Heart failure review
A Guide for Primary Care
Introduction

People living with a diagnosis of heart failure manage their health on a daily basis. Health professionals assist them by providing them with medical care and health education about how to do this in the best way possible.

A regular heart health review is an important part of such ongoing support and focuses on a holistic approach which recognises the importance of both physical and emotional well-being. Most importantly, a regular review can ensure that a person receives the correct treatment which can positively impact on both the length and quality of life and prevent unnecessary admission to hospital. The key parts of a heart health review include an estimate of functional capacity, monitoring of vital signs and blood chemistry. The provision of health education to help people and their families, to understand the signs and symptoms indicative of deteriorating heart health is equally as important.

It is also essential to ensure that the appropriate medicines are prescribed, at the correct dose, and that people understand the importance of managing their medicines in a way that will optimise their health. Guidance about some of the emotional challenges people, and their families, might face as part of living with heart failure is essential. This complements practical advice about how to best manage lifestyle behaviours such as healthy eating and physical activity. This document aims to provide health professionals with a useful overview of the key components that comprise a heart failure review conducted in a primary care setting.
Reviewing the patient with heart failure requires a holistic approach. A confirmed diagnosis will dictate the patient’s care pathway, and the actions needed by the practice nurse to provide appropriate support and monitoring.

Any patient on the heart failure register should have a confirmed diagnosis. This is vital, as knowing the aetiology and status of their condition will facilitate evidence-based care and treatment. Therefore, all patients should have undergone investigation or specialist assessment to confirm they have heart failure.

**Appropriate and potential investigations include:**

**BNP - Brain Natriuretic Peptide:**
- BNP or NT proBNP (These 2 forms can be measured)
- A value within the normal range has an extremely high negative predictive value (>98%) for the exclusion of heart failure in untreated patients.
- Therefore if the level is low, a diagnosis of heart failure is highly unlikely.
- It is secreted by the walls of the heart when they are under stress (ventricular stretch).
- A positive result is not a definitive diagnosis and further investigation is then necessary.
- It is useful to consider it a ‘rule out’ tool, helping to define which patients most appropriately warrant echo assessment.

**Reference ranges:**

<table>
<thead>
<tr>
<th></th>
<th>Normal</th>
<th>Raised</th>
<th>High</th>
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<tbody>
<tr>
<td>BNP</td>
<td>&lt;100 pg/ml</td>
<td>100-400 pg/ml</td>
<td>&gt;400 pg/ml</td>
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<tr>
<td>NTproBNP</td>
<td>&lt;400 pg/ml</td>
<td>400-2000 pg/ml</td>
<td>&gt;2000 pg/ml</td>
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- BNP should be used to aid diagnosis alongside patient history, clinical signs, and other investigations.
- It does not differentiate between systolic and diastolic dysfunction.

**Other conditions may cause elevated BNP levels, including:**

- Hypertension-LVH
- Renal dysfunction
- Age >70 yrs
- Ischaemia
- Sepsis
- Liver Cirrhosis
- Arrhythmia (AF/Tachycardia)
- COPD/Respiratory failure
- Diabetes
- Hypoxaemia including pulmonary embolism (PE)

- Obesity and treatment with heart failure medications may cause a decrease in levels of BNP.
- BNP levels also increase with age, and women without heart failure tend to have higher levels than men of the same age.
Echocardiogram - Echo is considered the gold standard investigation by NICE

Echocardiogram
An ultrasound of the heart can provide immediate assessment of cardiac structure and function, and help classify the form of failure.
The most commonly reported figure of ejection fraction refers to the proportion of blood in the left ventricle forced out during systole and is expressed as a percentage.

Ejection fraction (EF) ranges
- Normal: 55-75%
- Mild/borderline impairment: 50-54%
- Moderate impairment: 36-49%
- Severe impairment: <35%

Other possible investigations include:

LV-gram/Left Ventriculography
Contrast left ventricular (LV) angiography provides an estimated measure of LV systolic function and may be performed during an elective or emergency coronary angiogram.

