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# COMPRESSION IN HEART FAILURE:
## HARMFUL OR NECESSARY?

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# LIVE Q&A

*SEND IN YOUR QUESTIONS BY COMMENTING ON THE VIDEO*

# LEARNING OBJECTIVES

Understand the meaning of chronic heart failure

Explore classifications of heart failure

Discuss the link between chronic oedema and chronic heart failure

Discuss the role of compression

Provide practical guidance around compression utilising patient scenarios

# COMPRESSION

# DANGER
OR
# NECESSARY?

Myth – compression therapy is not suitable for patients with chronic heart failure.

# CLINICAL CHALLENGE

Compression is not routinely offered to patients with oedema due to heart failure.

## But why?

- Fear of overloading the heart
- Misunderstanding of how much compression can be applied
- Lack of evidence

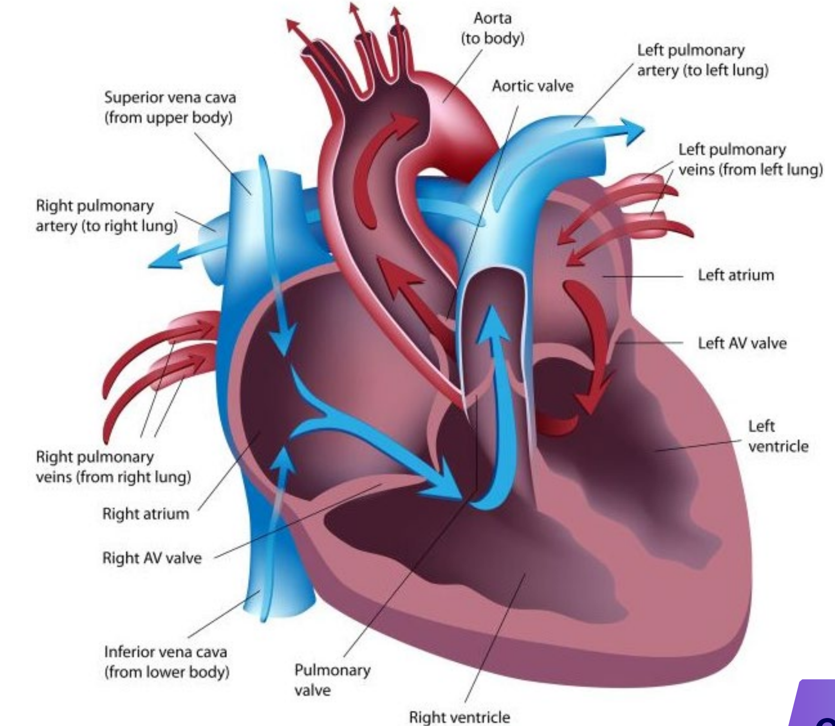
# WHAT IS CHRONIC HEART FAILURE?

- Clinical syndrome whereby the **heart** is **unable to pump** the **blood** around the body efficiently
- Characterised by certain **signs** and **symptoms**, and is typically the result of a structural or functional cardiac abnormality
- Management of heart failure is through **medication** and **lifestyle** choices, complex **cardiac devices** (pacemakers, CRT-P and CRT-D) or surgery

# HOW IS THE HEART AFFECTED?

Chronic heart failure **affects** the **left** or **right** side of the heart, or **sometimes both**:

- Heart failure is often classified using symptoms and left ventricular ejection fraction (LVEF)
- HF due to left ventricular failure is known as heart failure with reduced ejection fraction (HFrEF) and is often referred to as left-sided heart failure





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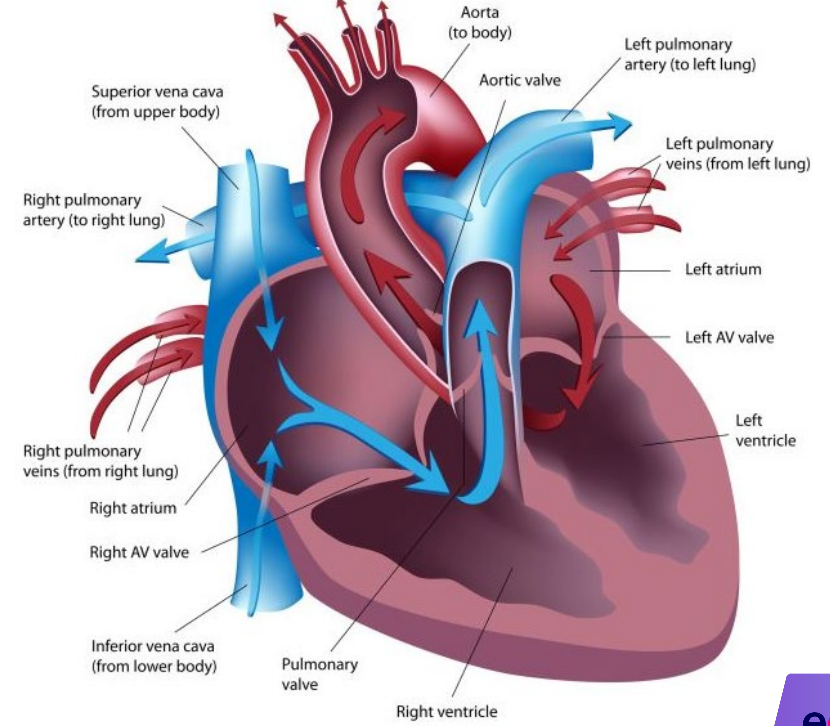
# HOW IS THE HEART AFFECTED?

