Heart Failure Guidelines for Primary Care

Heart Failure Working Group

Draft Update – April 2013

Review date: February 2015
Endorsed by: Heart Failure Working Group
Aims

These guidelines are to support primary care practitioners in identifying, diagnosing, treating and managing patients with suspected or confirmed heart failure.

The guidelines have been produced by a multidisciplinary team based on the NICE heart failure guidance 2010.

Contents:

Heart failure guidelines algorithm (for confirming diagnosis) 3
Suspected heart failure guidelines algorithm 4
Validation of heart failure register and Read codes 5
What to expect in a discharge letter 8
Management and follow up 9
Drug treatment 15
Interventions 21
Patient information and support 23
References 28
Acknowledgements 29
Heart Failure Community Matron Referral 30
Suspected Heart Failure Referral Form 32
Chronic Heart Failure Prognostic Indicator 34
Appendix 1 - Heart Failure Quality Standards
**Definition**

Heart failure is a complex clinical syndrome that can result from any structural or functional cardiac disorder that impairs the ability of the heart to function as a pump to support a physiological circulation. Heart failure is characterised by symptoms such as breathlessness and fatigue, and signs such as fluid retention. The aims of treatment are to improve quality of life and slow disease progression.

**Guideline for identifying heart failure patients in primary care**

- **Establish a register**
  - by identifying patients using heart failure Read codes and medication

- **Establish diagnosis confirmed**
  - by echocardiogram or diagnosis by specialist

- **Not confirmed**
  - Check with ECG Dept/Clinical Info System to clarify if patient has had an echo performed

- **Confirmed**
  - Perform tests
    - Spirometry
    - ECG
    - CXR (if not within last 12 months)
    - FBC, U&E, FBG, LFT, Cholesterol, TFT

- **Diagnosis refusal**
  - Manage locally or refer to Respiratory Consultant

- **Diagnosis suspected**
  - Refer to Cardiologist/GPwSI (Heart Failure Team)

- **Echo performed**
  - Patient reviewed by Cardiologist/GPwSI (Heart Failure Team)

**Use of BNP in a diagnostic pathway for suspected heart failure**

Brain Natriuretic Peptide (BNP) is a hormone released from the ventricles when they are placed under stress/strain, for example in heart failure. The NICE guidelines for Chronic Heart Failure (2010) recommend the use of the investigation BNP. BNP is available for diagnosis of new onset breathlessness via the Rapid Access BNP clinic, following the Shortness of Breath Algorithm. *(See page 4)*
Community Cardiology

Management Pathway for Suspected Heart Failure in the Community

Patient presents with SOB +/- ankle oedema

No chest pain No previous MI

Spirometry (if available in surgery)

Normal
Abnormal

If respiratory disease & anaemia excluded & ECG normal:
1. Encourage weight loss
2. Encourage increased exercise
3. Encourage smoking cessation
4. Anxiety management if indicated for hyperventilation
5. GP review if symptoms persist or new signs develop.

Previous MI

Patient presents with SOB +/- ankle oedema + chest pain

Patient presents with SOB +/- ankle oedema + murmur

Patient presents with SOB +/- ankle oedema + haemoptysis, purulent sputum or wheeze

Refer to Heart Failure Clinic 2 week wait (max)* (No BNP Required)

Refer to Cardiology

Treat as per British Thoracic Society Guidelines

Treat as per British Thoracic Society Guidelines

If FBC normal – see results of Chest X-Ray and BNP

BNP

Normal
Abnormal

Congestion

Community Heart Failure Service

Pulmonary Disease

Treat as per British Thoracic Society Guidelines

Community Heart Failure Service

One Stop Heart Failure Clinic referral will require the completion of the Community Heart Failure Service Referral Form detailing history of SOB, past medical, smoking, alcohol and relevant family histories, current drug list and examination findings. The results of the above tests should be appended to the form.

*NB review after treatment as the patient may have coexistent respiratory and cardiac disease

*NICE Standard
Establishing a Heart Failure Register

Validate register by searching on Read codes (see below)

To identify heart failure patients search the following drug groups:

- Angiotensin II Receptor Antagonist (A2RA’s)
- Diuretic
- ACE inhibitor
- Beta blocker
- Digoxin
- Aldosterone antagonist:

Establish diagnosis is confirmed

Search the patient records to confirm the diagnosis, e.g. echocardiogram or
diagnosis by cardiologist, consultant with interest in heart failure or GPwSI in heart
failure. Review the patient’s history. If in doubt, contact the ECG Department to
confirm that an echo has previously been performed. Information will be available
for patients who have had an echocardiogram since 2003.

Losartan, candesartan and valsartan are licensed for Heart Failure treatment.
(Valsartan post Myocardial Infarction only).

It is important to establish the cause of the heart failure, as there are certain causes
of heart failure that are potentially reversible and these should be excluded prior to
diagnosis, treatment and management plans.

Patients with new/recent onset breathlessness or patients with symptoms
suggestive of heart failure, could be referred to the Suspected Heart Failure Clinic
via the algorithm on page 4 of this guidance.

Exclude patients

With co-existing terminal disease.
EMIS (v2) and SystmOne (ctv3) Codes

<table>
<thead>
<tr>
<th>v2</th>
<th>ctv3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Diagnosis Code</td>
<td></td>
</tr>
<tr>
<td>IJ60.</td>
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</table>

<table>
<thead>
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<th>Referral Codes</th>
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<tbody>
<tr>
<td>8H70.</td>
<td>XaITK</td>
</tr>
<tr>
<td>8H4C.</td>
<td>8H4C.</td>
</tr>
<tr>
<td>8HTL.</td>
<td>XaILD</td>
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<td>8HZ.</td>
<td>XaLMX</td>
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<tr>
<td>8H44.</td>
<td>8H44.</td>
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<td>8H7g.</td>
<td>XaAex</td>
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<td>8H78.</td>
<td>XaBT1</td>
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<td>8H1Q.</td>
<td>XaW0f</td>
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<table>
<thead>
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<tr>
<td>G58.</td>
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<td>Glyz1</td>
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<td>G581</td>
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<tr>
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<td>3217.</td>
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<td>5353.</td>
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<td>1I70.</td>
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<td>33G0.</td>
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<td>4243</td>
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<td>44PC.</td>
</tr>
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<td>44P6.</td>
</tr>
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</tr>
<tr>
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<td>XaIR1</td>
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<tr>
<td>442..</td>
<td>Thyroid function tests</td>
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<tr>
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<td>X77c1</td>
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<td>58531</td>
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<tr>
<td>585F.</td>
<td>XaJ98</td>
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<td>585g.</td>
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<td>5C20.</td>
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<tr>
<td>33BD</td>
<td>XaIX9</td>
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<tr>
<td>8HQ7.</td>
<td>XaION</td>
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### Monitoring Codes