Cardiac Magnetic Resonance Imaging (CMR)
Provides accurate information on LV size, volumes, and LV EF. It is the most reliable non-invasive test for LVH and calculations of LV mass. Not as easily accessible as an echo. Predominantly not viable in those with metallic valves/pacemaker/Implantable cardioverter defibrillator (ICD) implants. However, MRI conditional pacemaker research has received a lot of attention in recent years. Several MRI conditional pacemakers are available on the market, but these have not yet seen widespread adoption as issues surrounding implantation criteria and healthcare professional education have yet to be addressed (Ferreira et al, 2014).

Nuclear Cardiology
Multi-gated acquisition scan (MUGA) or radionuclide ventriculography (RNVG) provides a more accurate and reproducible result than echo. However it involves radioactive substances and echo is less invasive.
Types of heart failure

HF-REF to HF-PEF and beyond

Physiologically, heart failure is the inability of the heart to pump sufficient oxygenated blood to the metabolising tissues despite adequate filling pressures.

In a clinical sense, it is a syndrome consisting of symptoms such as breathlessness, fatigue, and oedema caused by cardiac dysfunction.

What we refer to as chronic heart failure (CHF) may be caused by various forms of cardiac dysfunction, but is most commonly attributable to left ventricular (LV) dysfunction. Cases of isolated right ventricular (RV) dysfunction are far less common. Indeed, most RV dysfunction is a result of LV dysfunction.

Left ventricular systolic dysfunction (LVSD) is where the heart’s ability to contract and eject blood is impaired, and reduced ejection fractions indicate the level of such dysfunction. Hence its latest classification as HF-REF (reduced ejection fraction).

LV diastolic dysfunction (LVDD), where the ventricle fails to relax during diastole but where ejection fraction is not diminished is therefore termed HF-PEF (preserved ejection fraction).

A summary of these presentations and other potential causes of heart failure are summarised next.

Right-sided heart failure

- Essentially occurs because the RV cannot pump enough blood to the lungs.
- Often due to chronic lung diseases such as emphysema and chronic bronchitis.
- Other causes include left-sided heart failure/pulmonary hypertension/clots in the pulmonary arteries/congenital heart disease, and valve disease.
- Causes salt retention and oedema.
- Congestion may affect the liver, GI tract, and limbs.
- See also Cor Pulmonale.

The two types of left-sided heart failure

HF-REF (LVSD)

- Heart failure with reduced ejection fraction. More commonly referred to as LVSD - left ventricular systolic dysfunction.
- The heart fails to pump sufficient blood out of the LV to the body’s tissues and organs.
- Large evidence-base for pharmacological treatment comprising ACE-I/ARBs; Beta-blockers/MRAs (Aldosterone antagonists).

HF-PEF (LVDD/Diastolic heart failure)

- Heart failure with preserved ejection fraction
- ESC 2012 criteria for diagnosis:
  - Signs and symptoms typical of heart failure
  - Normal or only mildly reduced LV EF and LV not dilated
  - Relevant structural heart disease (LVH/LA enlargement and/or diastolic dysfunction
- Management recommendations focus on treatment of co-morbidities e.g. Diabetes/Hypertension and fluid management. Patients may have diuretic requirement.
- Non-pharmacological management is important: education on symptom monitoring and fluid balance.

Other terms you may encounter when caring for patients with heart failure:

- Biventricular failure: failure of both sides of the heart.
- Cor Pulmonale: failure of the right side of the heart brought on by long-term hypertension in the pulmonary arteries. Commonly caused by a chronic lung condition.
- Cardiomyopathy: a specific problem with the heart muscle which can result in heart failure. Both sides of the heart are usually affected. There are multiple forms and causes of cardiomyopathy. This may imply that the cause of muscle damage is coronary artery disease. Dilated cardiomyopathy implies that the muscle damage has resulted in enlargement of the heart. Hypertrophic cardiomyopathy involves enlargement and thickening of the heart muscle. There are several more rare forms of cardiomyopathy which may require specialist investigation and monitoring.
It is important to consider the signs and symptoms of heart failure. What are those features, and why do our patients suffer from them?