Chronic heart failure **affects** the **left** or **right** side of the heart, or **sometimes both**:

- Right-sided heart failure refers to when the right ventricle is too weak to pump enough blood to the lungs

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# LINK BETWEEN CHRONIC OEDEMA AND HEART FAILURE

Oedema is one of the fundamental features of heart failure and patients present along a spectrum.

No excess fluid; but pulmonary venous pressure rises so that the lymphatic system is unable to drain away the fluid

Fluid retention; therefore, removing the fluid is the most important consideration

# LINK BETWEEN CHRONIC OEDEMA AND HEART FAILURE

Oedema is one of the fundamental features of heart failure and patients present along a spectrum.

| Right-sided HF | Left-sided HF with right-sided involvement |
| --- | --- |
| Blood stasis, venous & lymphatic hypertension | Decrease in cardiac output and activation of nervous and hormonal mechanisms |
| Swelling and fluid collects below the heart level – incl. lower limbs, sacral region and pleural cavity | Peripheral oedema – caused by antidiuretic hormone release, retention of sodium and water |

(Urbanek et al, 2020)

Additional **risk factors** of chronic oedema for patients with CHF:

- Limited mobility
- High BMI/ malnutrition
- Medications
- Venous insufficiency

# CLASSIFICATION OF HEART FAILURE

| NYHA Class | Level of Clinical Impairment |
| --- | --- |
| I | No limitation of physical activity. Ordinary physical activity does not cause under breathlessness, fatigue, or palpitations. |
| II | Slight limitation of physical activity. Comfortable at rest, but ordinary physical activity results in undue breathlessness, fatigue, or palpitations. |
| III | Marked limitation of physical activity. Comfortable at rest, but less than ordinary physical activity results in undue breathlessness, fatigue, or palpitations. |
| IV | Unable to carry on any physical activity without discomfort. Symptoms at rest can be present. If any physical activity is undertaken, discomfort is increased. |

(Atkin and Byrom, 2022)

# CLASSIFICATION OF HEART FAILURE

| Compensated Heart Failure | Decompensated Heart Failure |
| --- | --- |
| If the patient has heart failure but their heart is still functioning well enough that they do not have symptoms, or their symptoms are easily managed, this is compensated – or stable – heart failure. | When heart failure becomes severe enough to cause symptoms **requiring immediate medical treatment and review**. |
| Could be diagnosed NYHA Class I / II | Could be diagnosed NYHA Class III / IV |

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# ASSESS RED FLAGS: ACUTE DECONGESTIVE HEART FAILURE

Acute deterioration of any of the following symptoms in the last seven days:

- Increasing breathlessness (either at rest or on exertion)
- Presence of truncal oedema
- Increased reports of waking up due to breathlessness (paroxysmal nocturnal dyspnoea [PND])
- Inability to lie flat due to breathlessness (orthopnoea)
- Rapid increase in weight

(Atkin and Byrom, 2022)

# GUIDANCE FOR THERAPY COMPRESSION

## Immediate and necessary care:

- Red flag assessment
- Cleansing and emollient
- Simple low adherent dressing
- Leg wounds: first line mild graduated compression

(NWCSP, 2020)

### Immediate and Necessary Care

For people with one or more wounds below the knee.

**Leg wound**- originating on or above the malleolus (ankle bone) but below the knee.

**Foot wound** - originating below the malleolus.

malleolus

**RED FLAGS**

- Acute infection of leg or foot (e.g. increasing unilateral redness, swelling, pain, pus, heat).
- Symptoms of sepsis.
- Acute or chronic limb threatening ischaemia.
- Suspected deep vein thrombosis (DVT).
- Suspected skin cancer.

- Treat infection.
- Immediately escalate.
- For people in the last few weeks of life, seek input from their other clinicians.