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>XaKNN</td>
<td>Seen in heart failure clinic</td>
</tr>
<tr>
<td>XaLNA</td>
<td>Heart failure care plan discussed with patient</td>
</tr>
<tr>
<td>XM1Xl</td>
<td>Weight loss advised</td>
</tr>
<tr>
<td>8CA5.</td>
<td>Patient advised re exercise</td>
</tr>
<tr>
<td>Ua1Nz</td>
<td>Smoking cessation advice</td>
</tr>
<tr>
<td>22C3.</td>
<td>O/E - oedema of feet</td>
</tr>
<tr>
<td>22C2.</td>
<td>O/E - oedema of ankles</td>
</tr>
<tr>
<td>22C4.</td>
<td>O/E - oedema of legs</td>
</tr>
<tr>
<td>22C5.</td>
<td>O/E - oedema of thighs</td>
</tr>
<tr>
<td>22C7.</td>
<td>O/E - sacral oedema</td>
</tr>
<tr>
<td>23E1.</td>
<td>O/E - pulmonary oedema</td>
</tr>
<tr>
<td>250..</td>
<td>O/E - ascites</td>
</tr>
<tr>
<td>XaJ9G</td>
<td>New York Heart Association classification - class I</td>
</tr>
<tr>
<td>XaJ9H</td>
<td>New York Heart Association classification - class II</td>
</tr>
<tr>
<td>XaJ9I</td>
<td>New York Heart Association classification - class III</td>
</tr>
<tr>
<td>XaJ9J</td>
<td>New York Heart Association classification - class IV</td>
</tr>
<tr>
<td>1731</td>
<td>No breathlessness</td>
</tr>
<tr>
<td>1734</td>
<td>Breathless - at rest</td>
</tr>
<tr>
<td>1733</td>
<td>Breathless - mild exertion</td>
</tr>
<tr>
<td>1732</td>
<td>Breathless - moderate exertion</td>
</tr>
<tr>
<td>173G.</td>
<td>Breathless - strenuous exertion</td>
</tr>
<tr>
<td>X76Gy</td>
<td>Nocturnal dyspnoea</td>
</tr>
<tr>
<td>8CA48</td>
<td>Patient advised re low salt diet</td>
</tr>
<tr>
<td>XE0qv</td>
<td>Palpitations</td>
</tr>
<tr>
<td>2431</td>
<td>O/E - pulse rhythm regular</td>
</tr>
<tr>
<td>2433</td>
<td>O/E - pulse regularly irregular</td>
</tr>
<tr>
<td>XM0eK</td>
<td>Hospital anxiety and depression scale</td>
</tr>
<tr>
<td>G555.</td>
<td>Alcoholic cardiomyopathy</td>
</tr>
</tbody>
</table>

### Review Codes

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>XaLon</td>
<td>Heart failure 6 month review</td>
</tr>
<tr>
<td>XaIQN</td>
<td>Heart failure annual review</td>
</tr>
<tr>
<td>Xajf4</td>
<td>Medication review done by nurse</td>
</tr>
<tr>
<td>XaJHq</td>
<td>Medication review done by doctor</td>
</tr>
</tbody>
</table>
Discharge from hospital

Arrangements for proactive long term follow up and monitoring should be made prior to discharge from hospital.

The following should be included in a discharge letter / management plan.

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Heart failure to be clearly stated in the diagnosis list</th>
</tr>
</thead>
</table>
| Management plan | • Repeat urea and electrolytes:  
Who is to do these and when?  
• Follow up:  
Who is to do this and when? |
| Medication changes | • ACE inhibitors:  
Indicate if this is the maximum tolerated dose or state whether the dose needs to be titrated up and to what maximum dose. If not prescribed, indicate why not.  
• Beta blockers  
Indicate if this is the maximum tolerated dose or state whether the dose needs to be titrated up and to what maximum dose. If not prescribed, indicate why not.  
• Any additional therapy e.g. Spironolactone |
| Review concurrent Medicines which may Exacerbate heart failure e.g NSAIDs corticosteroids |
| Echocardiograph results | Has it been performed?  
What was the result?  
If not performed, are there plans in place to do so: as an outpatient, or indicate why not required (e.g. angiogram performed) |

Management and follow up

At clinical review the following assessments should be made. Each assessment is broken down further in order to gain a full picture of the patient’s current status. Review the patient’s concordance with their management plan.

The following table provides more information

Review stable patients at least every 4- 6 months.  
Review patients whose clinical condition has changed within 10 days, or medication changed within 2 weeks.

An annual ECG should be performed on all patients, specifically to identify those with new bundle branch block who may be suitable for CRT-D, CRT-P or ICD implantation.

Any patient with a confirmed diagnosis of Chronic Heart Failure (of any aetiology) can be referred to the Heart Failure Community Matron for support, education and titration of medication. A referral form can be found on pages 26-27.
### Management and Follow up

<table>
<thead>
<tr>
<th>Functional capacity</th>
<th>Breathlessness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chiefly from history, but more objectively by use of NYHA Class*, specific quality of life questionnaires, 6 minute walk test, or maximal exercise test.</td>
<td><strong>Assess breathlessness:</strong></td>
</tr>
<tr>
<td>NB not all of these tests are likely to be necessary, or appropriate, at each assessment.</td>
<td>1. At rest</td>
</tr>
<tr>
<td></td>
<td>2. On exertion</td>
</tr>
<tr>
<td></td>
<td>3. Nocturnally</td>
</tr>
<tr>
<td></td>
<td>4. Increasing</td>
</tr>
<tr>
<td></td>
<td>5. Number of pillows required</td>
</tr>
<tr>
<td></td>
<td>6. What precipitates or relieves it</td>
</tr>
<tr>
<td>A change in how breathless the patient is may be due to disease progression, a need to re-assess medications, or both.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>The New York Heart Association (NYHA) Class</th>
<th>NYHA Class* <em>(New York Association Classification of Heart Failure Symptoms)</em></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class 1</strong> (662f) No limitations. Ordinary physical activity does not cause undue fatigue, dyspnoea or palpitation (asymptomatic left ventricular dysfunction).</td>
<td><strong>Class 1</strong> (662f) No limitations. Ordinary physical activity does not cause undue fatigue, dyspnoea or palpitation (asymptomatic left ventricular dysfunction).</td>
</tr>
<tr>
<td><strong>Class 2</strong> (662g) Slight limitation of physical activity. Such patients are comfortable at rest. Ordinary physical activity results in fatigue, palpitation, dyspnoea or angina pectoris (symptomatically ‘mild’ heart failure’).</td>
<td><strong>Class 2</strong> (662g) Slight limitation of physical activity. Such patients are comfortable at rest. Ordinary physical activity results in fatigue, palpitation, dyspnoea or angina pectoris (symptomatically ‘mild’ heart failure’).</td>
</tr>
<tr>
<td><strong>Class 3</strong> (662h) Marked limitation of physical activity. Although patients are comfortable at rest, less than ordinary physical activity will lead to symptoms (symptomatically ‘moderate’ heart failure’).</td>
<td><strong>Class 3</strong> (662h) Marked limitation of physical activity. Although patients are comfortable at rest, less than ordinary physical activity will lead to symptoms (symptomatically ‘moderate’ heart failure’).</td>
</tr>
<tr>
<td><strong>Class 4</strong> (662i) Inability to carry out any physical activity without discomfort. Symptoms of congestive cardiac failure are present even at rest. With any physical activity increased discomfort is experienced (symptomatically ‘severe’ heart failure).</td>
<td><strong>Class 4</strong> (662i) Inability to carry out any physical activity without discomfort. Symptoms of congestive cardiac failure are present even at rest. With any physical activity increased discomfort is experienced (symptomatically ‘severe’ heart failure).</td>
</tr>
<tr>
<td>Fluid status</td>
<td>Oedema</td>
</tr>
<tr>
<td>----------------</td>
<td>------------------</td>
</tr>
</tbody>
</table>
| Chiefly by physical examination – changes in body weight, extent of jugular venous distension, lung crackles and hepatomegaly, extent of peripheral oedema, and lying and standing blood pressure (postural drop in blood pressure may indicate hypovolaemia). | 1. Site and severity (feet, ankles, calves, thighs, sacrum)  
2. Pulmonary oedema  
3. Ascites  
4. Leaking oedema (identify who is dressing legs)  
5. Skin integrity: (skin at risk of breakdown) does patient require pressure area assessment? |
| Advise patient to elevate legs to help reduce oedema, but NOT above level of the heart. |
| **Weight** |  
1. Ability/concordance to monitor weight daily; if not has patient noticed a decreased urine output, or clothing tighter.  
2. Is weight stable  
3. Has weight increased by 1kg per day; how many days; review diuretics. |
| Advise patient to weigh themselves first thing/same time on a morning after they have been to the toilet, and before they get dressed. For those who do not wish to weigh themselves or are unable to do so, they can be advised to either: be aware of clothing becoming tighter or not passing as much urine, both of which can be signs of increased retention of water. |

