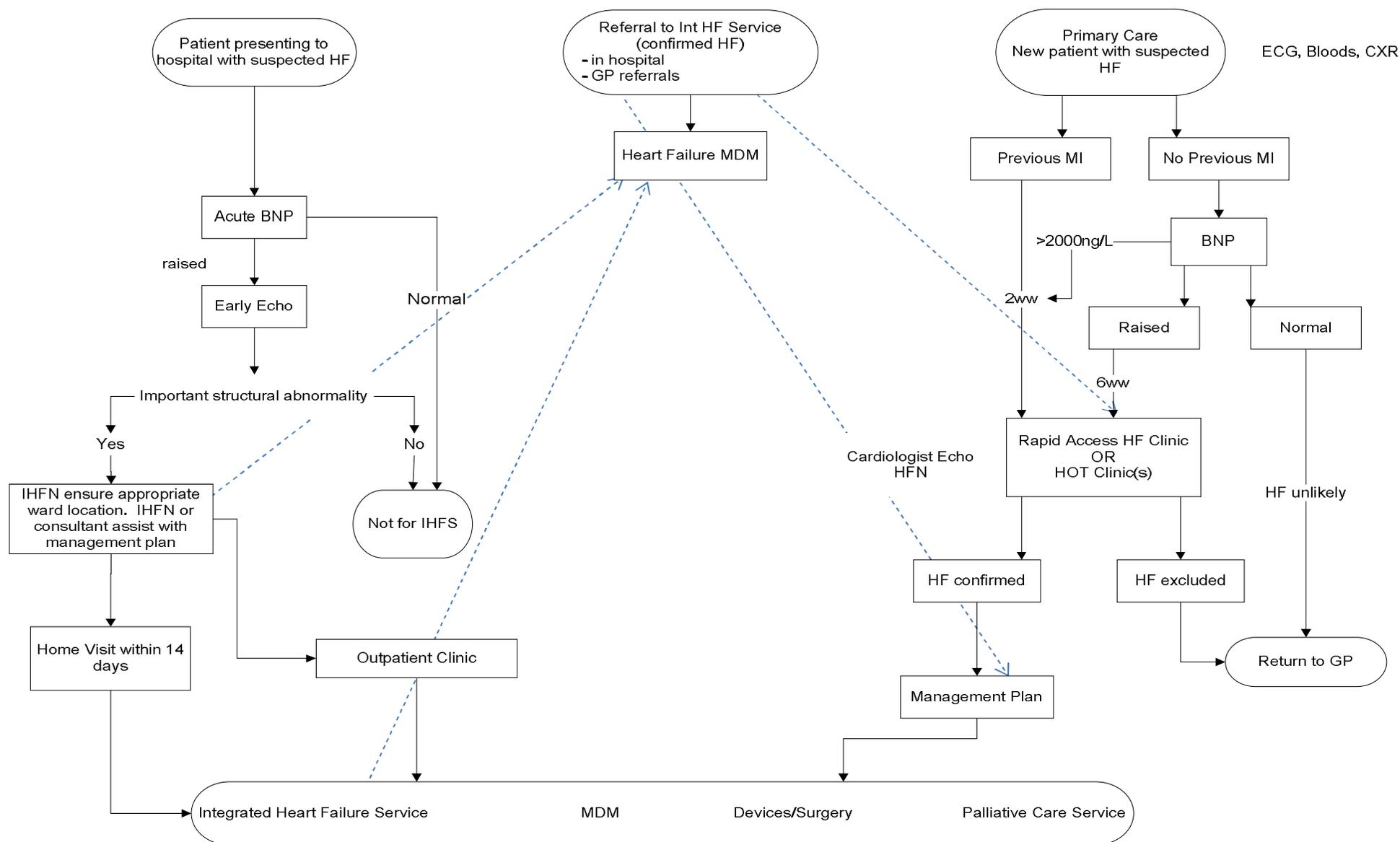


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### Contents

<a href="#">Integrated primary and secondary heart failure service</a>	Page 2
<a href="#">European guidelines for general treatments in heart failure</a>	Page 3
<a href="#">Introduction &amp; aims</a>	Page 3
<a href="#">Clinical investigation to confirm or refute left ventricular systolic dysfunction (LVSD)</a>	Page 4
<a href="#">Heart failure with preserved ejection fraction</a>	Page 6
<a href="#">Referral to the integrated heart failure service</a>	Page 6
<a href="#">Classification</a>	Page 11
<a href="#">Pharmacological treatment</a>	Page 12
<a href="#">Non pharmacological and lifestyle advice for heart failure</a>	Page 28
<a href="#">Device therapy cardiac resynchronisation therapy (CRT)</a>	Page 30
<a href="#">End stage heart failure and palliative care</a>	Page 31
<a href="#">Discharge guidance</a>	Page 33
<a href="#">Audit</a>	Page 34
<a href="#">Algorithms for ACE inhibitors and beta blockers</a>	Page 35-38
<a href="#">The Use of brain natriuretic peptide (BNP)</a>	Page 39-40
<a href="#">References</a>	Page 41