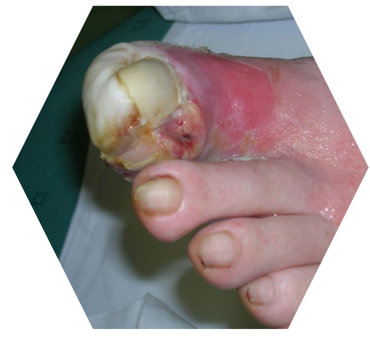
**Immediate care**

- Cleaning and emollient.
- Simple low-adherent dressing.
- Leg wounds, first line mild graduated compression.
- Supported self-care (when appropriate).

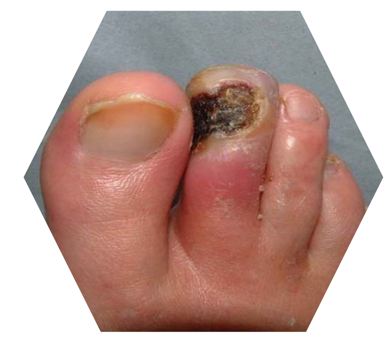
**Assessment times for diagnosis and treatment**

- In hospital with diabetic foot wound - refer to MDT **within 24 hours.**
- Any other type of foot wound - refer to MDT **within 1 working day.**
- Leg wounds - **assess within 14 days.**

# ASSESS RED FLAGS: APPLICATION OF COMPRESSION

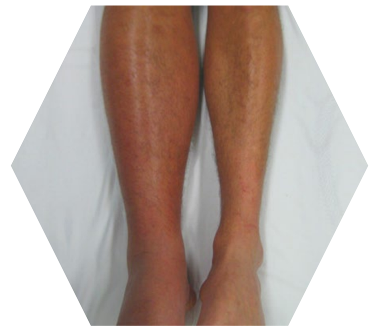


Infection



Chronic ischaemia

Skin cancer



Deep vein thrombosis (DVT)

(NWCSP, 2020)

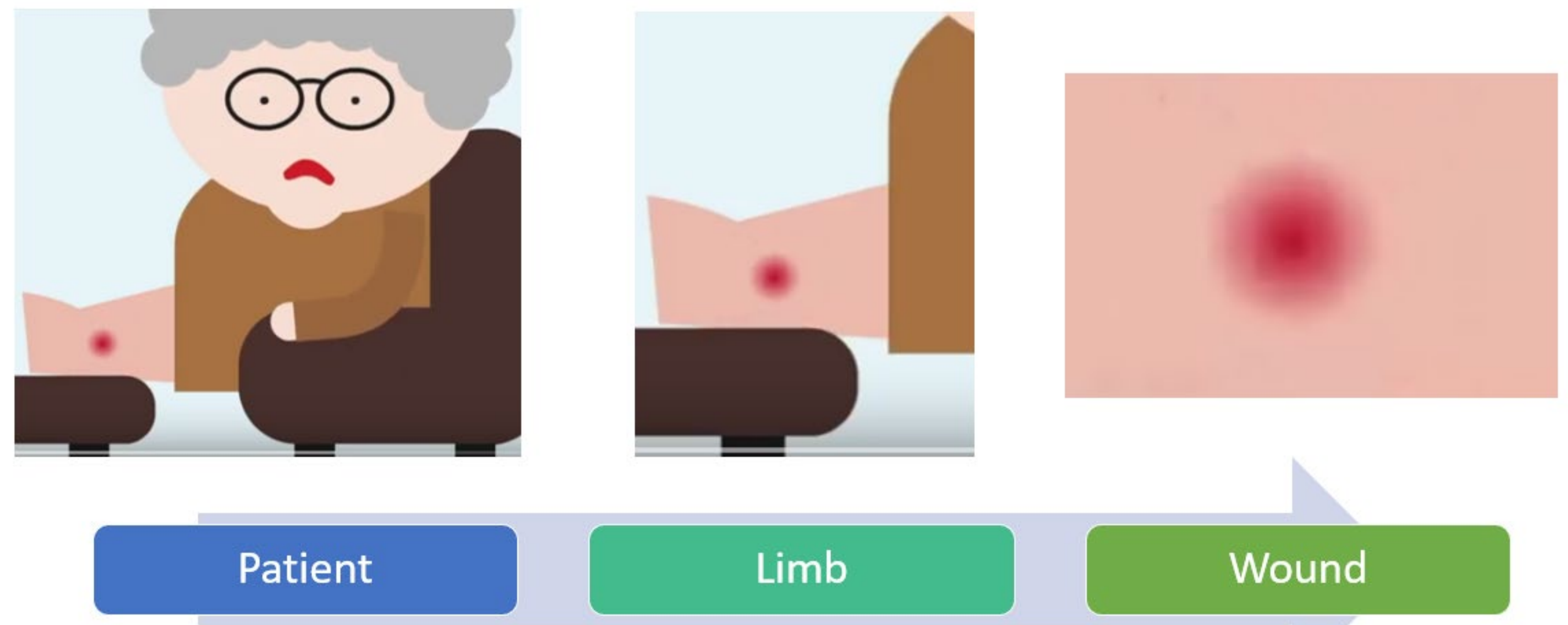
# FIRST AID COMPRESSION

All people with leg wounds should be treated with mild compression and that compression should be applied as early as possible (National Wound Care Strategy Programme [NWCSP], 2020).