<table>
<thead>
<tr>
<th>Cardiac rhythm</th>
<th>Blood Pressure (BP) and Pulse</th>
</tr>
</thead>
</table>
| Chiefly by clinical examination (minimum of examining the pulse), but may require 12 lead electrocardiogram (ECG) or 24 hour electrocardiographic monitoring (‘Holter’) if suspicion of arrhythmia. | 1. If BP higher than 130/80 (Walker et al (BHS) 2004): action as per practice policy  
2. Pulse check  
3. Any palpitations  
4. Is pulse regular or irregular  
5. Has BP/pulse changed since last visit? If rhythm/rate changes, perform Electrocardiogram (ECG)  
6. Annual ECG (explain what is the purpose and what are relevant changes) |

Heart Failure Guidelines for Primary Care – April 2013
| Cognitive status | Detect acute confusion, anxiety or depression. Use of the Quality and Outcomes Framework (QOF) anxiety and depression scale for assessment. Refer if appropriate for counselling/support

Depression tends to be more common in patients with heart failure than in the general population. Antidepressants may lead to complications such as fluid retention, hypotension and arrhythmias. Where depression is likely to have been precipitated by heart failure symptoms, psychological status may improve once the physical condition has stabilised. |

| Nutritional status | **Advise** to make changes to food and drink intake. Advise patient to eat a healthy diet including oily fish and at least 5 portions of fruit and vegetables daily. Many patients may have a reduced appetite due to fluid retention and stage of disease, therefore discussion of nutritional value of food that they do eat, portion sizes and frequency of meals, and also to liquidise food if this is required

**Consider** dietetic referral for 4 and 9, may be due to fluid retention, which may result in anorexia, nausea and cachexia | **Diet**

1. Measure fluid intake, including alcohol.
2. Please note: it is advised that alcoholic cardiomyopathy patients abstain from alcohol.
3. Salt intake/low sodium diet. Advise to restrict salt intake. (provide leaflet to explain salt intake)
4. Check Body Mass Index (BMI) for obesity & cachexia
5. Low fat diet
6. Nutritional value (discuss balance of good health, and provide leaflet)
7. Portion size (provide leaflet explaining portion size)
8. Liquidise food if required, food supplements if appropriate.
9. Anorexia/loss of appetite & nausea |
### Laboratory assessment

Checking of serum biochemistry (urea, electrolytes, and creatinine) is essential, but other tests (such as thyroid function, haematology, liver and kidney function). Level of anticoagulation may also be required depending on the medication prescribed and comorbidity. Monitoring of serum potassium is particularly important if a patient is taking digoxin, ACE inhibitors, A2RA’s diuretics, or aldosterone antagonists.

#### Blood Chemistry:
1. Urea and Electrolytes (U and E’s)
2. Liver Function Tests (LFT’s)
3. Lipids (annually or following a statin dose change)
4. Full Blood Count (FBC)
5. Glucose
6. INR (International Normalised Ratio)
7. Estimated GFR (Glomerular Filtration Rate)

The above should be checked at each review, with the exception of INR which the patient should be having monitored on a more regular basis.

U and E’s will need to be checked more frequently when ACE inhibitors / A2RA’s are being titrated, please see BNF for details.

### Medication Review

A diuretic is first-line therapy when a patient presents with acute pulmonary oedema. The dose being altered as other therapies are added/optimised.

ACE inhibitor therapy should be given to all patients with heart failure due to left ventricular systolic dysfunction. ACE inhibitors should be titrated upwards at short intervals (for example every two weeks) until the maximum tolerated or target dose is achieved.

Check on appropriate therapy, and that therapy is licensed (ACE inhibitor / A2RA’s, diuretic, beta-blocker, aldosterone antagonist, digoxin)

Check for potential side effects and the need for dose optimisation.

Check the patient’s allergy status

Check if the patient is taking any over the counter medications, or alternative medicines

Assess the patients understanding of their need to comply with treatment.

Vaccination: pneumococcal & annual influenza

Suggest – review concurrent medications for continued appropriateness e.g. interactions, side effects.
<table>
<thead>
<tr>
<th>Other factors</th>
<th>Smoking Status</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1. Non-smoker</td>
</tr>
<tr>
<td></td>
<td>2. Ex-smoker:</td>
</tr>
<tr>
<td></td>
<td>• When did they stop smoking?</td>
</tr>
<tr>
<td></td>
<td>• How many years did they smoke for?</td>
</tr>
<tr>
<td></td>
<td>• How many per day?</td>
</tr>
<tr>
<td></td>
<td>3. Current smoker:</td>
</tr>
<tr>
<td></td>
<td>• How many cigarettes per day?</td>
</tr>
<tr>
<td></td>
<td>• How many years have they smoked?</td>
</tr>
<tr>
<td></td>
<td>• Have they ever tried to stop smoking before?</td>
</tr>
<tr>
<td></td>
<td>• Do they want to stop smoking?</td>
</tr>
<tr>
<td></td>
<td>• Would they like help to quit smoking?</td>
</tr>
<tr>
<td>Other issues to discuss (see page 25 for more information)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Sexual activity</td>
</tr>
<tr>
<td></td>
<td>• Air travel</td>
</tr>
<tr>
<td></td>
<td>• Driving regulations</td>
</tr>
<tr>
<td></td>
<td>• Interventions</td>
</tr>
<tr>
<td></td>
<td>• Interpretation services</td>
</tr>
<tr>
<td></td>
<td>• Palliative care – ‘would you expect the patient to be active in a year’s time?’</td>
</tr>
</tbody>
</table>
Social circumstances:
1. Ability to perform personal care activity
2. Cared for by spouse/relative/contact numbers
3. Input from social services/outside agencies
4. Input from other health professionals
5. Occupational Therapy/Aids Adaptations
6. Co-morbidities
7. Finance/allowances
8. Podiatry

Other Symptoms: Enquire and manage appropriately
1. Cardiac Chest pain
2. Fatigue & muscle weakness: commonly found in heart failure patients, particularly classes III & IV
3. Dizziness/palpitations: May be due to drug induced hypotension. Heart failure patients are also more prone to dysrhythmias/sudden cardiac death.
4. Abdominal discomfort
5. Gout: may be an adverse effect of high dose thiazide diuretics due to the potential increase in uric acid.
6. Anxiety and depression: common in this group of patients. May require referral for management.
7. Palliative care - have end of life and sudden cardiac death issues been discussed with the patient? Would you expect this patient to be alive in one year?
Heart Failure Working Group Heart Failure Treatment Protocol

HF Diagnosed of Confirmed by a Specialist

HF-PEF

HF-LVSD

ACEi + Beta Blockers# + Aldosterone Antagonists*

Add ivabradine if:
- Truly intolerant of or contra-indication to BBs or maximum BB dose reached and
- In Sinus Rhythm
- HR ≥ 75bpm

Atrial fibrillation

Sinus rhythm (Target HR 55-60bpm)

Warfarin (or other OAC) &
Digoxin (low-dose preferred)

HF Symptoms still Troublesome

- Check (Re-check)
  - Haemoglobin
  - Iron & Transferrin Saturation
  - Pulmonary Function
  - Nature of Symptoms (Angina? PAF? etc)
- Consider
  - CRT (if prolonged QRS)
  - More intense diuresis (if congested)
  - Digoxin
  - Adding hydralazine + nitrates
  - Ivabradine if heart rate is >70bpm

# Carvedilol or bisoprolol or nebivolol
* Keep potassium in range of 4.5-5.0 mmol/L
* Consider eplerenone if mastalgia or gynaecomastia occur

Adapted from NICE guidance 2010 Quality standards website:
www.nice.org.uk/guidance/qualitystandards/chronicheartfailure/home.jsp

Modifications should be made for the following:
- If significant congestion on Furosemide 40mg once daily, increase dose as the dose of ACE inhibitor is increased. Stabilise congestion before initiating Beta blocker.
- Some patients will require an Angiotensin II Receptor Antagonist due to ACE inhibitor intolerance.
- Beta blockers may be contraindicated due to hypotension, bradycardia or asthma.

