This is likely to be due to leakage of blood and blood products into the surrounding tissue, which triggers an inflammatory action.

**Action:**  
Early/medium intervention: skin care (emollients/steroid therapy, avoid allergens), compression therapy.
Hosiery recommendation

With oedema

ActiLymph® European Class hosiery

Moderate disease: Class 2 (23–32mmHg)^^

or

Severe disease: Class 3 (34–46mmHg)^^

or

ActiLymph® Hosiery Kit

^^If limb dimensions do not fit stock sizes use
ActiLymph® Made to Measure hosiery

Without oedema

Activa® British Standard hosiery

Moderate disease: Class 2 (18–24mmHg)^

or

Severe disease: Class 3 (25–35mmHg)^

or

Activa® Leg Ulcer Hosiery Kit

^If limb dimensions do not fit stock sizes use
Credalast® Made to Measure hosiery
**Atrophie blanche**

**Definition:**
Smooth, ivory-white plaques in the skin, that may be speckled with spider veins (telangiectasias) and are prone to ulcer formation

**Cause:**
Lack of oxygen and nutrient flow to the area

**Action:**
Early/medium intervention: skin care, compression therapy
Hosiery recommendation

With oedema

ActiLymph® European Class hosiery

Moderate disease: Class 2 (23–32mmHg)**

or

Severe disease: Class 3 (34–46mmHg)**

or

ActiLymph® Hosiery Kit

**If limb dimensions do not fit stock sizes use ActiLymph® Made to Measure hosiery

Without oedema

Activa® British Standard hosiery

Moderate disease: Class 2 (18-24mmHg)*

or

Severe disease: Class 3 (25-35mmHg)*

or

Activa® Leg Ulcer Hosiery Kit

*If limb dimensions do not fit stock sizes use Credalast® Made to Measure hosiery
Induration

Definition:
Firm, hardened area of tissue with loss of elasticity and pliability

Cause:
Commonly associated with inflammation, resulting from chronic venous insufficiency, chronic oedema or infection

Action:
Early/medium intervention: skin care, compression therapy
**Hosiery recommendation**

**With oedema**

ActiLymph® European Class hosiery

- **Moderate disease:** Class 2 (23–32mmHg)††
  
  or

- **Severe disease:** Class 3 (34–46mmHg)††
  
  or

ActiLymph® Hosiery Kit

††If limb dimensions do not fit stock sizes use ActiLymph® Made to Measure hosiery

**Without oedema**

Activa® British Standard hosiery

- **Moderate disease:** Class 2 (18-24mmHg)†
  
  or

- **Severe disease:** Class 3 (25-35mmHg)†
  
  or

Activa® Leg Ulcer Hosiery Kit

†If limb dimensions do not fit stock sizes use Credalast® Made to Measure hosiery
Moderate/Severe varicose veins

Definition:
Swollen veins that are visible through the skin. They may look blue, bulging and twisted, often causing pain

Cause:
Chronic venous hypertension

Action:
Early/medium intervention: skin care, compression therapy
Hosiery recommendation

With oedema

ActiLymph® European Class hosiery

Moderate disease: Class 2 (23–32mmHg)✝✝
or
Severe disease: Class 3 (34–46mmHg)✝✝
or
ActiLymph® Hosiery Kit

✝✝If limb dimensions do not fit stock sizes use ActiLymph® Made to Measure hosiery

Without oedema

Activa® British Standard hosiery

Moderate disease: Class 2 (18–24mmHg)✝
or
Severe disease: Class 3 (25–35mmHg)✝
or
Activa® Leg Ulcer Hosiery Kit

✝If limb dimensions do not fit stock sizes use Credalast® Made to Measure hosiery
Moderate/Severe hyperkeratosis

Definition:
A chronic skin condition which presents as thick scaling over the lower legs, as a result of over-proliferation of the outer layer of the skin, increasing the risk of cellulitis.

Cause:
Venous disease

Action:
Early/medium intervention: skin care, debridement (Debrisoft®), compression therapy.
Hosiery recommendation

With oedema

ActiLymph® European Class hosiery

Moderate disease: Class 2 (23–32mmHg)**

or

Severe disease: Class 3 (34–46mmHg)**

or

ActiLymph® Hosiery Kit

**If limb dimensions do not fit stock sizes use
ActiLymph® Made to Measure hosiery

Without oedema

Activa® British Standard hosiery

Moderate disease: Class 2 (18-24mmHg)*

or

Severe disease: Class 3 (25-35mmHg)*

or

Activa® Leg Ulcer Hosiery Kit

*If limb dimensions do not fit stock sizes use
Credalast® Made to Measure hosiery
Healed ulcer

Definition:
A wound to the gaiter area of the lower limb, which has healed

Cause:
Chronic venous hypertension causes 70% of all venous leg ulcers

Action:
Early/moderate intervention: skin care, compression therapy

**Hosiery recommendation**

**With oedema**

ActiLymph® European Class hosiery

Moderate disease: Class 2 (23–32mmHg)↑↑

or

Severe disease: Class 3 (34–46mmHg)↑↑

or

ActiLymph® Hosiery Kit

↑↑If limb dimensions do not fit stock sizes use ActiLymph® Made to Measure hosiery