(NWCSP, 2020)

# HOLISTIC ASSESSMENT

## Completed within 14 days!



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CHRONIC WOUNDS STARTED AS SIMPLE SMALL WOUNDS!
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# STRONG COMPRESSION

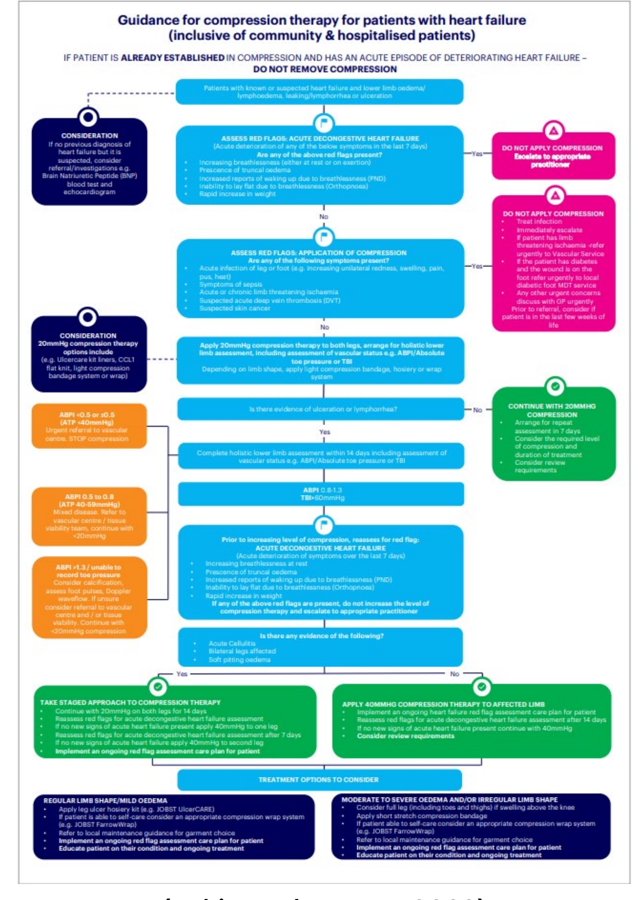
- Compression potent anti-inflammatory device
- Dose needs to be correct: at least 40mmHg

**BUT considering patients with heart failure:**

- When is it not safe to use?
- When is it safe to use?
- When is a staged approach needed?

# GUIDANCE FOR COMPRESSION THERAPY

Decision-making pathway for compression therapy in patients with heart failure (reproduced with permission from Wounds UK).




(Atkin and Byrom, 2022)

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# CLEAR GUIDANCE

## Guidance for compression therapy for patients with heart failure (inclusive of community & hospitalised patients)

IF PATIENT IS **ALREADY ESTABLISHED** IN COMPRESSION AND HAS AN ACUTE EPISODE OF DETERIORATING HEART FAILURE – **DO NOT REMOVE COMPRESSION**

Patients with known or suspected heart failure and lower limb oedema/ lymphoedema, leaking/lymphorrhea or ulceration

**CONSIDERATION**
If no previous diagnosis of heart failure but it is suspected, consider referral/investigations e.g. Brain Natriuretic Peptide (BNP) blood test and echocardiogram

**ASSESS RED FLAGS: ACUTE DECONGESTIVE HEART FAILURE**
(Acute deterioration of any of the below symptoms in the last 7 days)
**Are any of the above red flags present?**

- Increasing breathlessness (either at rest or on exertion)
- Prescence of truncal oedema
- Increased reports of waking up due to breathlessness (PND)
- Inability to lay flat due to breathlessness (Orthopnoea)
- Rapid increase in weight

Yes

**DO NOT APPLY COMPRESSION**
**Escalate to appropriate practitioner**

# CLEAR GUIDANCE

**ASSESS RED FLAGS: APPLICATION OF COMPRESSION**
**Are any of the following symptoms present?**

- Acute infection of leg or foot (e.g. increasing unilateral redness, swelling, pain, pus, heat)
- Symptoms of sepsis
- Acute or chronic limb threatening ischaemia
- Suspected acute deep vein thrombosis (DVT)
- Suspected skin cancer

Yes →

**DO NOT APPLY COMPRESSION**

- Treat infection
- Immediately escalate
- If patient has limb threatening ischaemia -refer urgently to Vascular Service
- If the patient has diabetes and the wound is on the foot refer urgently to local diabetic foot MDT service
- Any other urgent concerns discuss with GP urgently