If in doubt, contact:
Dr Paul Brooksby: 01924 542218
Dr Hazel White 01924 542216
Dr Poonam Menon: 01924 542218
Sue Sellers 01924 327915
Katherine Rubery: 01924 327915
Caroline Lane 01924 512420, Mob 07775 025861
Richard Brothwell 01924 327915
Sue Aziz 01924 541807, Mob 07595 525021
Medication

The following guidance is based on NICE Heart Failure Guidelines; however always check the Summary Product Characteristics/BNF for information as evidence / medication is constantly being updated. www.medicines.org.uk

<table>
<thead>
<tr>
<th>Angiotensin Converting Enzyme (ACE) inhibitor initiation and titration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DRUG</strong></td>
</tr>
<tr>
<td>---------</td>
</tr>
<tr>
<td>Ramipril</td>
</tr>
<tr>
<td>Captopril</td>
</tr>
<tr>
<td>Enalapril</td>
</tr>
<tr>
<td>Lisinopril</td>
</tr>
<tr>
<td>Perindopril</td>
</tr>
<tr>
<td>Fosinopril</td>
</tr>
<tr>
<td>Quinapril</td>
</tr>
<tr>
<td>Cilazapril</td>
</tr>
</tbody>
</table>

* Please note evidence suggests improved compliance when drugs are prescribed less than three times daily

- **Caution/seek specialist advice**
  Best avoided in known or suspected renovascular disease, renal dysfunction (creatinine >200µmol/l), severe hypotension (systolic BP<90mmHg or symptomatic hypotension).

- **Contraindicated**
  Hypersensitivity to ACE inhibitor including history of angioedema, significant renovascular disease, aortic stenosis, outflow tract obstruction, pregnancy.

**Before commencing treatment:**
- Measure renal function, and then repeat renal function 7-14 days following dose increase.
- If patient is taking high doses of diuretic therapy (e.g. 80mg Furosemide) seek specialist advice.
- Check the need for potassium supplements (May need to be stopped / closely monitored)
- Check potassium sparing diuretic (May need to be changed /stopped / monitored)
- If possible stop Non Steroidal Anti Inflammatory Drugs (NSAIDs)
- Check the dose of ACE inhibitor and when it was started
- Check patient advised about drug effects and the need to report any significant side effects (e.g. dizziness/symptomatic hypotension, persistent cough)
- Blood results and blood pressure
- Check concurrent therapies eg glitazones and salt containing compounds (eg dispersible analgesia)

A rise in urea, creatinine and potassium can be expected after initiation of an ACE inhibitor. No action is required if the rise is small and the patient asymptomatic. However:
- an increase in creatinine of up to 50% above baseline or > 200µmol/litre, whichever is the smallest needs monitoring
- An increase in potassium to ≤ 5.9mmol/litre is acceptable
- If potassium ≥6mmol/litre, creatinine increases by >100% or above 350µmol/litre, STOP ACE inhibitor and seek advice from General Practitioner/Specialist.
- If symptomatic hypotension or asymptomatic hypotension (systolic <90mmHg) and not congested, reduce diuretic dose first and then reduce ACE inhibitor dose if hypotension persists. If congested refer to specialist.
- If patient truly intolerant of ACE inhibitor then consider A2RA’s
- Refer to table on page 18 for contra-indications
## Angiotensin II Receptor Antagonists (A2RAs)

<table>
<thead>
<tr>
<th>Drug</th>
<th>Starting Dose</th>
<th>Increments Minimum of 2 weeks</th>
<th>Maximum Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Candesartan</td>
<td>2-4mg once daily</td>
<td>4/8/16mg once daily</td>
<td>32mg once daily</td>
</tr>
<tr>
<td>CHARM study</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Losartan</td>
<td>12.5mg once daily</td>
<td>Weekly increments 25/50/100mg once daily</td>
<td>150mg once daily</td>
</tr>
<tr>
<td>Valsartan</td>
<td>20mg twice daily (please note the starting dose is provided by the 40mg divisible tablet)</td>
<td>Increase to 40mg twice daily to target/maintenance dose of 160mg twice daily as tolerated</td>
<td>160mg twice daily if tolerated, consider dose reduction if hypotension or renal dysfunction</td>
</tr>
<tr>
<td>(VALIANT &amp; Val HEFT study) only licensed post MI</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Contraindications**
  - Pregnancy.
- **Cautions/Special Instructions**
  - To be used only if patient is truly intolerant of an ACE inhibitor due to persistent cough.
  - Prior to initiation and on increasing dose, U and E’s and blood pressure will be checked and limits applied as per ACE Inhibitor protocol
  - Renal artery stenosis, aortic / mitral valve stenosis, obstructive hypertrophic cardiomyopathy.

*Maximum tolerated doses are required to be effective*

## Beta Blocker Therapy Initiation & Titration

<table>
<thead>
<tr>
<th>Drug</th>
<th>Starting Dose</th>
<th>Increments of 2 to 4 weeks</th>
<th>Maximum Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bisoprolol</td>
<td>1.25mg once daily</td>
<td>2.5/3.75/5/7.5mg once daily</td>
<td>10mg once daily</td>
</tr>
<tr>
<td>Carvedilol</td>
<td>3.125mg twice daily</td>
<td>6.25/12.5/25mg twice daily</td>
<td>25mg twice daily (severe heart failure) (50mg) twice daily for those &gt;85kg mild/moderate heart failure</td>
</tr>
<tr>
<td>Nebivolol</td>
<td>1.25 mg once daily</td>
<td>2.5/3.75/7.5mg once daily</td>
<td>10mg once daily</td>
</tr>
</tbody>
</table>

- **Cautions**
  - first-degree AV block; severe heart failure class IV; heart rate < 60 bpm.
- **Contraindications**
  - a history of asthma or bronchospasm; uncontrolled heart failure, Prinzmetal's angina, marked bradycardia, hypotension, sick sinus syndrome, second- or third- degree AV block, cardiogenic shock, metabolic acidosis, severe peripheral arterial disease.
  - Monitor heart rate, blood pressure, clinical signs of congestion and body weight.
  - Check U and E’s 1-2 weeks after initiation, and then again 1-2 weeks following after final dose titration.
  - **Never stop Beta blocker therapy suddenly unless this is absolutely necessary, due to the risk of a ‘rebound’ tachycardia which may precipitate an increase in myocardial ischaemia/infarction and arrhythmias.**
Loop and Thiazide diuretics

<table>
<thead>
<tr>
<th>DRUG</th>
<th>STARTING DOSE</th>
<th>MAXIMUM RECOMMENDED DAILY DOSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bumetanide</td>
<td>0.5mg-1.0mg</td>
<td>5mg-10mg</td>
</tr>
<tr>
<td>Furosemide</td>
<td>20mg-40mg</td>
<td>250mg-500mg</td>
</tr>
<tr>
<td>Bendroflumethazide</td>
<td>2.5mg</td>
<td>5mg</td>
</tr>
<tr>
<td>Indapamide</td>
<td>2.5mg</td>
<td>2.5mg seek specialist advice</td>
</tr>
<tr>
<td>Metolazone</td>
<td>2.5mg</td>
<td>10mg seek specialist advice</td>
</tr>
</tbody>
</table>

- **Cautions**
  may cause hypokalaemia, aggravates diabetes and gout; may exacerbate systemic lupus erythematosus; elderly; pregnancy, hypotension.
- **Contra-indications**
  refractory hypokalaemia, hyponatraemia, hypercalcaemia; severe renal and hepatic impairment; symptomatic hyperuricaemia; Addison's disease.