**Without oedema**

Activa® British Standard hosiery

Moderate disease: Class 2 (18-24mmHg)↑

or

Severe disease: Class 3 (25-35mmHg)↑

or

Activa® Leg Ulcer Hosiery Kit

↑If limb dimensions do not fit stock sizes use Credalast® Made to Measure hosiery
Recurring/open ulcer

Definition:
A wound in the gaiter area of the leg which fails to heal after several weeks

Cause:
Chronic venous hypertension causes 70% of venous leg ulcers

Action:
Early/medium intervention: skin care, debridement (Debrisoft®), appropriate dressing regimen, compression therapy

Hosiery recommendation

With oedema

ActiLymph® European Class hosiery

Moderate disease: Class 2 (23–32mmHg)††

or

Severe disease: Class 3 (34–46mmHg)††

or

ActiLymph® Hosiery Kit

††If limb dimensions do not fit stock sizes use
ActiLymph® Made to Measure hosiery

Without oedema

Activa® British Standard hosiery

Moderate disease: Class 2 (18–24mmHg)†

or

Severe disease: Class 3 (25–35mmHg)†

or

Activa® Leg Ulcer Hosiery Kit

†If limb dimensions do not fit stock sizes use
Credalast® Made to Measure hosiery
Cellulitis

Definition:
Infection of the skin

Cause:
Infection with bacteria, most commonly Group A β-haemolytic streptococci, or staphylococci or other bacterial species. (Note: patients with swollen limbs and other skin changes are more susceptible to infection)

Action:
Intensive management: antibiotic therapy, skin care, compression therapy (once infection has been controlled)
Hosiery recommendation

**With oedema**

ActiLymph® European Class hosiery

- Moderate disease: Class 2 (23–32mmHg)**
  - or
- Severe disease: Class 3 (34–46mmHg)**
  - or
  - ActiLymph® Hosiery Kit

**If limb dimensions do not fit stock sizes use**

- ActiLymph® Made to Measure hosiery

**Without oedema**

Activa® British Standard hosiery

- Moderate disease: Class 2 (18-24mmHg)
  - or
- Severe disease: Class 3 (25-35mmHg)
  - or
  - Activa® Leg Ulcer Hosiery Kit

**If limb dimensions do not fit stock sizes use**

- Credalast® Made to Measure hosiery
**Lipodermatosclerosis**

**Definition:**
Thickening and hardening of the subcutaneous tissues of the lower leg. When fibrous tissue replaces the fatty layer, oedema remains above this area giving it the appearance of an upside down champagne bottle. Brown discolouration of the skin (hyper-pigmentation) is also seen.

**Cause:**
Chronic venous insufficiency which results in the progressive deposition of fibrin; in severe cases the lymphatics become damaged.

**Action:**
Intensive management: skin care, debridement, (Debrisoft®), compression therapy.
Hosiery recommendation

Please note (step 5) In the 'intensive management' phase, before managing with hosiery, a period of treatment with compression bandaging may be required.

With oedema

ActiLymph® European Class hosiery

Moderate disease: Class 2 (23–32mmHg)‡‡

or

Severe disease: Class 3 (34–46mmHg)‡‡

or

ActiLymph® Hosiery Kit

‡‡If limb dimensions do not fit stock sizes use ActiLymph® Made to Measure hosiery

Without oedema

Activa® British Standard hosiery

Severe disease: Class 3 (25-35mmHg)†

†If limb dimensions do not fit stock sizes use Credalast® Made to Measure hosiery
Chronic oedema/Lymphoedema

**Definition:**
Chronic oedema is swelling that persists for longer than three months, which does not resolve with elevation or the use of diuretics.

Lymphoedema is oedema that develops as a result of an impaired lymphatic system. This may be as a result of the lymphatic system not developing properly or through damage or trauma.

**Cause:**
Multiple causes

**Action:**
Intensive management: skin care, debridement, (Debrisoft®), compression therapy, exercise
Hosiery recommendation

Please note (step 5) In the 'intensive management' phase, before managing with hosiery, a period of treatment with compression bandaging may be required.

With oedema

ActiLymph® European Class hosiery

Moderate disease: Class 2 (23–32mmHg)††

or

Severe disease: Class 3 (34–46mmHg)††

or

ActiLymph® Hosiery Kit

†† If limb dimensions do not fit stock sizes use ActiLymph® Made to Measure hosiery

ActiLymph® MTM Ease or Dura

Moderate disease: Class 2 MTM (23–32mmHg)

or

Severe disease: Class 3 MTM (34–46mmHg)
Severe hyperkeratosis

Definition:
A build up of brown scaly skin on the lower limb

Cause:
Overproliferation of the outer layer of the skin

Action:
Intensive management: skin care, debridement, (Debrisoft®), compression therapy
Hosiery recommendation

Please note (step 5) In the 'intensive management' phase, before managing with hosiery, a period of treatment with compression bandaging may be required.