Prior to referral, consider if patient is in the last few weeks of life

No ↓

**Apply 20mmHg compression therapy to both legs, arrange for holistic lower limb assessment, including assessment of vascular status e.g. ABPI/Absolute toe pressure or TBI**

Depending on limb shape, apply light compression bandage, hosiery or wrap system

**CONSIDERATION**
**20mmHg compression therapy options include**
(e.g. Ulcercare kit liners, CCL1 flat knit, light compression bandage system or wrap)

# CLEAR GUIDANCE

**ABPI <0.5 or ≤0.5 (ATP <40mmHg)**
Urgent referral to vascular centre. STOP compression

**ABPI 0.5 to 0.8 (ATP 40-59mmHg)**
Mixed disease. Refer to vascular centre / tissue viability team, continue with <20mmHg

**ABPI >1.3 / unable to record toe pressure**
Consider calcification, assess foot pulses, Doppler waveflow. If unsure consider referral to vascular centre and / or tissue viability. Continue with <20mmHg compression

Is there evidence of ulceration or lymphorrhea?

No →

**CONTINUE WITH 20MMHG COMPRESSION**

- Arrange for repeat assessment in 7 days
- Consider the required level of compression and duration of treatment
- Consider review requirements

Yes →

Complete holistic lower limb assessment within 14 days including assessment of vascular status e.g. ABPI/Absolute toe pressure or TBI

**ABPI** 0.8-1.3
**TBI**>60mmHg

**Prior to increasing level of compression, reassess for red flag:**
**ACUTE DECONGESTIVE HEART FAILURE**
(Acute deterioration of symptoms over the last 7 days)

- Increasing breathlessness at rest
- Prescence of truncal oedema
- Increased reports of waking up due to breathlessness (PND)
- Inability to lay flat due to breathlessness (Orthopnoea)
- Rapid increase in weight

**If any of the above red flags are present, do not increase the level of compression therapy and escalate to appropriate practitioner**

# CLEAR GUIDANCE

**Is there any evidence of the following?**
- Acute Cellulitis
- Bilateral legs affected
- Soft pitting oedema

Yes

**TAKE STAGED APPROACH TO COMPRESSION THERAPY**
- Continue with 20mmHg on both legs for 14 days
- Reassess red flags for acute decongestive heart failure assessment
- If no new signs of acute heart failure present apply 40mmHg to one leg
- Reassess red flags for acute decongestive heart failure assessment after 7 days
- If no new signs of acute heart failure apply 40mmHg to second leg
- **Implement an ongoing red flag assessment care plan for patient**

No

**APPLY 40MMHG COMPRESSION THERAPY TO AFFECTED LIMB**
- Implement an ongoing heart failure red flag assessment care plan for patient
- Reassess red flags for acute decongestive heart failure assessment after 14 days
- If no new signs of acute heart failure present continue with 40mmHg
- **Consider review requirements**

# CLEAR GUIDANCE

## TREATMENT OPTIONS TO CONSIDER

**REGULAR LIMB SHAPE/MILD OEDEMA**

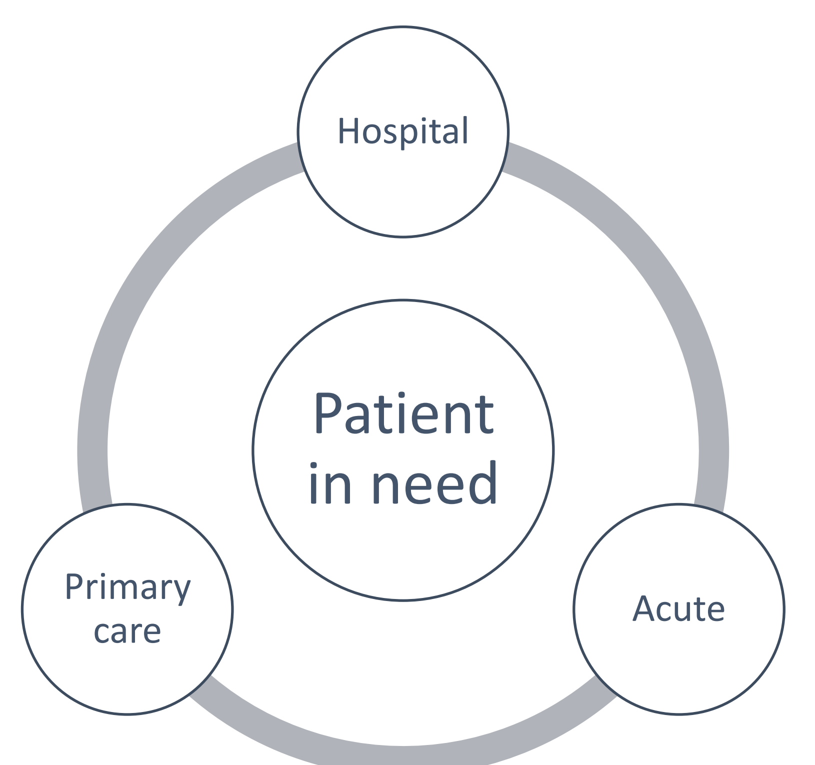
- Apply leg ulcer hosiery kit (e.g. JOBST® UlcerCare)
- If patient is able to self-care consider an appropriate compression wrap system (e.g. JOBST® FarrowWrap®)
- Refer to local maintenance guidance for garment choice
- **Implement an ongoing red flag assessment care plan for patient**
- **Educate patient on their condition and ongoing treatment**