The most commonly reported signs and symptoms are breathlessness, fluid retention, and paroxysmal nocturnal dyspnoea (PND). Any patient with heart failure is likely to have one or more of these at one stage or another.

A comprehensive review of the patient with heart failure must incorporate assessment of these elements in order to gauge cardiac status and guide appropriate treatment.

Deoxygenated blood travelling back from the rest of the body to the heart will be backed up because the heart is not filling up and pumping blood out as efficiently as it can. This results in congestion in the body’s tissues, which is what causes many of the symptoms of congestive heart failure.

Treatment focuses on the slowing of disease progression through evidence-based therapies, alongside the management of the signs and symptoms of heart failure.
Fluid retention and oedema

**Peripheral oedema**
The diminished volume of blood pumped out by the failing heart (decreased cardiac output) is responsible for a decreased flow of blood to the kidneys.

As a result, neuro-hormonal mechanisms are activated via the kidneys which cause the retention of salt and water. The kidneys have effectively been fooled by the low cardiac output into thinking that the body needs more fluid volume. **In reality, the body is already holding on to too much fluid.**

This extra fluid leaks out into the tissue spaces due to hydrostatic pressure and osmotic pressure.

Weight will increase when water is retained. Water is absorbed quicker than food.

If the fluid is allowed to build up, it may eventually compromise the abdomen.

**Pulmonary oedema**
The accumulation of fluid (see peripheral oedema) may ultimately lead to fluid within the lungs.

Decreased cardiac output elevates left ventricular diastolic pressure. As a result, blood will struggle to enter from the left atrium, raising left atrial pressure in turn. This increase in pressure is transmitted back to the pulmonary vein and, consequently, the microvasculature of the lungs.

An associated increase in the amount of fluid in the blood vessels of the lungs causes breathlessness because the excess fluid from the lungs’ blood vessels leaks into the airspaces (alveoli) and interstitial spaces of the lungs.
Dyspnoea, orthopnoea, and PND

**Dyspnoea (Shortness of breath)**
Fluid backing up into the lungs, as well as the decreased ability of the heart to pump enough blood to meet the extra demands of muscles during increased physical activity.

Increased fluid in the lungs can interfere with the exchange of oxygen, resulting in not enough oxygen reaching the body’s tissues.

Congestion in the lungs results in two other common symptoms: Orthopnoea and PND.

**Orthopnoea**
Some patients with heart failure become breathless when they lie flat. Patients should be asked how many pillows they sleep on at night. They will usually need three or more if they have orthopnoea.

It is thought to be caused by pressure changes and the effects of increased venous return to the heart when the patient is lying flat.

Some patients may sleep upright for other reasons, so a follow-up question to differentiate is appropriate, such as ‘what happens if the patient slips down the bed?’ If they state that they suddenly become breathless, then the patient is likely to be experiencing orthopnoea.

It is a temporary symptom as sitting up eases the effect.

**PND: Paroxysmal Nocturnal Dyspnoea**
The sensation of breathlessness suddenly occurring at night. Patients will often describe a drowning sensation where they feel the need to move to an open window to breathe easier.

Occurs in severe heart failure and is thought to be due to pressure changes in a failing heart related to position and venous return.

It is a symptom that often occurs during acute decompensation, and should therefore vanish once the heart is stabilised.
Other potential signs and symptoms to consider:

**Chest Pain**
The majority of patients who develop heart failure will have an ischaemic background. Coronary heart disease (CHD) is recognised as the most common cause of heart failure in the western world. Many may have suffered myocardial infarctions (MIs) or have on-going angina symptoms. It is important to monitor such symptoms as they may represent decompensation and trigger the need to review therapies.