## Integrated Primary and Secondary Heart Failure Service



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## **European Guidelines for General Treatments in Heart Failure**

[https://www.escardio.org/static\\_file/Escardio/Guidelines/ehw128\\_Addenda.pdf](https://www.escardio.org/static_file/Escardio/Guidelines/ehw128_Addenda.pdf)

### **Introduction**

Heart failure is a common medical condition affecting approximately 2% of the population, and rises to 10% in those patients over 70 year (Kelder et al 2011). Patients with heart failure carry a heavy burden of symptoms and their lives are often punctuated by prolonged hospital admissions (Hobbs et al 2010).

It is now established that patients with heart failure who are cared for by a specialist multidisciplinary team have the more favourable outcomes (NAHF 2011). Wherever possible these multidisciplinary services should be adopted. Such services will assist healthcare teams achieve the quality standards set out by the National Institution of Clinical Excellence for the assessment, diagnosis and management of chronic heart failure in adults (2011).

The service will enhance patient care by providing a service in the primary and secondary care setting (integrated).

This document outlines the methods that will be used by the Integrated Heart Failure Nursing Service (IHFNS). It is expected that it will cover all aspects of an integrated heart failure service including; diagnosis, treatment, and management. It will outline the aims of the service and be a guide to clinicians looking after patients with heart failure.

All members of the IHFNS will be expected to assist patient's carers and other health care professional with medicines and treatment for heart failure. Good knowledge of treatments for heart failure is essential. Members of the nursing team will be expected to carry out the non-medical prescribing course to meet patient's needs. If this has not been undertaken then other methods will be in place to ensure; patient safety, nurse safety and good clinical practice is observed.

### **Aims of the service**

The aims of the integrated heart failure nursing service (IHFNS) are to improve the outcomes of patients who have a diagnosis of heart failure through

- Prompt and correct diagnosis of heart failure
- Assisting in the appropriate setting to achieve the best outcomes
- Amelioration and improvement of symptoms with the use of evidence based medication and nursing
- Empowering patients and carers through education and understanding of the condition
- Improving the knowledge of those caring for patients with heart failure to create a seamless pathway
- Improving the end of life experience for patients, carers and health care professionals who provide it

### **The identification of patients with heart failure.**

Some patients will be recognised as heart failure by their presenting symptoms of: fluid retention, shortness of breath, pulmonary oedema, or raised jugular venous pressure. Others

may present with suspicious with past medical histories of: myocardial infarction, coronary artery disease, or hypertension, both precursors to heart failure.

**The aims of identification are;**

- To confirm or refute heart failure
- Define aetiology of the heart failure
- Guide the management
- Establish a baseline
- Risk stratify

How quickly the patients are identified and diagnosed will depend on their location. If they are in the community and are not acutely unwell, the tests will be arranged and the results collated in a timely fashion, as befits the severity of the presenting symptoms. If they are in a hospital setting, the tests will be arranged and the results collated as expediently as severity of the presenting symptoms suggest.

**Clinical investigation to confirm or refute left ventricular systolic dysfunction (LVSD)**

Test	Rationale
Patient assessment	<p>Dyspnoea, fatigue and ankle swelling are classic but non-specific. Orthopnoea and paroxysmal nocturnal dyspnoea are more specific but insensitive.</p> <p>Usually a patient with heart failure will have a history of a likely underlying cause: e.g. CHD, hypertension. Other causes include alcohol abuse, arrhythmias, anaemia, thyroid disease, valve disease or cardio-toxic drugs as a cause for heart failure.</p>
ECG	<p>Heart failure is unlikely if this is normal. An abnormal ECG does not mean that patient has heart failure but that further investigation is required. Changes on the ECG may provide clues to the aetiology of heart failure. e.g. MI. To provide rhythm recognition, e.g. atrial fibrillation, conduction disorders.</p>
Bloods FBC	<p>Anaemia may exacerbate or precipitate heart failure, or may occur as a consequence of it.</p>
Urea and Electrolytes	<p>Renal failure may exacerbate or precipitate heart failure. Heart failure may impair renal function. Careful monitoring required with all heart failure medication. Hypokalaemia: common with diuretic</p>