- **Increase in body weight:** patients should be educated as to the benefits of daily weighing as an aid to managing their heart failure.
  - Encourage patients to record their daily weight; this should be done in the morning after the patient has been to the toilet, before food and minimal clothing.
  - For those patients who do not have a set of scales at home, or who do not wish to, or are unable to weigh themselves, other ways of identifying fluid retention should be discussed. These could include measuring the amount of urine passed daily, tightness of clothing, ‘new’ or increasing levels of oedema.
  - Advise patients to contact the surgery if their weight increases by 2-3lbs over 2 days, and is thought to be due to fluid retention.
- **Always use the lowest dose which controls congestion i.e. pulmonary and peripheral oedema, which may be just 20mg Furosemide daily in the elderly.**

Spironolactone

12.5-25mg once daily
(50mg may be advised by specialist if no problems with hyperkalaemia)

- Check blood chemistry: 1, 4, 8, 12 weeks, 6, 9, and 12 months, and 6 monthly thereafter.
- Potassium rise 5.5 – 5.9mmol or creatinine rises to 200µmol/litre: reduce dose to 25mg on alternate days and monitor blood chemistry closely.
- Potassium ≥ 6.0 mmol/litre or creatinine >200µmol/litre stop Spironolactone and seek specialist advice.
- Patients may develop breast discomfort and/or gynaecomastia.
## Eplerenone

**Specialist initiation only**

Eplerenone is **only licensed for use as an ‘adjunct in stable patients with left ventricular dysfunction and with clinical evidence of heart failure after a recent myocardial infarction’**.

25mg once daily, increased within 4 weeks to 50mg once daily.

- Check plasma potassium concentration before treatment, when initiated, and when dose changed, monitor for hyperkalaemia; in the elderly; hepatic impairment; renal impairment. (more likely to occur with Eplerenone than Spironolactone)
- The EMPHASIS-HF trial 2011 – demonstrated benefit in NYHA class 2 patients and ejection fractions <35%. Use can therefore be considered in this group with mild heart failure (with consultation with secondary care). ESC guidelines when they are updated at the end of 2011. Will include guidance in this patient group.
- **See Summary of Product Characteristics for further information on dose adjustment after initiation.**

To be used only as an alternative if Spironolactone causes painful gynaecomastia.

## Ivabradine

**Specialist initiation only**

The SHIFT study conclusion was that treatment with ivabradine, on a background of guidelines-based on heart failure therapy is associated with a substantial reduction in the likelihood of recurrent hospitalisations for worsening heart failure. This benefit can be expected to improve the quality of life and to substantially reduce healthcare costs.

**Initiation by a physician experienced in the management of chronic heart failure.**

- 5mg twice daily, increased after two weeks of treatment to 7.5mg twice daily if the resting heart rate is persistently above 60 bpm or decreased to 2.5mg twice daily if resting heart rate is persistently below 50 bpm or in cases of symptoms related to bradycardia such as dizziness, fatigue or hypotension.
- If the heart rate is between 50 and 60 bpm, the dose of 5mg twice daily should be maintained.

**Special Population**

- **Elderly patients**
  - In patients aged 75 years or more, a lower starting dose should be considered (2.5mg twice daily)

- **Renal Impairment**
  - No dose adjustment is required in patients with renal insufficiency and creatinine clearance **above** 15ml/min

- **Hepatic Impairment**
  - No dose adjustment with mild impairment, caution with moderate impairment, and contra-indicated with severe hepatic insufficiency.

See summary of product characteristics for further information
Contraindicated drugs (Refer to data sheet/BNF appendix 1 for complete details)

<table>
<thead>
<tr>
<th>Contraindicated Drug</th>
<th>Adverse effect</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NSAIDs</strong></td>
<td>Sodium and water retention, and vasoconstriction. Renal impairment Should be avoided.</td>
</tr>
<tr>
<td><strong>Calcium Channel Blockers</strong> (except amlodipine &amp; felodipine)</td>
<td>Negative inotropic effect Stimulation of RAAS</td>
</tr>
<tr>
<td><strong>Corticosteroids, liquorice</strong></td>
<td>Sodium and water retention</td>
</tr>
<tr>
<td><strong>St John’s Wort</strong></td>
<td>Affects blood levels of Warfarin (reduces anticoagulant effect) and Digoxin (may increase blood levels)</td>
</tr>
</tbody>
</table>
| **Class 1 Anti-arrhythmic**  
  Flecainide, Propafenone, Procainamide. | Negative inotropic effect |
| **Metformin**  
  Avoid use in Class III & IV | Lactic Acidosis |
| **Thiazolidinediones –check SPCs**  
  (Rosiglitazone & Pioglitazone)  
  Avoid use in class I to class IV stages of Heart failure | Exacerbation of existing heart failure |
| **Anagrelide**  
  Avoid if possible | May exacerbate existing heart failure  
  Increased risk of supraventricular arrhythmias  
  Potential worsening of left ventricular dysfunction |
| **Cilostazol**  
  Cardiovascular disease including moderate to severe hypertension | May exacerbate existing heart failure  
  Increased risk of supraventricular and ventricular arrhythmias, and ventricular ectopic beats  
  Potential worsening of left ventricular dysfunction |
| **Amphetamines**  
  Contraindicated in advanced atherosclerosis, symptomatic cardiovascular disease and moderate to severe hypertension. | Tachycardia and arrhythmias  
  Stimulation of RAAS |
| **Carbamazepine**  
  AV conduction abnormalities (unless paced) | Negative inotropic and chronotropic effect  
  Suppression of sinus node automaticity |
Interventions
(The following interventions are included for information)

All patients requiring intervention will need referral for specialist care and advice.

**Cardiac Resynchronisation Therapy (CRT)**

Refer to NICE Technology Appraisal Guidance no.TA120 on the use of Cardiac Resynchronisation Therapy (CRT) in treatment of Heart Failure.

Should be considered in selected patients with:
- Left ventricular systolic dysfunction with an ejection fraction of ≤35%
- Drug refractory symptoms
- QRS duration > 120ms

Many patients with chronic heart failure develop ventricular dysynchrony, which in turn leads to the heart working less efficiently.

CRT resynchronises the ventricles by stimulating them to contract simultaneously. This is achieved by the placement of 3 electrodes, one in the right atrium, right ventricle and a coronary vein over the mid lateral/posterior wall of the left ventricle. The CRT pacemaker box is implanted under the skin near the collar bone.

Due to the improved haemodynamics, studies have demonstrated that patients’ quality of life, symptoms, exercise capacity and NYHA Class may be improved (Khaykin et al 2003). Prognosis is improved in all NYHA classes & re-admission rates to hospital are reduced (CARE HF 2005, MERIT CRT, RAFT 2010).

NICE guidance (2007) for CRT is due for review following further evidence related to dysynchrony assessment and NYHA class I/II patients.

Please see DVLA (Driving and Vehicle Licensing Authority) guidelines.

**Implantable Cardioverter Defibrillator (ICD)**

Refer to NICE Technology Appraisal Guidance no.TA095 Guidance on the use of implantable cardioverter defibrillators (ICD) for arrhythmias.