**Elevated Jugular Venous Pressure (JVP)**
A clinical sign of fluid overload and stems from the right atrium. It may represent fluid overload as well as other conditions including constrictive pericarditis and renal failure. It should only be assessed by a practitioner who has undergone specific training. Its presence is associated with increased risk of hospital admission and mortality.

**Dizziness**
Patients may experience such a symptom from hypotension - potentially a result of reduced cardiac output or perhaps the heart failure medication they are taking, particularly beta-blockers.

**Cough**
Coughing can be a significant symptom of heart failure. It can occur due to the condition, or indeed because of the treatment. It may be a wet, frothy cough that is tinged pink with blood - a sign of pulmonary congestion. It may also occur alongside breathlessness when experiencing PND.

**Palpitations**
The sensation of the heart racing, thumping or skipping a beat may be benign and triggered by emotional stress, caffeine, nicotine, or physical activity. However, individuals with heart failure have an increased incidence of arrhythmia. Heart failure itself increases the risk of atrial fibrillation (AF) - the most commonly sustained arrhythmia in the UK.

In CHF, structural changes including myocardial stretch, fibrosis and scar formation, chamber dilatation, and alteration of the cellular ionic currents, the receptors and the gap junction, provide adequate substrates for the genesis of arrhythmias.

It is important to therefore monitor for such symptoms as it may trigger further investigations and changes to treatment.
Assessment and monitoring

Assessment of functional capacity

Heart failure care and management focuses on the relief of these signs and symptoms, with the aim of maximising a patient’s quality of life. One of the tools utilised to gauge a patient’s functional status is the:

New York Heart Association classification of heart disease (NYHA):

<table>
<thead>
<tr>
<th>Class</th>
<th>Patient symptoms</th>
</tr>
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<tbody>
<tr>
<td>Class I (Mild)</td>
<td>No limitation of physical activity. Ordinary physical activity does not cause undue fatigue, palpitation, or dyspnoea.</td>
</tr>
<tr>
<td>Class II (Mild)</td>
<td>Slight limitation of physical activity. Comfortable at rest, but ordinary activity causes fatigue, palpitation, or dyspnoea.</td>
</tr>
<tr>
<td>Class III (Moderate)</td>
<td>Slight limitation of physical activity. Comfortable at rest, but ordinary activity causes fatigue, palpitation, or dyspnoea.</td>
</tr>
<tr>
<td>Class IV (Severe)</td>
<td>Unable to carry out any physical activity without discomfort. Symptoms of cardiac insufficiency at rest. If any physical activity is undertaken, discomfort is increased.</td>
</tr>
</tbody>
</table>

(American Heart Association - 1994)

It is a method of assessing the severity of symptoms and does not always reflect the extent of the underlying heart failure. It is in no way associated with ejection fraction, which is a measurement of pumping efficiency.

Assessment of NYHA class is an important element of the heart failure review

- It is marker for how well a patient is coping with their condition.
- It is also used by specialists as a marker for changes to therapy. Specifically, it is an element considered when commencing patients on an appropriate mineralocorticoid receptor antagonist (MRA) (Spironolactone or Eplerenone), and is an element of the criteria for implantable device insertion under the NICE guidance.
- The need for including such in the routine heart failure review is therefore clear.
- However, it must be noted that it is a subjective measurement as there are a lack of criteria for assigning a class to a patient. NYHA may improve with lifestyle modifications and medication changes without a measurable change in heart function.
Monitoring: physiological measurements and values

**Blood pressure**

Hypertension is a known contributor to the development of heart failure. It increases cardiac work which may lead to left ventricular hypertrophy (LVH) (thickening of the myocardium of the left ventricle). The ventricle is then stiffer and less efficient which may lead to further cardiac problems including heart failure.

The core pharmacological interventions of HF-REF (ACE-I or ARBs/Beta-blockers/MRAs) all have anti-hypertensive properties, although their prognostic value is well-established beyond these haemodynamic actions.