	<p>therapy may promote digoxin toxicity.</p> <p>Hyponatraemia: due to diuretics, fluid overload or end stage heart failure</p>
Brain Natriuretic Peptide	<p>A suspicion of heart failure will be refuted by a BNP test. If the BNP is low heart failure is an unlikely cause of the symptoms</p> <p>Requested only by speaking to biochemist in hospital</p> <p>Available readily in the community on request. ( See, <a href="#">Use of BNP</a>)</p>
Liver enzymes	<p>Deranged due to hepatic congestion. May raise possibility of alcohol related cardiomyopathy</p>
Albumin	<p>May be low due to cardiac cachexia or hepatic dysfunction due to heart failure.</p> <p>Low in nephrotoxic syndrome or hepatic failure.</p>
Thyroid Function	<p>Hyper- or hypothyroidism may exacerbate or precipitate heart failure.</p>
Cholesterol	<p>In patients with IHD, lowering raised cholesterol has been shown to reduce the risk of further coronary events.</p>
Chest X-Ray	<p>The chest x-ray may show cardiomegaly, pulmonary oedema and other pulmonary abnormalities but will not necessarily show the cause of the heart failure and is no substitute for an echo</p>
Echocardiogram	<p>Echo is the single most important investigation used in the assessment of the patient with heart failure. It permits measurement of left ventricular size, shape, wall thickness, contraction, and relaxation. In addition valve structure and function can be assessed. Right ventricular and pericardial measurements can also be made.</p>

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## Heart Failure with Preserved Ejection Fraction (HFPEF)

Patients with symptoms of breathlessness fluid retention and congestion related to their heart will be diagnosed as heart failure with reduced ejection fraction (HFrEF) OR HFPEF. HFrEF is widely researched and its pathophysiology deeply understood. It has been repeatedly researched, and if treated properly and promptly has good and predictable outcomes.

HFPEF is more challenging to treat. It does not respond to HFrEF disease modifying drug treatments. More research in this increasing group of patients needs to be done. Until then we are guided by the national and international bodies on current treatment (NICE 2010).

The IHFNS will be referred patients with HFPEF. As for all other referrals, they will be assessed in the weekly MDT. If it is deemed appropriate for the IHFNS to be involved, a plan will be made and carried out by the IHFNS. It is very much an individual plan but will include;

- Improving or addressing any comorbidities
- A cardiologist ensuring there are no elements of reversibility
- Fluid management with diuretics (see diuretics p.14-16)
- If the patient is in AF then rate and rhythm management will be addressed by the cardiologist and arrhythmia team.

Whilst members of the IHFNS are trained in HFrEF and will make clinical decisions autonomously, HFPEF will be managed on a patient by patient basis in conjunction with their cardiologist and GP.

### Referral to the integrated heart failure nursing service.

At all parts of the patient journey access to the IHFNS will be easy smooth and seamless. It will include the entire patient journey through secondary care and out into primary care.

As this is an integrated service there is always a heart failure nurse in the secondary care site to help with;

- Prompt diagnosis
- Signposting
- Assisting with management
- Augmenting a discharge plan

The patient, if appropriate and consenting, will remain under the auspices of the IHFNS. This will ensure they benefit from; specialist cardiac knowledge, cardiac tests and, a post discharge service. The patient will be discharged back to a primary care team when all outcomes are met or it is deemed appropriate.