ICD should be routinely considered for patients in the following categories:

1. Secondary Prevention, for patients who present in the absence of a treatable cause with:
   - Cardiac arrest due to Ventricular Tachycardia (VT) or Ventricular Fibrillation (VF)
   - Spontaneous sustained VT causing syncope or significant haemodynamic compromise
   - Sustained VT without syncope/cardiac arrest, ejection fraction <35%, but are no worse than NYHA Class III
2. Primary Prevention, for patients with:
   - History of previous myocardial infarction and all of the following:
     - Non-sustained VT on Holter (24 hour) monitoring
     - Inducible VT on electrophysiological testing
     - Left ventricular dysfunction with an ejection fraction <35% and no worse than NYHA Class III
     - or LVEF <30% & QRS > 120ms
   - A familial cardiac condition with a high risk of sudden death, including long QT syndrome, hypertrophic cardiomyopathy, Brugada syndrome, arrhythmogenic right ventricular dysplasia and following repair of tetralogy of Fallot.

The device and leads are implanted in a similar way to the CRT, although the ICD box can be implanted in the abdomen.

The heart rhythm is constantly monitored by the ICD, and the device is able to pace, cardiovert and defibrillate the heart as required.

Many devices now combine CRT and ICD in one unit (CRT-D.)

Please see DVLA guidelines.

---

**Left Ventricular Assist Device (LVAD)**

The LVAD is a pump which takes over the work of the left ventricle, with blood draining in from the apex of the left ventricle, and returning via the ascending/descending aorta. It is used as a bridge prior to transplant, but myocardial recovery has occurred in some patients negating the need for transplant (Hipkin 1999).

There are no current NICE recommendations on the use of LVAD's due to insufficient data.

---

**Heart Transplantation**

Heart transplantation should be considered when the following criteria apply:

- End stage heart disease with a life expectancy of between 12 to 18 months
- New York Heart Association Classification (NYHA) III or IV Heart Failure
- Refractory to optimal medical/surgical therapy
- Usually less than 60 years of age as there is an increase in co-morbidity with the ageing process. Outcome is less satisfactory. However, consider biologically fit older patients.
Patient Information and Support

Patients and carers who are willing to be involved in the monitoring of their condition should be provided with sufficient education and support to do this, with clear guidelines as to what to do in the event of any deterioration.

Clinical knowledge summaries include patient information and is available on: http://cks.library.nhs.uk/

NICE (National Institute for Health and Clinical Excellence) patient booklet called Living with Heart Failure is available for patients.

BHF publication ‘an everyday guide to living with heart failure’ is available for patients.

The Heart Failure Community Matrons provide patients on their caseloads and their families with the BHF ‘An everyday guide to living with heart failure’ (code G275U), which contains the same information as that given, but provides a resource which can be accessed as required. This publication is supported by the DVD ‘Heart failure – your questions answered’ (code DVD5). Both of these publications can be ordered from the BHF, and the book can be downloaded also. The BHF also produce literature covering various heart related topics including medication and these are available in different languages. At present they are not specific to heart failure.

A Heart Failure Support Group is led by the Heart Failure Community Matrons and is held at Normanton Health Centre. The group is open to any patient with Chronic Heart Failure and their family/friends. Each session has a guest speaker and time for the group to meet socially. Please contact the Heart Failure Community Matrons for further details.

Patient management of their condition/patient education

1. What do patients understand about their condition? Discuss cause of heart failure (if cause is known).
2. Assess patients understanding of self care measures: daily weight, fluid / salt restrictions, diuretic management, pacing daily activities and rest.
3. Ensure the patient knows who to contact for health professional support.
4. Discuss with the patient CHD risk factors if appropriate: Diabetes/Co-morbidities, blood pressure, smoking status, weight & diet (including alcohol), physical activity, family history, stress, previous cardiac history.

Palliative care/end of life issues

Those patients who it is felt meet the question of ‘would you be surprised if this person died in the next 6-12 months’ should be added to the Gold Standards Framework and discussed at Gold Standards meetings. It can be difficult to accurately assess when this group of patients are moving into the palliative phase of their illness, the Chronic Heart Failure Prognostic Indicator is a tool which may prove helpful in assessing and meeting the needs of this group of patients, and can be found on pages 28-31 of this guide.
A Heart Failure Palliative Care MDT meeting is held on alternate weeks at Pinderfields General Hospital/Dewsbury General Hospital. The MDT consists of Consultant Cardiologist, Consultant in Palliative Care, Acute and Community Heart Failure Nurses, with support from Social Services and McMillan Team. Any health professional is welcomed to attend the meeting if they would like to discuss a heart failure patient who has palliative care needs. Please contact the Heart Failure Community Matrons (via SPOC) in the first instance to discuss the patient and for information regarding the meeting place etc. Preferred place of care should be discussed with the patient and their family/friends.

The Heart Failure Community Matrons provide support during the palliative phase and liaise with the hospices if patients require an admission. Management of symptoms/end of life care can be provided at both hospices within the Wakefield area, including day care.

Further supportive information on the management of these patients can be found in the West Yorkshire Cardiac Network Symptom Management Guidelines for patients in the later stages of heart failure and criteria for referral to specialist palliative care (2010). This document can be accessed at: 

**Physical Activity**

Rehabilitation in the form of exercise is now a recognized component of heart failure services and is recommended in the Cochrane Review of Exercise based rehabilitation for heart failure (Review 2008 Published online 2010) and is included in the Cardiac Rehabilitation Commissioning Pack (2010). An exercise programme is currently running for chronic heart failure patients each Wednesday afternoon in the rehabilitation Institute at Pontefract Hospital. The programme consists of an hour of exercise and an hour of education, run over 8 weeks. If you have a patient who you feel may benefit from attending, please contact the Heart Failure Community Matrons. Such a programme is not suitable for all, and for those patients who do not wish to participate/are unable to attend the programme, it remains important to promote that they adopt regular aerobic and resistive activities. The following activities may be suitable.

Patients with an ICD or a CRTD should seek advice from the Heart Failure Nurse prior to undertaking any form of activity.

**‘How much should I do?’**

You should do as much as you feel able, but don’t overdo it. You should never get out of breath, or push yourself too far. It is important to start with small amounts e.g. 5 minutes walking per day, then gradually increase, the time you exercise or the distance you walk.

Do the exercises to music if you can. A record with a nice steady tempo – nothing too upbeat. Try to do some activities at least 5 times per week, no matter how little; examples of light activities could be dusting, light washing up, ironing whilst sat down.
Physical activity is good for everybody, no matter how much or how little you are able to do.

**DO EXERCISE:**

- At a slow & steady pace
- With a friend/partner
- At a level that you can still hold a conversation. If you cannot, then you are exercising too hard.

**Walking Guidelines**

1. Wait at least one hour following a meal before starting a walk.
2. Avoid walking in extremes of temperatures i.e. very hot, humid, very cold or windy.
3. Stop if you feel uncomfortable or experience any pain/discomfort and use your GTN spray as directed.
4. Start off slowly and gently, and then increase your pace (warm up).
5. End your walk at a slower pace (cool down).
6. Walk at a pace, which feels comfortable and makes you feel slightly out of breath. You should be able to carry on a conversation easily.
7. Make a note of how you feel at the end of the walk. If you feel tired for sometime after completing the walk, reduce the distance or speed of walking the next day.
8. Gradually increase the distance you walk as you feel able.
9. An example of how you can progress is shown on the table below.

Don’t worry if you can’t manage this – just go at your own pace. Discuss any concerns with your nurse.