**Pulse rate**

An elevated pulse or heart rate is associated with increased mortality and morbidity in patients with heart failure (both HF-REF and HF-PEF). A retrospective analysis of the CIBIS II trial (2001), which looked at Bisoprolol in CHF, found an elevated heart rate at baseline was strongly associated with increased mortality at one year. Additionally, the SHIFT trial (2010) demonstrated that heart rate reduction improves clinical outcomes for patients suffering with systolic HF.

Physiologically, an increased heart rate in heart failure is associated with increased oxygen demand, reduced ventricular efficiency and reduced ventricular relaxation. Therefore, heart rate reduction reduces energy expenditure, and increases blood supply by prolonging diastole and reducing ventricular loading.

**Pulse rhythm**

A routine pulse check should confirm whether the rhythm is ‘normal’, fast or slow, regular or irregular. An abnormal finding will likely trigger further appropriate investigation from electrocardiogram (ECG) to specialist input. As previously stated, AF is the most commonly sustained arrhythmia, which, if new onset, requires specialist input.

Multiple factors may lead to the development of arrhythmia in the heart failure patient including: Underlying structural disease/electrolyte disturbances/ischaemia/medications/neuro-hormonal mechanisms.
• Heart failure is rare in the presence of a normal ECG. Negative predictive value of the ECG is >90%.
• Pathologic Q waves may indicate Q waves may indicate previous MI.
• LVH on an ECG may point to hypertension.
• ST-T wave changes may indicate ischaemia, LVH or be non-specific.
• Pathologic QRS duration may indicate dyssynchrony (disruption to the co-ordination between the chambers of the heart). Mortality in heart failure increases in proportion to the QRS width.
• The width of the QRS should be less than 3 small squares, or less than 0.12 seconds in duration.
• The use of implantable devices such as ‘cardiac resynchronisation therapy (CRT) pacemakers or ICDs is planned on the basis of on-going signs and symptoms with evidence of cardiac dyssynchrony based on QRS duration and echo evidence. Further information is available through NICE guidance:

• CRT is one of the major advances in heart failure, resulting in reduced morbidity and increased survival of heart failure patients with dyssynchrony.
• The value of the ECG as part of patient monitoring is high given that it may highlight problems where specialist interventions have been shown to improve quality of life.
Monitoring: blood work

Your patient with heart failure will almost certainly be prescribed ‘anti-failure’ medication which may have a negative impact on their biochemistry. The 2010 NICE CG 108 and the more up-to-date ESC 2012 publication provide guidelines on renal monitoring when initiating ACE-I/ARBs, and MRAs (Spironolactone or Eplerenone).

Beyond renal function, there are other haematological elements that should be checked periodically. Examples and rationale are summarised below:

### Renal profile (Urea and electrolytes)
- Aside from the effects of treatment, renal dysfunction is highly prevalent in congestive heart failure.
- There is mounting evidence that chronic kidney disease itself is a major contributor to severe cardiac damage and, conversely, that congestive heart failure is a major cause of progressive chronic kidney disease.
- Uncontrolled congestive heart failure is often associated with a rapid fall in renal function and adequate control of congestive heart failure can prevent this. The opposite is also true: treatment of chronic kidney disease can prevent congestive heart failure.

### Liver function
- Heart failure can lead to a build-up of fluid that puts too much pressure on the liver. This fluid backup can lead to scarring, which makes it more difficult for the liver to function properly.
- Data from the CHARM study (2009) found elevated bilirubin to be an independent predictor of poor outcome in CHF.

### Full blood count (Anaemia)
- Anaemia has been found in one-third to a half of the cases of CHF, and may be caused not only by chronic kidney disease but by the CHF itself.
- Anaemia is associated with worsening cardiac and renal status and often with signs of malnutrition.
- Control of the anaemia and aggressive use of the recommended medication for CHF may improve the cardiac function, patient function and exercise capacity, stabilise renal function, reduce hospitalisation and improve quality of life.