## **Community referral**

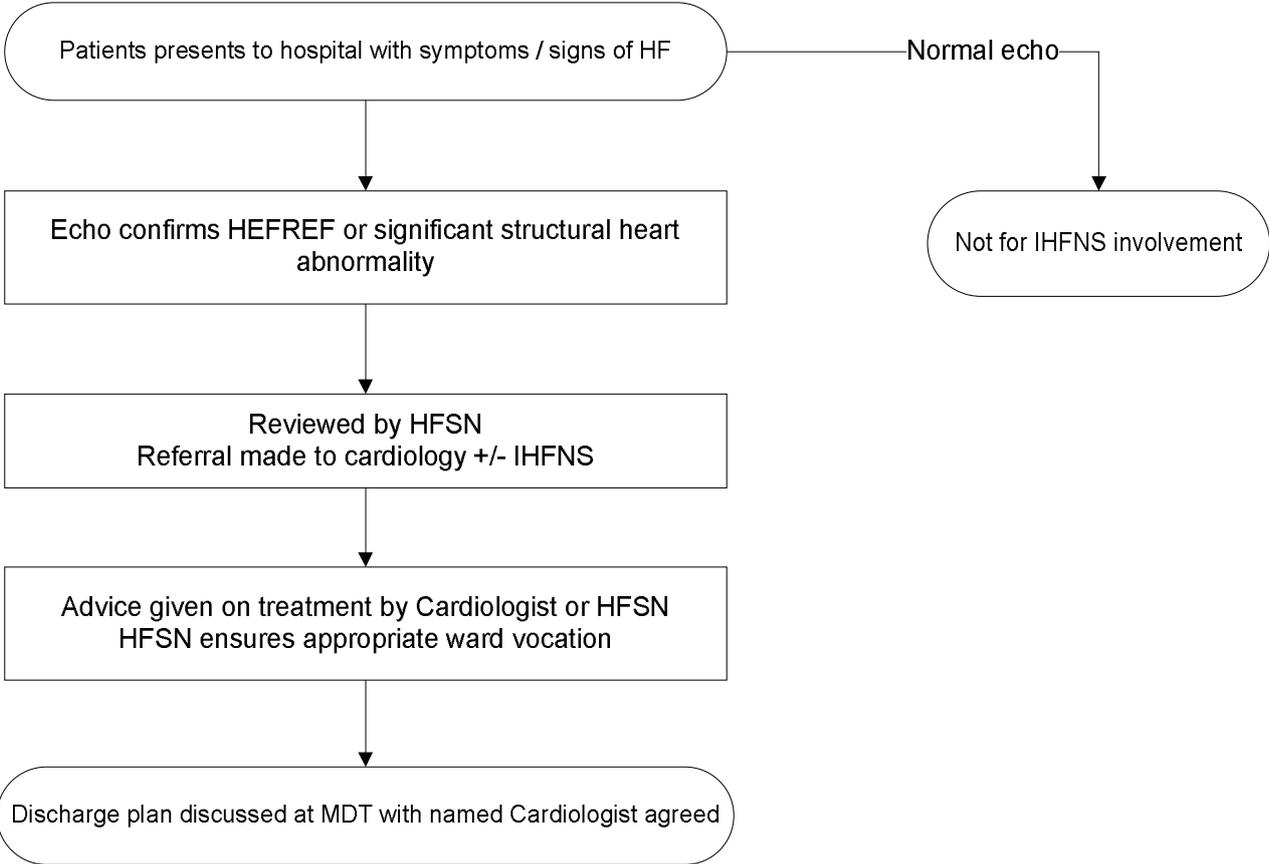
General practice will ask the IHFNS to become involved in the care of a patient in the community.

The patient's notes and referral letter will be taken to the Multidisciplinary weekly meeting.

A plan of care will be discussed and expedited as soon as possible.

If the MDT agrees a referral is inappropriate or not in the patient's best interest, this decision will be communicated to the GP.

**Inpatient Referral**



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## Referral

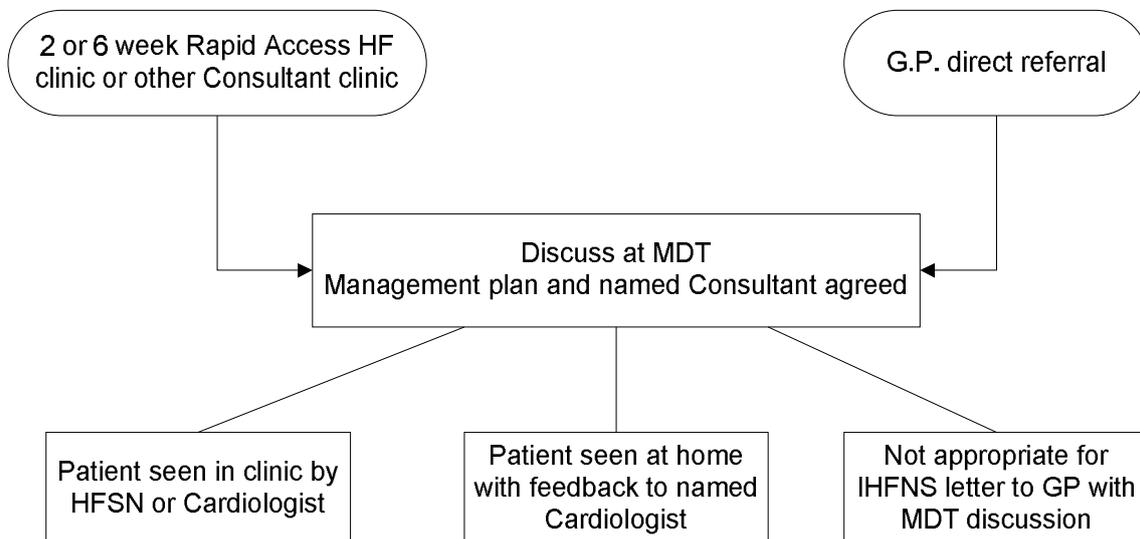
All referrals with suspected heart failure should be referred via the 2 or 6 week rapid access heart failure clinic, if referrals are made directly to the IHFNS, they will be assessed and agreed in the weekly multidisciplinary meeting. This will ensure the patient sees the appropriate specialist in the appropriate location. If the patient is inappropriate for the IHFNS the GP or referrer will be notified.