<table>
<thead>
<tr>
<th>Week</th>
<th>Duration (minutes)</th>
<th>Frequency per day</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5</td>
<td>1-2</td>
</tr>
<tr>
<td>2</td>
<td>10</td>
<td>1-2</td>
</tr>
<tr>
<td>3</td>
<td>15</td>
<td>1-2</td>
</tr>
<tr>
<td>4</td>
<td>20</td>
<td>1-2</td>
</tr>
<tr>
<td>5</td>
<td>25</td>
<td>1-2</td>
</tr>
<tr>
<td>6</td>
<td>30</td>
<td>1-2</td>
</tr>
</tbody>
</table>

**Exercises whilst seated are valuable if you unable to manage walking.**

**Home Based**

1. Start by tapping your feet up and down.
2. Lift one leg up and lower. Repeat with the other leg.
3. Lift one thigh off the chair.
4. Bend one arm to touch your shoulder with your hand, and then put your hand on your knee. Repeat with the other hand.
5. Lift one arm out to the side and draw circles in the air. Repeat with the other arm. Do both arms together if you are able.
DO NOT EXERCISE:

- If you feel unwell in any way
- After a meal; wait about one hour
- Outside in extreme weather conditions e.g. heat, cold, windy.

Driving Regulations

The following information relates to HEART FAILURE only. For other conditions e.g. sleep apnoea, please refer to DVLA guidelines.

There are specific guidelines for patients with ICDs. All patients must attend for regular hospital review of their ICD to be able to drive.

Advise patient to inform their insurance company of their condition/diagnosis.

Please be aware that DVLA regulations are regularly updated. Current information can be accessed via the DVLA website: www.dvla.gov.uk
Sexual Activity

Broach sensitive issues with patients as these are unlikely to be raised by the patient.

Heart failure can affect all aspects of your patient’s life, including having the energy, desire or ability to participate in sexual activity. The amount of energy required is similar to climbing about one or two flights of stairs or walking about one half mile at a brisk pace.

Many people with heart failure wonder if they can still have sex. The answer is yes. Sexual activity is not dangerous to your heart. Although sex may not be as easy as it once was, it can still be rewarding. Just as with any other activity you should not have sex if you are feeling ill, are very short of breath, or are having chest pains.

To increase your ability to enjoy sex, try the following:

- Talk openly with your partner about each of your sexual needs and concerns.
- Pick a time for sex when you feel rested and comfortable, and are not pressured.
- Avoid sex after a big meal or drinking alcohol.
- Have sex in a comfortable room that is not too hot or too cold.
- Use foreplay to help your heart get used to the increased activity level of intercourse.
- Avoid positions in which you support your weight with your arms.
- Have sex in less strenuous positions

If intercourse is difficult for you, try to find other ways of being physically close and intimate with your spouse or partner. For example consider:

- Finding other ways of showing affection.
- Trying mutual forms of sexual stimulation other than intercourse.
- Increasing nonsexual affection and communication with your spouse or partner.

Air Travel / Holidays

Air travel will be possible for the majority of patients depending on their clinical condition at the time of travel.

It is recommended that patients in Class IV do not travel by air. Class III should discuss the intended travel with their doctor, in order to make an informed decision.

Air travel should be possible for Class I & II Heart failure, depending on their clinical condition at the time of travel.

Patients should be informed to be aware of diuretic use and fluid restriction when travelling to countries which are of a hotter climate. They may require more fluid whilst away to prevent dehydration, or to reduce diuretic therapy.

Holiday/travel insurance can be difficult but not impossible to organise, try different companies to find the most reasonable package.
References


Birmingham Heart Failure Steering Group 2003 Heart Failure Service Blueprint Birmingham and The Black Country Health Authority.

British Heart Foundation


Department of Health (DH) 2010 Cardiac Rehabilitation Commissioning Pack. DH. London.

Durham Dales Primary Care Trust 2003 Heart Failure Nurse Led Service Guidelines.

DVLA 2002, At a Glance Guide to the Current Medical Standards of Fitness to Drive

Fitness to fly for passengers with cardiovascular disease
The report of a working group of the British Cardiovascular Society 2010

Heart Failure Society of America 2003 Exercise and Activity

Hipkin M 1999 Implantable artificial hearts: The Harefield experience. Nursing Times. 95 (49)

Kahaykin Y., Saad E.B. & Wilkoff B.L. 2003 Pacing in Heart Failure: The benefit of resynchronisation. Cleveland Clinic Journal of Medicine. 70 (10) 841-865


Acknowledgements

Heart Failure Working Group

Useful Email Addresses

www.dvla.gov.uk
www.hfsa.org
www.uktransplant.org.uk/ukt/default.jsp
Heart Failure Community Matron Referral Form

### Patient Details

- **Name:**
- **DOB:**
- **Address:**
- **Postcode:**
- **Telephone:**
- **NHS Number:**

### Referrer’s Details

- **Name:**
- **Surgery:**
- **Telephone:**
- **Date of referral:**
- **Allergies:**

Patients without a **confirmed diagnosis** will not be accepted into the service.

Four of the following (one of which must be number 1) would indicate the need for pro active heart failure case management.

**Eligibility Criteria**

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>Confirmed diagnosis of left ventricular systolic dysfunction/heart failure by one of the following: Echo, angiogram, nuclear scan, Cardiologist, GPSI in Cardiology or Consultant with interest in heart failure.</td>
</tr>
<tr>
<td>2.</td>
<td>Two or more medicines, prescribed on repeat prescription</td>
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<tr>
<td>3.</td>
<td>Two or more hospital admissions in the past 12 months</td>
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<tr>
<td>4.</td>
<td>Significant impairment in one or more major activities involved in daily living</td>
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<tr>
<td>5.</td>
<td>Frequent attendances at the GP practice</td>
</tr>
<tr>
<td>6.</td>
<td>Has history of evidence of decompensation, postural hypotension, dysrhythmia</td>
</tr>
<tr>
<td>7.</td>
<td>Requires education &amp; support in order to develop self care skills in the management of their heart failure symptoms</td>
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<tr>
<td>8.</td>
<td>Poor understanding of heart failure/drug therapies</td>
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<td>9.</td>
<td>To prevent an admission/ aid discharge</td>
</tr>
<tr>
<td>10.</td>
<td>Initiation and/or titration of medications: ACE Inhibitor, beta-blocker, diuretics.</td>
</tr>
<tr>
<td>11.</td>
<td>Management of oedema</td>
</tr>
</tbody>
</table>

Please tick if applicable.
### Current Medication

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dose</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
</tbody>
</table>

### Probable Cause of Heart Failure (please circle all that apply):

- CHD/MI
- Hypertension
- AF/Flutter
- Cardiomyopathy
- Valvular
- Prosthetic Valve
- Other

### Medical History

Please include last BP, pulse & weight & sp02 if known

### Please state reason for referral

Please return to:

Heart Failure Community Matron Team  
Normanton Health Centre  
177 Church Lane  
Normanton  
WF6 1AZ

Tel: 01924 327915 / 01924 327591 (Single Point Of Contact)  
Fax: 01924 327903
## Community Heart Failure Service

### Referral Form

<table>
<thead>
<tr>
<th>Patient Details</th>
<th>GP Details (or stamp)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Name</td>
</tr>
<tr>
<td>Address</td>
<td>Address</td>
</tr>
<tr>
<td>DoB</td>
<td>Tel</td>
</tr>
<tr>
<td>Hospital Number</td>
<td>Patient venue choice for appointment Please tick one box only to indicate patient preference)</td>
</tr>
<tr>
<td>NHS Number</td>
<td>Pinderfields  □ Pontefract □</td>
</tr>
<tr>
<td>Tel No:</td>
<td>Orchard  Croft □</td>
</tr>
<tr>
<td>Mobile Number</td>
<td></td>
</tr>
</tbody>
</table>

Consent to authorise next of kin to arrange appointment
(this provides an alternative in cases where the client cannot be contacted directly, to ensure the appointment is arranged in the fastest possible timeframe).