### Thyroid function
- Hyperthyroidism and hypothyroidism produce changes in cardiac contractility, myocardial oxygen consumption, cardiac output, BP, and systemic vascular resistance.
- There is a recognised link between hyperthyroidism and the development of AF. It is less well recognised that hypothyroidism may predispose to ventricular arrhythmias.
- In almost all cases, these changes are reversible when the underlying thyroid disorder is recognised and treated.
- Amiodarone (anti-arrhythmic) is structurally similar to thyroxine and may affect thyroid function.
Patient support: The role of the practice nurse

- Patients with a long term condition undergo review and monitoring in primary care. When a diagnosis of heart failure has been confirmed, the patient should be seen by a specialist, and pharmacological therapies initiated and up-titrated.
- Simultaneously, there are several other elements to effective heart failure management, of which the practice nurse is ideally placed to deliver with specialist support where needed.

- Heart failure specialist nurses and cardiologists are potentially involved at the point of diagnosis and initiation of therapies. Patients may well remain under specialist review for some considerable time. At some point, they will likely be discharged from such services with primary care taking on responsibility for patient support and review.
- Many patients will have co-morbidities already being reviewed by the GP and practice nurse teams.

Beyond diagnosis and pharmacological management, key elements of care include:

![Diagram of heart with arrows pointing to various care areas]

- Patient education and support
- Fluid and weight gain management
- Exercise
- Depression and anxiety
- Palliative care
- Smoking
- Diet and alcohol
- Immunisations

General Information
Air travel will be possible for the majority of patients with heart failure, depending on their clinical condition at the time of travel.


Medicines management. Keep dosing regimens as simple as possible and ensure that the patient and carer are fully informed about their medication.
Smoking, diet and alcohol

Smoking
- If someone smokes, stopping smoking is the single most important thing they can do to live longer.
- Smoking deprives the heart of vital oxygen, increases heart rate, and raises blood pressure for a short period after each cigarette.
- There is no direct causal link between smoking and heart failure, but we know of the clear link to arteriosclerosis/CHD and the risk of MI.
- Up to 2/3rds of patients develop heart failure due to MI.

Salt
- Patients should be advised to ‘cut out the salt’ - with the reasons why explained to them.
- Daily intake should not exceed 6g (1 level teaspoon) (SACN 2003; COMA 1994).
- Avoid ‘low-salt’ alternatives which may contain increased levels of potassium.
- Much of our salt intake may be ‘hidden’ in the foods we eat.
- It can contribute to raised blood pressure and therefore increase strain placed on the heart.
- It can increase fluid retention, which in turn may precipitate symptom occurrence - specifically oedema and breathlessness.
- Patients with heart failure may also have renal disease and may therefore be less able to excrete salt.
- Less salt can improve symptoms and increase the effects of diuretics.

Alcohol
- Excess alcohol intake over an extended period may lead to heart muscle damage.
- Patients with heart failure and a history of alcoholism have a poor prognosis.
- In such cases, total abstinence can lead to an improvement in cardiac performance.
- Patients with alcoholic cardiomyopathy have more preserved and reversible cardiac function compared to other dilated cardiomyopathies.
- The risk of re-admission to hospital is dramatically increased where patients do not maintain abstinence.
- Whether patients with heart failure who are not alcoholic should avoid alcohol or not is an area up for debate.
- Binge-drinking may have adverse effects on fluid management.
- Alcohol is a pro-arrhythmic agent and should therefore be avoided in patients with a history of paroxysmal arrhythmias.
- Alcohol can lower blood pressure and so may enhance the effects of beta-blockers, lowering blood pressure further.
- In general terms, individuals not exceeding national guidance can continue to drink unless there are significant individual contraindications.
- Men = 21 units/week; Women 14 units/week.