Patients who are not suitable for the IHFNS include:

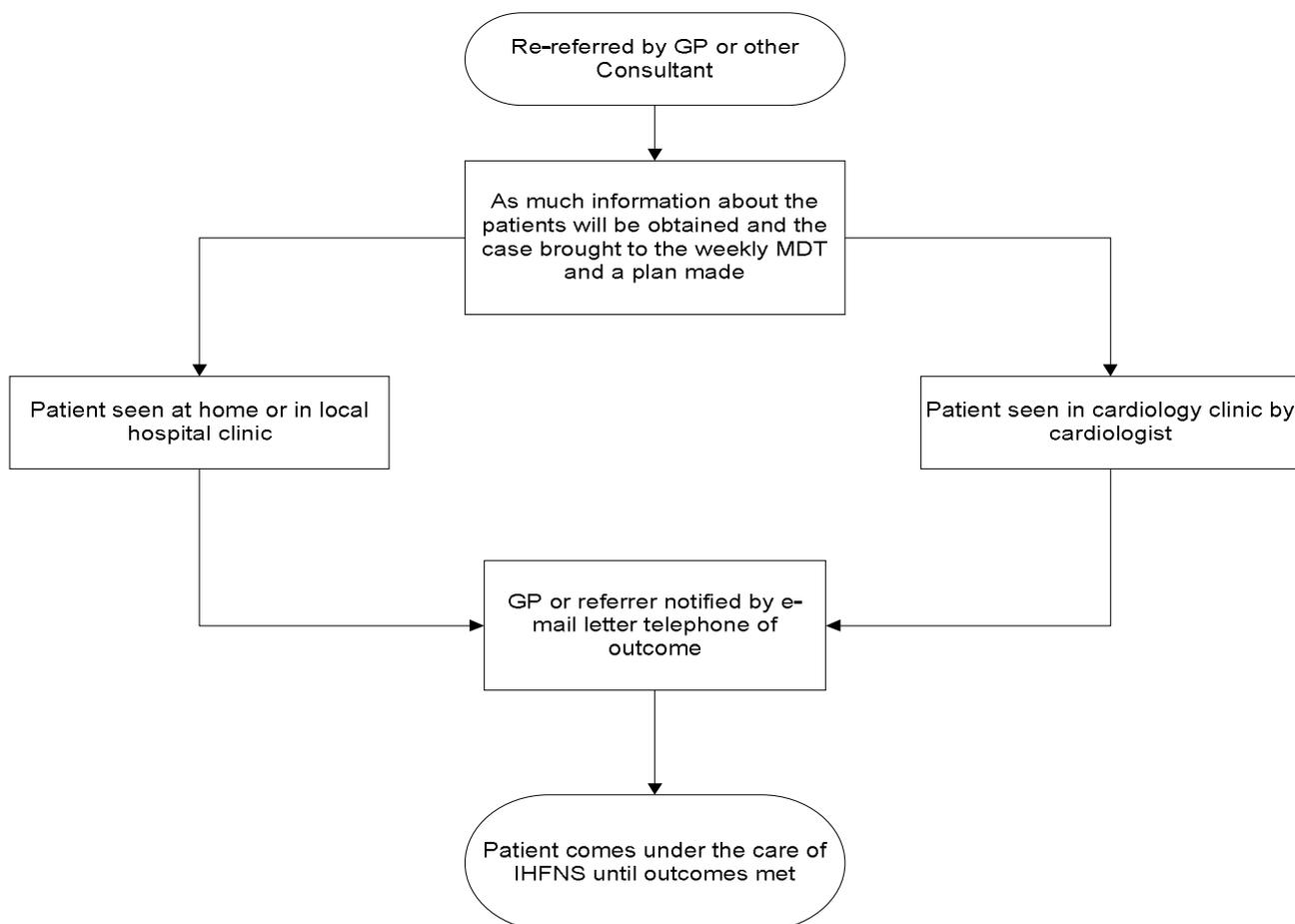
- Very elderly or frail patients, often these are unable to tolerate disease modifying drugs, are at increased risk of falls due to postural hypotension. In these circumstances symptom relief through diuretic management is likely to be all the IHFN can achieve safely.
- Patients with new AF unless they have significant symptoms of HF. Once rate or rhythm control has been achieved and maintained for 3 months they patient should be re-echoed and referred to the IHFNS if EF remains less than 40%.
- Patients with valvular heart failure should not routinely be referred to the IFNS unless they have an ongoing need for complex diuretic therapy. (Complex diuretic therapy is defines as requiring two or more diuretic or high dose loop diuretics with CKD III or more).
- Patients with HFPEF who do not require complex diuretic therapy can be managed by GP's.
- Patients with multiple comorbidities where their symptom burden is due to factors other than heart failure are best managed by community matrons and /or palliative care teams.