**MODERATE TO SEVERE OEDEMA AND/OR IRREGULAR LIMB SHAPE**

- Consider full leg (including toes and thighs) if swelling above the knee
- Apply short stretch compression bandage
- If patient able to self-care consider an appropriate compression wrap system (e.g. JOBST® FarrowWrap®)
- Refer to local maintenance guidance for garment choice
- **Implement an ongoing red flag assessment care plan for patient**
- **Educate patient on their condition and ongoing treatment**

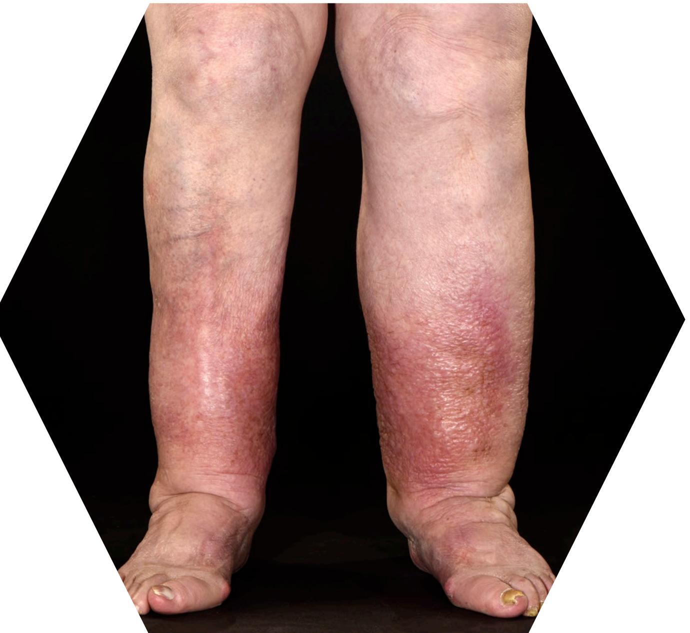
# STANDARDISATION NEEDED ACROSS ALL HEALTH SYSTEMS

- Acute to community consistency
- Continuation of care
- Consistency across specialists
- The following patient scenarios are ones that are present across all areas of the system
- Consider the following scenarios and how you could support this group?



# PATIENT SCENARIO: ONE

- **84 year old gentleman** – lives independently
- Diagnosed with biventricular heart failure in 2021, post-hospital admission with cognitive impairment and increased breathlessness
- **Current medications**:
  - Bisoprolol 5mg od
  - Furosemide 40mg bd
  - Ramipril 5mg od
  - Atorvastatin 40mg od
  - Spironolatone 12.5mg od
  - Dapagliflozin 10mg od
- BP 100/68, HR 68 bpm, EGFr 42
- Left leg increased oedema with weeping lymphorrhea



# RED FLAG ASSESSMENT

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- Symptoms of sepsis
- Acute or chronic limb threatening ischaemia
- Suspected acute deep vein thrombosis (DVT)
- Suspected skin cancer

# PATIENT SCENARIO: ONE

- Evidence of lymphorrhoea
- Needs full assessment within 14 days
- ABPI/toe pressure – normal
- Reassess no heart failure red flags