With oedema

ActiLymph® European Class hosiery

Moderate disease: Class 2 (23–32mmHg)‡‡

or

Severe disease: Class 3 (34–46mmHg)‡‡

or

ActiLymph® Hosiery Kit

‡‡ If limb dimensions do not fit stock sizes use ActiLymph® Made to Measure hosiery

ActiLymph® MTM Ease or Dura

Moderate disease: Class 2 MTM (23–32mmHg)

or

Severe disease: Class 3 MTM (34–46mmHg)
Skin folds

Definition:
Skin which, in severe cases, overhangs in a pendulous fashion

Cause:
Extra fluid in very swollen limbs results in stretching of the skin

Action:
Intensive management: skin care, debridement, (Debrisoft®), compression therapy, exercise
Hosiery recommendation

Please note (step 5) In the 'intensive management' phase, before managing with hosiery, a period of treatment with compression bandaging may be required.

With oedema

ActiLymph® European Class hosiery

Moderate disease: Class 2 (23–32mmHg)††

or

Severe disease: Class 3 (34–46mmHg)††

or

ActiLymph® Hosiery Kit

†† If limb dimensions do not fit stock sizes use

ActiLymph® Made to Measure hosiery

ActiLymph® MTM Ease or Dura

Moderate disease: Class 2 MTM (23–32mmHg)

or

Severe disease: Class 3 MTM (34–46mmHg)
Papillomatosis

**Definition:**
Warty growths on the skin

**Cause:**
Dilated lymphatics and fibrous tissue

**Action:**
Intensive management: skin care, debridement, (Debrisoft®), compression therapy, exercise
Hosiery recommendation

Please note (step 5) In the 'intensive management' phase, before managing with hosiery, a period of treatment with compression bandaging may be required.

With oedema

**ActiLymph® European Class hosiery**

**Moderate disease:** Class 2 (23–32mmHg)††

or

**Severe disease:** Class 3 (34–46mmHg)††

or

**ActiLymph® Hosiery Kit**

†† If limb dimensions do not fit stock sizes use

**ActiLymph® Made to Measure hosiery**

**ActiLymph® MTM Ease or Dura**

**Moderate disease:** Class 2 MTM (23–32mmHg)

or

**Severe disease:** Class 3 MTM (34–46mmHg)
Lymphangiomata

Definition:
Small projections which appear like blisters on the skin

Cause:
Dilated lymphatic capillaries present in the dermis

Action:
Intensive management: skin care, debridement, (Debrisoft®), compression therapy, exercise
Hosiery recommendation

Please note (step 5) In the ‘intensive management’ phase, before managing with hosiery, a period of treatment with compression bandaging may be required.

With oedema

ActiLymph® European Class hosiery

Moderate disease: Class 2 (23–32mmHg)‡‡
or
Severe disease: Class 3 (34–46mmHg)‡‡
or
ActiLymph® Hosiery Kit

‡‡ If limb dimensions do not fit stock sizes use
ActiLymph® Made to Measure hosiery

ActiLymph® MTM Ease or Dura

Moderate disease: Class 2 MTM (23–32mmHg)
or
Severe disease: Class 3 MTM (34–46mmHg)
Lymphorrhoea
(also known as ‘wet legs’)

Definition:
The leakage of lymph from the skin surface

Cause:
Extra fluid in very swollen limbs along with compromised skin condition

Action:
Intensive management: skin care, debridement, (Debrisoft®), exudate management, compression therapy, exercise
Hosiery recommendation

Please note (step 5) in the ‘intensive management’ phase, before managing with hosiery, a period of treatment with compression bandaging will be required.

With oedema

ActiLymph® European Class hosiery

Moderate disease: Class 2 (23–32mmHg)††

or

Severe disease: Class 3 (34–46mmHg)††

or

ActiLymph® Hosiery Kit

†† If limb dimensions do not fit stock sizes use ActiLymph® Made to Measure hosiery

ActiLymph® MTM Ease or Dura

Moderate disease: Class 2 MTM (23–32mmHg)

or

Severe disease: Class 3 MTM (34–46mmHg)
How to use the CHROSS Checker

It is important to check for the signs and symptoms of venous and lymphovenous disease listed in the CHROSS Checker Form and explained in more detail in the key.

A full holistic assessment should be carried out before treatment; please refer to your local guidelines. Patients should be assessed and measured for Activa® or ActiLymph® garments by a healthcare professional to ensure that the correct compression level and size is prescribed or recommended.

- The CHROSS Checker Form should be used as a prompt to check for skin and limb changes as part of a comprehensive, holistic patient assessment.
- The compression products recommended by the CHROSS Checker Form should be used as part of an overall management plan, which may include medical management of underlying diseases, skin and wound care, and patient education.
- Vascular status must be determined before applying compression. If in doubt, do not use and refer for specialist advice.
- If no ticks are recorded, the limb is healthy and no action is needed other than a good skin care regimen.

For more information about venous and lymphovenous disease, chronic oedema and compression products, please visit our website: www.activahealthcare.co.uk

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