**Outpatient Referral**

**Unconfirmed HF Diagnosis**



**Confirmed HF Diagnosis**



## Classification

All patients should be classified using the New York Heart Association (NYHA) Classification of Heart Failure Symptoms. This is a functional, symptomatic classification and not a classification of disease severity.

## NYHA Classification

<b>Class I</b>	<i>No limitations. Ordinary activity does not cause undue fatigue, dyspnoea or palpitation.</i>
<b>Class II</b>	<i>Slight limitation during ordinary activity. Such patients are comfortable at rest, ordinary physical activity results in dyspnoea or fatigue.</i>
<b>Class III</b>	<i>Marked limitation of normal activities without symptoms at rest. Less than ordinary activity will lead to symptoms.</i>
<b>Class IV</b>	<i>Inability to carry out any physical activity without symptoms. Symptoms present at rest.</i>

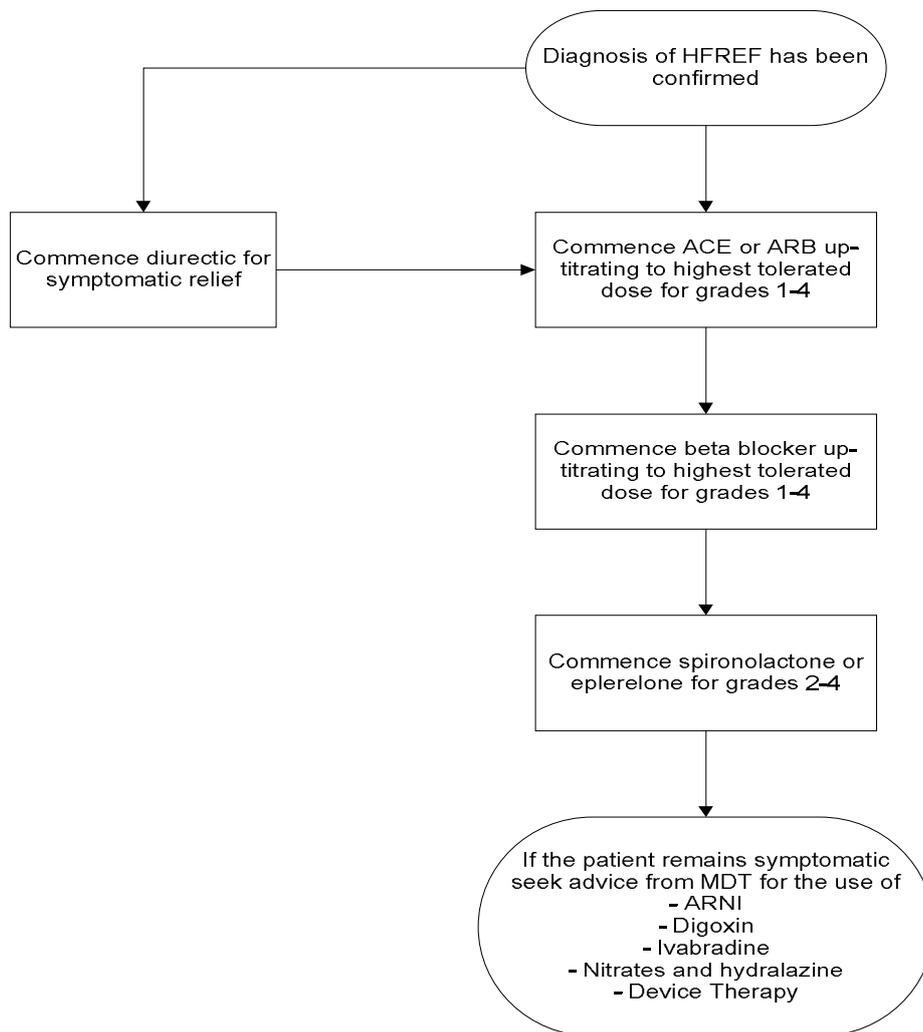
An attempt at classification should be made for patients once diagnosis is made for the following reasons;