**Is there any evidence of the following?**
- Acute Cellulitis
- Bilateral legs affected
- Soft pitting oedema

No

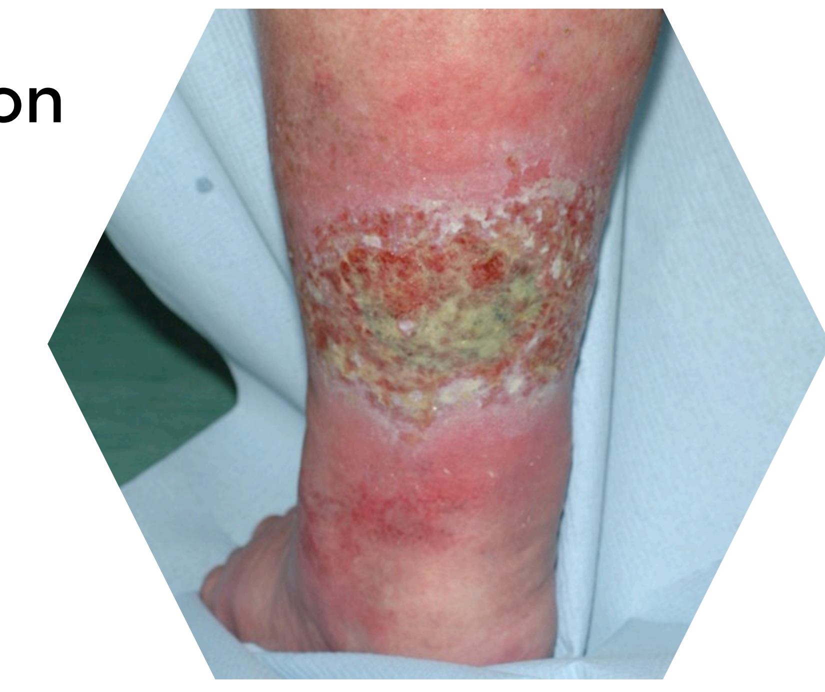
**APPLY 40MMHG COMPRESSION THERAPY TO AFFECTED LIMB**
- Implement an ongoing heart failure red flag assessment care plan for patient
- Reassess red flags for acute decongestive heart failure assessment after 14 days
- If no new signs of acute heart failure present continue with 40mmHg
- **Consider review requirements**

# PATIENT SCENARIO: TWO

- **80 year old lady** - diagnosed with heart failure three years ago (LVEF < 40%)
- Patient has been experiencing shortness of breath for two weeks
- Orthopnoea x 4 pillows
- PND (2-3 x per week)
- Fatigue +++
- Nocturnal dyspnoea

# PATIENT SCENARIO: TWO

- Leg swelling up to her thigh
- New soft oedema, non-healing ulceration for last two months
- Not in any compression
- Had hospital admission for the same problem last year
- **Current medications:**
  - frusemide 40mg
  - metoprolol 50mg
  - aspirin 150mg
  - amlodipine 10mg
  - simvastatin 40mg for hypertension & heart failure



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# PATIENT SCENARIO: TWO

**ASSESS RED FLAGS: ACUTE DECONGESTIVE HEART FAILURE**

(Acute deterioration of any of the below symptoms in the last 7 days)

**Are any of the above red flags present?**

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- Rapid increase in weight

Yes

**DO NOT APPLY COMPRESSION**

**Escalate to appropriate practitioner**

# PATIENT SCENARIO: THREE

- **75 year old gentleman** – community nursing referral for lower limb management
- Patient presents with breathlessness on mild exertion and not going to bed at night as does not like lying flat – on discussion, this has increased during the last four weeks
- No previous diagnosis of heart failure – only past medical history hypertension
- Patiently currently in compression bandaging

# PATIENT SCENARIO: THREE

IF PATIENT IS **ALREADY ESTABLISHED** IN COMPRESSION AND HAS AN ACUTE EPISODE OF DETERIORATING HEART FAILURE – **DO NOT REMOVE COMPRESSION**

Patients with known or suspected heart failure and lower limb oedema/ lymphoedema, leaking/lymphorrhea or ulceration

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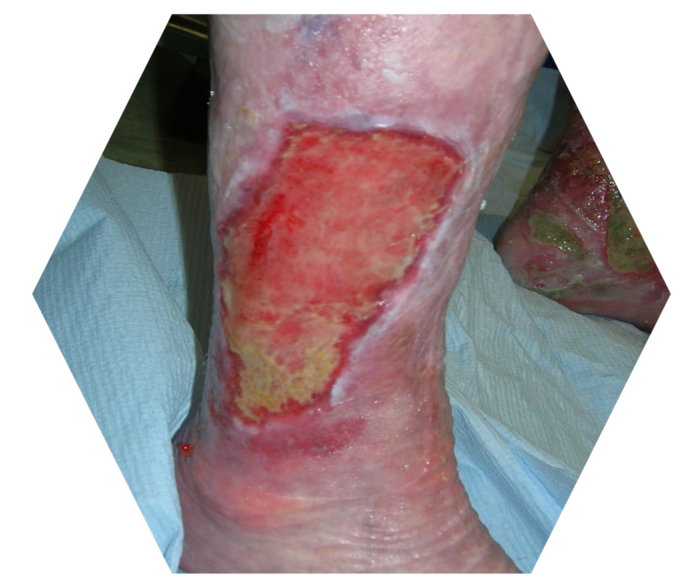

# PATIENT SCENARIO: FOUR

**60-year-old female**

Heart failure diagnosis three years ago; diagnosed with hypertension for five years

**Current medications:**

- frusemide 40mg
- aspirin 150mg
- amlodipine 10mg
- metoprolol 50mg
- simvastatin 40mg for hypertension and heart failure