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Immunisation and exercise

Immunisation

- Flu and pneumonia can increase the risks of complications for people with heart failure.
- The Department of Health recommends any individual with a heart problem should consider having seasonal vaccination, and must therefore be offered it from their GP.
- Seasonal Influenza and pneumococcal vaccines are recommended for all patients with chronic heart failure (The Green Book (DoH), chapter 25, table 25.1. Updated October 2012).
- Any serious infection can increase strain on the heart and therefore increase the risk of cardiac decompensation.
- It is worthwhile reminding patients opportunistically of the value of immunisations, and promote uptake rates.

Exercise in heart failure

- Exercise in heart failure should be graded to the individual.
- Moderate exercise can be beneficial to the heart.
- It can improve stamina, energy, and fitness levels.
- Structured programmes are commonly available through local heart failure services.
- Patients need to know if it is safe to exercise, and of the benefits to their condition.
- Trials have shown exercise improves symptoms, quality of life, exercise capacity, and mortality.
- Hospital re-admission rates may be reduced.

- Physical benefits include:
  - improved heart rate variability
  - improved muscle perfusion
  - improved exercise cardiac output
  - reduce obesity
  - downward regulation of the neuro-hormonal response
- There are also recognised positive psychological effects:
  - Recent USA ‘HF-ACTION trial’ (2009) looked at whether exercise could improve depressive symptoms in heart failure patients. Structured exercise programmes where found to improve symptoms of depression and anxiety.
  - Effects or impact of exercise may be gauged by physiological testing such as treadmill or repeat echocardiograms, and psychological assessments such as quality of life QOL questionnaires.
  - Contraindications may arise which is why individual assessment is advocated. Examples include unstable anginal symptoms, and structural abnormalities which may affect the ability of the heart to eject blood - Aortic stenosis.
Fluid and weight management

Fluid

- Heart failure patients may be prone to fluid retention.
- Patients may sometimes be advised to restrict or monitor their fluid intake.
- Fluid restrictions are never popular with patients and compliance is often poor.
- The evidence to support such practice is anecdotal.
- The basic message to get across to heart failure patients is the notion of balance.
- Education on the use and importance of diuretics is important.
- Binge-drinkers may induce decompensation.

Weight-watching

There are two aspects to consider:
- Obesity and weight
- Fluid retention and weight

- Obesity has been shown to be an independent risk factor for heart failure.
- If a patient is overweight then their heart will have to work harder all the time.
- Obesity may increase symptoms: breathlessness/ fatigue/sleep apnoea - all of which may impact on the patient’s quality of life.

- Heart failure symptoms are generally worsened by obesity. Weight reduction can therefore have a positive effect on symptoms.
- Patients must be educated on the signs and symptoms of when their condition is becoming unstable. Regular weighing to detect fluid retention is therefore important.
- Some patients should weigh themselves daily. For others, 2-3 times weekly is sufficient.
- Not every patient with heart failure retains fluid.
- Increases of 2-3lbs/day or 5lbs (2.2kgs) in a week should trigger a review of their condition.
- Patients must be educated on the importance of weight monitoring and its significance to their heart failure.
- Treatment adjustments to rectify fluid retention may involve diuretic increase and closer monitoring for several days.
Depression and anxiety

- Depression and anxiety are common in heart failure and is associated with a worse clinical status and poor prognosis.
- Depression and anxiety rates are higher in heart failure patients than in the general population.
- Prevalence within the heart failure patient population has been found to be over 20%.
- Prevalence rates double in patients with more severe heart failure.
- There is a recognised correlation between NYHA classification and severity of depression.
- Heart failure symptoms, disease progression, and frequent hospitalisations mean patients are vulnerable to developing depression and anxiety.
- It may impact on adherence to treatment and contribute to social isolation.
- Routine screening using a validated tool is recognised as good practice.
- Psychosocial interventions and drug therapies may prove beneficial.
- Serotonin reuptake inhibitors are considered safe. Examples of such include Citalopram/Fluoxetine/Sertraline.
- Tricyclic anti-depressants are not considered safe. They may induce hypotension, worsen heart failure, and increase incidence of arrythmias. Examples of such include Amitriptyline/Imipramine/Dosulepin.
- Beta-blockers have previously been implicated in the development and exacerbation of depression. However, evidence to support such an association is lacking.
- As touched upon already, exercise has been found to be beneficial in improving symptoms of depression and anxiety in this patient group.