- A point of reference for team members and clinicians
- To ensure patients receive appropriate treatment for their class of heart failure
- A guide to assess a patient's progress
- To assist clinicians and patients and carers with prognosis and long term planning

## Pharmacological Treatment

There are many guidelines for the treatment of heart failure available online both nationally and locally (map of medicine). They are set out here as a reference for team members to create uniformity and clinical governance purposes. The pharmacological treatment plan and algorithms are set out in the guidelines attached for each drug therapy.

### Pharmacological Treatment of HFREF



Guidance for the use of the pharmacological treatments within the IHFNS listed above are detailed in this document for members of the team to create uniformity and, for clinical governance purposes

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## **The use of loop diuretics by the integrated heart failure nursing team**

### **Increasing the diuretic dose**

The diuretic dose should be up-titrated if the patient shows a weight gain that is sustained for > 3 days and is a significant increase in weight (1-2 kgs or more) above dry weight, especially if this is accompanied by an increase in peripheral oedema, JVP or symptoms of breathlessness. The patient's diuretic dose should be increased initially for approximately 3 days. The dose increment should be maintained and advice sought from the MDT or GP if dry weight is not regained by the end of 3 days of increased therapy.

If the patient is taking 40mg of furosemide (bumetanide equivalent of 1mg) od, the dose should be increased to 80mg od. If the patient is taking 80mg od the dose should be increased to 80mg once in the morning and 40mg once at lunch time. If the patient is taking 80mg and 40mg od the dose should be increased to 80mg bd. If the patient is taking 80mg of furosemide bd or more, advice should be sought from the MDT or GP before increasing the dose of diuretic.

### **Decreasing the diuretic dose**

This should be done cautiously and the patient should be contacted approximately 48 hours later to assess his/her response to the dose reduction. The dose should only be reduced from the usual maintenance once only if there are signs of volume depletion or hypoperfusion; there should be evidence of weight loss from dry weight of > 1kg, a rising blood urea (of > 5mmols/litre or > 25%), and/or symptoms of dizziness (e.g. postural hypotension) or feeling washed out. The dose of diuretic should not be reduced if there is peripheral oedema or if the JVP is elevated to >2-3 cms from the sternal angle without seeking advice. If the patient has a rising blood urea, falling weight and/or symptoms of dizziness or dehydration but peripheral oedema please seek advice from the MDT or GP.

Dose reduction should be carried out by 40mg furosemide increments (bumetanide equivalent of 1mg) that are the reverse of the up-titration outlined in guidelines.

### **Contraindications**

- Renal failure with anuria
- Liver cirrhosis

### **Cautions**

- Hypotension
- Liver failure
- Prostatic enlargement
- Renal failure

### **Patients Selection Criteria**

- Patients consents to IHFNS
- Confirmed diagnosis of Left Ventricular Systolic Dysfunction on echocardiogram
- Patient has none of the documented contraindications

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## Patient Advice

- Time of taking the loop diuretic is not fixed
- Report dizziness/light-headedness as this may be indicative of over treatment
- Report sudden sustained weight increase or decrease (more than 1kg over 3 days) to specialist nurse or GP
- Report other symptoms of fluid overload i.e. increased breathlessness, frothy sputum, peripheral oedema to specialist nurse or GP
- Diarrhoea, vomiting, hot weather and poor fluid intake exacerbate dehydration
- Gout can occur
- Encourage patient to weigh themselves daily (after waking and voiding but before breakfast and dressing) and confirm an action plan if sudden weight gain.

## The use of ACE Inhibitors in heart failure by the IHFNS

### Introduction

ACE inhibition significantly reduces mortality, hospital admissions for heart failure and re-infarction. All patients with heart failure due to LVSD should be considered for an ACE inhibitor as 1st line therapy (Usually before beta blockade are introduced).

ACE inhibitor therapy should be initiated at the appropriate dose and titrated upwards at short intervals (no more than 2 weekly) until optimum tolerated dose or target dose is achieved.