Community nursing referral for lower limb management – trauma to left leg two weeks and spontaneous ulceration to right leg, high volume of exudate, new soft pitting oedema to both legs

# PATIENT SCENARIO: FOUR

- No HF red flags
- No red flags
- Needs immediate compression to both legs
- Then needs ABPI
- If normal, needs staged approach to compression

**Is there any evidence of the following?**
- Acute Cellulitis
- Bilateral legs affected
- Soft pitting oedema

Yes

**TAKE STAGED APPROACH TO COMPRESSION THERAPY**
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- If no new signs of acute heart failure apply 40mmHg to second leg
- **Implement an ongoing red flag assessment care plan for patient**

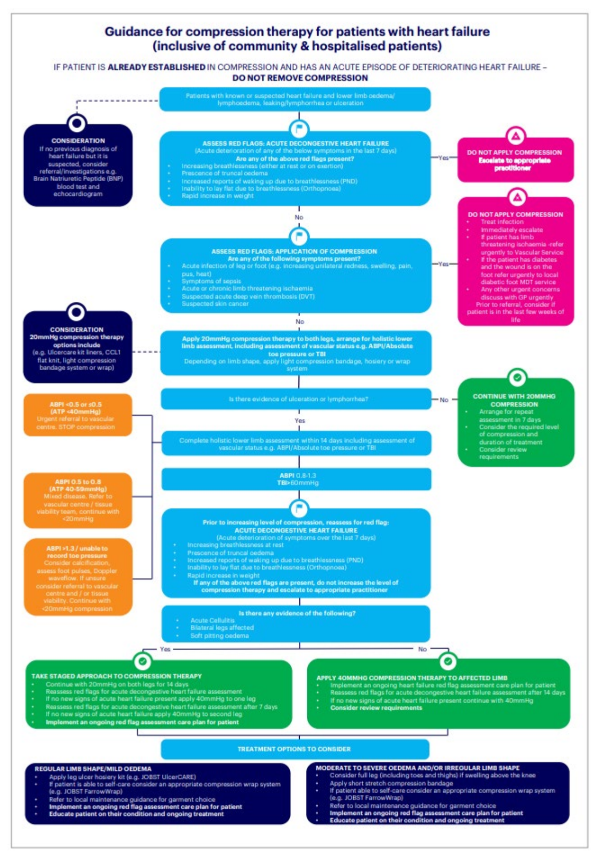
# COMPRESSION IN HEART FAILURE

- Necessary
- No evidence of inducing harm
- Apathy is not harm free
- Patient with HF highly likely to have long-term problems with oedema/chronic ulceration
- Optimum management is needed early in disease progression

# CALL TO ACTION

## Essity has many support and educational tools, including:

- PATH education
- Bitesize learning
- Support with pathway development
- Support with measuring for JOBST® compression garments



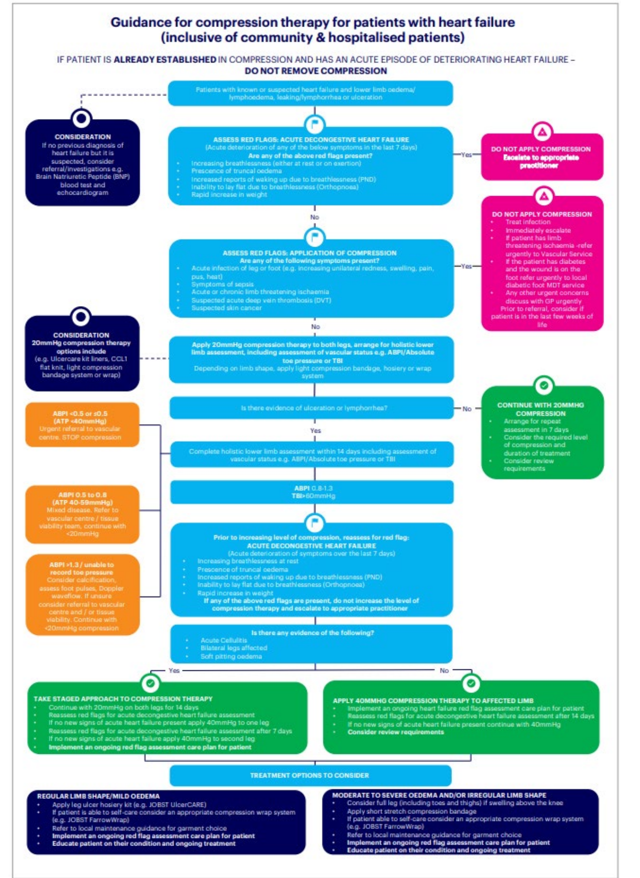
# CALL TO ACTION

To find out more about the pathway discussed, contact:

concierge.service@essity.com
or your local Essity account manager.

To download a copy of the Wounds UK article, visit:

www.wounds-uk.com



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