Palliative care

- Patients should be asked about how much information they want to receive about their prognosis and their preferences respected.
- Decision making and care planning should involve the patients family and/or significant others.
- Patients should be prepared for the progress of their disease.
- Specialist input should be included to confirm that there are no further realistic treatment options.
- Patients may be added to the Gold Standards Framework to ensure co-ordinated care is in place for their needs.
- Involvement of local hospice; Macmillan teams, and heart failure specialist Nurses should be offered in order to manage symptoms and support the patient and family.
- Patients must be given choice in decisions about where they spend their last days. The nature of the disease lends towards acute episodes.
- Does the patient want to be admitted when they deteriorate?
- End of life care in heart failure is not as well structured as with cancer pathways.
- Advanced heart failure leads to frequent hospital admissions.
- Links between cardiology teams and palliative care are important.
## Tick box review and actions

**Checklist for the comprehensive and holistic heart failure review**

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<thead>
<tr>
<th>Step</th>
<th>Task</th>
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<tbody>
<tr>
<td>1</td>
<td>Patient education and support</td>
</tr>
<tr>
<td>2</td>
<td>Consider social impact of psycho-social impact of condition/depression screening</td>
</tr>
<tr>
<td>3</td>
<td>BP and pulse check</td>
</tr>
<tr>
<td>4</td>
<td>Consider ECG if rate/rhythm differ from established baseline, else annually</td>
</tr>
<tr>
<td>5</td>
<td>Assess signs and symptoms</td>
</tr>
<tr>
<td>6</td>
<td>Assess and document NYHA classification</td>
</tr>
<tr>
<td>7</td>
<td>Consider other signs/symptoms</td>
</tr>
<tr>
<td>8</td>
<td>Review medications</td>
</tr>
<tr>
<td>9</td>
<td>Care plan</td>
</tr>
</tbody>
</table>

### Patient education and support
- Exercise/activity
- Assessment of nutritional status
- Assessment of cognitive function
- Immunisation
- Lifestyle: Smoking/Alcohol/Diet
- Fluid/weight management
- Discuss Palliative care if appropriate

### Consider social impact of psycho-social impact of condition/depression screening

### BP and pulse check

### Consider ECG if rate/rhythm differ from established baseline, else annually

### Assess signs and symptoms
- Shortness of breath/orthopnoea?
- Exercise tolerance/limitations?
- Oedema/weight gain?
- PND?
- JVP assessment (if skilled up)

### Assess and document NYHA classification

### Consider other signs/symptoms
- Chest pain?
- Dizziness?
- Palpitations?
- Cough?

### Review medications
- Discuss mechanisms/actions/side effects/and adherence

### Consider ECG if rate/rhythm differ from established baseline, else annually
- Are repeat bloods required?
- Are any treatment changes required to alleviate signs/symptoms?
- Consider fluid restriction if overloaded/oedema evident
- Consider review of diuretics to alleviate
- Next review date if treatment amended?
- Consider specialist referral for assessment/support if appropriate
Health information and support

Sources of information for patients and their families can be found at the websites of two national charities at the links listed below.

• Pumping Marvellous  
  www.pumpingmarvellous.org

• British Heart Foundation  
  www.bhf.org.uk

• A patient friendly version of the National Institute for Health and Care Excellence (NICE)  
  www.nice.org.uk/guidance/cg108

• NICE guideline for patients and the public is available at:  

If the patient does not have web access a free hard copy can be requested by calling: 0845 003 7783.

All patients and families should be made aware of local support groups.

The NICE guideline ‘Chronic heart failure: the management of adults with chronic heart failure in primary and secondary care’ has been used to develop this guide. Tools to support the implementation of the guideline, including a set of clinical case scenarios for primary care, are available form the NICE website.

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