Who **SHOULD BE** referred to the service
Patients with **NEW** (within 3 months) symptoms suggestive of Heart Failure.

Who **SHOULD NOT** be referred to the service

Abnormal Spirometry
Patients with **chest pain**
Patients with **murmur**
Patients with **haemoptysis, purulent sputum or wheeze**

**Normal** chest x-ray + BNP

Yes to any of the above is a contraindication to referral – Please refer to general cardiology clinic or if Pulmonary Disease identified treat or refer to Respiratory Clinic.

What happens when referred to the service
- Patients will be seen by a member of the assessment team.
- Patients will have relevant assessments and an echocardiogram.
- Patients should be prepared to spend up to two hours for the appointment

### Pre-referral investigations
- ▼ CXR
- ▼ ECG
- ▼ Cholesterol
- ▼ Liver function tests
- ▼ FBC
- ▼ Urea & Electrolytes
- ▼ BNP
- ▼ Thyroid function tests
- ▼ Random blood sugar

NB please take bloods **before** diuretic therapy is given as diuretics can lower BNP levels.
Brief Medical History (Including date of onset, history of breathlessness and relevant family history e.g. hypertrophic or dilated cardiomyopathy)

Risk Factors

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypertension</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diabetes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alcohol</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

History of IHD

Cigarette smoking

Ex-smoker

Examination

BP __________________________
Pulse rate ____________________
Basal crackles __________________
Pulse Regular/ Irregular
Oedema ________________________
Elevated JVP ____________________
3rd Heart Sound ________________

Investigation Results

Hb ___________________________
Cholesterol ___________________
Random blood sugar ___________
Urea ________________________
LFTs  Abnormal/Normal
TFT  Abnormal/Normal

Chest X-ray (please enclose report)__________________________
Na ______________________________________________________
K+ ______________________________________________________
Creatinine _____________________________________________
ECG (please enclose original 12 lead) ______________________
BNP ____________________________________________________

If LFT +/- TFT abnormal, please attach results.

Current Drug Therapy: Please attach a list of current drugs, including over the counter medication/herbal remedies

Please post this form together with an original 12 lead ECG printout to:
? Cardio Respiratory Department Pinderfields
Chronic Heart Failure Prognostic Indicator.

Although there have been improvements in pharmacology and device management of CHF, it continues to have a poor prognosis, with health professionals often experiencing difficulty in identifying when patients may benefit from the support of palliative care. The aim of this prognostic indicator is to help identify and plan for the palliative needs of Chronic Heart Failure (CHF) patients as they progress through their illness. Active treatment should be continued, and will be complemented by supportive and palliative care therapies.

The Prognostic Indicator is split into four sections, which relate to the New York Heart Association Classification System (1994). The Prognostic Indicator will be supported by key recommendations for each stage. It is however highlighted that this is only a guide, and in practice patients may remain in a class longer or shorter than highlighted. However, regardless of class all patients are at risk of sudden cardiac death.

<table>
<thead>
<tr>
<th>Class</th>
<th>New York Heart Association Functional Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Patients with cardiac disease but without resulting limitation of physical activity. Ordinary physical activity does not cause undue fatigue, palpitation, dyspnoea or anginal pain.</td>
</tr>
<tr>
<td>II</td>
<td>Patients with cardiac disease resulting in slight limitation of physical activity. They are comfortable at rest. Ordinary physical activity results in fatigue, palpitation, dyspnoea or anginal pain.</td>
</tr>
<tr>
<td>III</td>
<td>Patients with cardiac disease resulting in marked limitation of physical activity. They are comfortable at rest. Less than ordinary physical activity results in fatigue, palpitation, dyspnoea or anginal pain.</td>
</tr>
<tr>
<td>IV</td>
<td>Patients with cardiac disease resulting in inability to carry on any physical activity without discomfort. Symptoms of cardiac insufficiency or of the anginal syndrome may be present even at rest. If any physical activity is undertaken, discomfort is increased.</td>
</tr>
</tbody>
</table>

The Committee of the New York Heart Association. 1994
Chronic Heart Failure Prognostic Indicator.

YEARS PROGNOSIS
No symptoms \(\rightarrow\) patient not aware of condition or not diagnosed
Well controlled symptoms
(NYHA Class I/II)

YEARS TO MONTHS PROGNOSIS
Check benefit eligibility & consider completing DS1500
Consider referral to hospice day therapy for support of patient and carer
Symptom management on maximum therapy
Consider discussion of an Advance Care Plan
Consider Carer needs
(NYHA Class II/III)

MONTHS TO WEEKS PROGNOSIS
Repeated hospital admissions due to CHF
Symptom control
Increased risk of carer breakdown/crisis developing
(NYHA Class III/IV)

WEEKS TO DAYS PROGNOSIS
History of repeated admissions due to CHF
Symptom control - comfort only
End of life care/ crisis
(NYHA Class IV)
Blue Key Points:
- These patients will not be on palliative care register, but are still at risk of sudden cardiac death.
- Consider referral to Heart Failure Community Matron for education
- To discuss preference of care and offer the patient an advance care plan/preferred priorities of care document.

Green Key Points:
- Consider referral to Heart Failure Community Matron
- Consider the ‘surprise’ question – would you be surprised if this patient were to die in the 6-12 months?
- May need discussion at Gold Standard Framework (GSF) meeting, therefore may need to be on palliative care register.
- Refer to Adult Community Nursing Team and to discuss at Integrated Network Meeting.
- To discuss preference of care/death. If not already in place, offer the patient an advance care plan/preferred priorities of care document.
- Discuss resuscitation status with patient and family
- Consider supporting symptom management decisions with the West Yorkshire cardiac Networks Symptom Management Guidelines for patients in the later stages of heart failure (2010).
- Refer to Social Care Direct

Yellow Key Points:
- Patient put on palliative care register & discussed at GSF Multi disciplinary Meeting
- Consider referral to Heart Failure Community Matron (refer to referral form or contact SPOC for form).
- Be aware that patients may become resistant to diuretic oral therapy (see symptom management decisions with the West Yorkshire cardiac Networks Symptom Management Guidelines for patients in the later stages of heart failure, pg. 18). (2010). Subcutaneous Furosemide for comfort only (currently only available in hospice’s).
- Consider fast track referral
- To discuss preference of care/death. If not already in place, offer the patient an advance care plan/preferred priorities of care document.
- Consider supporting symptom management decisions with the West Yorkshire cardiac Networks Symptom Management Guidelines for patients in the later stages of heart failure (2010).
Red Key Points:

- Do Not Attempt Cardiopulmonary Resuscitation form completed and with patient (Wakefield District NHS. 2011. Do not attempt resuscitation Policy for Adults Aged 16 or Over).

Red Key Points:

- Patient put on palliative care register & discussed at GSF Multi disciplinary Meeting
- Awareness of diuretic resistance. Subcutaneous Furosemide for comfort only (currently only available in hospice’s).
- Reassess preference of place of care and death with patient and family. If not already in place, offer the patient an advance care plan/preferred priorities of care document.
- Anticipate care by referring to appropriate professional support to prevent crisis intervention.
- Ensure Out Of Hours form is completed, anticipatory drugs in situ and ICP (Wakefield District NHS. 2009. The Community Integrated Care Pathway for the Last Days of Life).
- Consider supporting symptom management decisions with the West Yorkshire cardiac Networks Symptom Management Guidelines for patients in the later stages of heart failure (2010).
- DNARCPR completed and with patient
- Deactivation of ICD.
References.


Associated Document.