### Contraindications

- Severe bilateral renal artery stenosis. Known or suspected renovascular disease
- Angioedema during previous ACE inhibitor therapy
- Pregnancy

### Cautions

- Initiate with care in patients receiving diuretics (may cause hypotension in patients taking high dose diuretics, on low sodium diets, on dialysis, dehydrated or with heart failure)
- Use with care in peripheral vascular disease or generalised atherosclerosis owing to the risk of clinically silent renovascular disease
- Use with care or avoid in patients with aortic stenosis take advice from MDT.
- Renal function should be monitored before and during treatment and dose reduced in renal impairment
- Moderate renal insufficiency and/or a relatively low BP are not contraindications to ACE inhibitor treatment, but patient may require monitoring by IHFNS as part of the MDT
- Avoid non-steroidal anti-inflammatory drugs
- Avoid potassium sparing diuretics during initiation of therapy

### Side effects

Main side effects include: cough, hypotension, syncope, renal insufficiency, hyperkalaemia, angioedema, cerebral hypoperfusion, rash, pancreatitis, upper respiratory tract symptoms, gastro intestinal disturbance, altered liver function tests, blood disorders, headache, dizziness, fatigue, taste disturbance.

### Initiation under special circumstances

- Severe heart failure (NYHA class IV)
- Receiving high dose diuretic therapy (e.g. > 80mg furosemide daily or equivalent)
- Hypovolaemia.
- Hyponatraemia (<130mmol/litre)
- Pre-existing hypotension (<90mmhg)
- Unstable heart failure.
- Renal Impairment (creatinine >200micromol/litre)
- High dose vasodilator therapy.
- Valve disease as primary cause.
- Cause of heart failure unknown.

### Patient Selection Criteria

- Patients consents to the IHFNS
- All patients with confirmed diagnosis of left ventricular systolic dysfunction on echocardiography (regardless of NYHA Classification)
- Systolic B/P > 100mmHG
- Creatinine <200
- Patient has no contraindications to ACE inhibitors

Titration Regime Name	Initiation Dose	Increments	Target Dose
Ramipril	1.25mg od	2.5mg	5mg bd
Lisinopril	2.5mg od	2.5mg	5-20mg od
Perindopril	2mg od	2mg	4mg od
Enalapril	2.5mg	2.5	20mg od

NB at the time of writing this document the two ACE inhibitors that will be used by the IHFNS is Ramipril and Lisinopril. This will create uniformity. The other ACE inhibitors discussed are mentioned as some patients will be on these medications for historical or personal reasons.

### The use of Angiotensin II Receptor Blockers

#### Introduction

Angiotensin II receptor antagonists may be used as an alternative to ACE Inhibitors only if the patient is intolerant of an ACE inhibitor due to persistent cough or angioedema. Recent guidelines suggest ACE and ARB are equal in their effect on LVSD therefore now it is the clinician's choice. The IHFNS will always choose ACE inhibitors as first line for uniformity.

#### Contraindications

Absolute contraindications include:

- Bilateral renal artery stenosis
- Angioedema during previous Angiotensin II receptor antagonist therapy or on previous ACE Inhibitor therapy
- Severe aortic stenosis
- Pregnancy

**Cautions**

- Aortic or mitral valve stenosis
- Hypertrophic obstructive cardiomyopathy
- Renal function should be monitored before and during treatment and dose reduced in renal impairment
- Moderate renal insufficiency and a relatively low B/P are no contraindication to treatment
- Use with care in peripheral vascular disease or generalised atherosclerosis owing to the risk of clinically silent renovascular disease
- Avoid non-steroidal anti-inflammatory drugs
- Avoid potassium sparing diuretics during initiation of therapy

**Side Effects** Side effects are usually mild,

- Symptomatic hypotension may occur, particularly in patients with intra vascular volume depletion.
- Hyperkalaemia occurs occasionally,
- Angioedema has also been reported.
- Hyponatraemia is reported with Candesartan

**Patient Selection Criteria**

- Patients consents to IHFNS
- Patients intolerant of ACE Inhibitor due to persistent cough or angioedema or the clinician may choose an ARB
- Patients may already be on an ARB for other diagnosis. In this case, titrate this ARB up rather than stopping and initiating an ACE would be preferable

Drug Choice	Initiation Dose	Increments	Target Dose
Candesartan	2mg od	8mg od 16mg od	16/32mg od
Losartan	25mg od	50mg od	50/100-150mg od

**The use of beta blockers in Heart Failure****Introduction**

Beta Blockers licensed for use in heart failure should be initiated in patients with heart failure due to left ventricular systolic dysfunction after diuretic and ACE inhibitor therapy.

Patients who develop heart failure due to left ventricular systolic dysfunction and who are already on beta blocker treatment should be considered in the MDT and, decided whether to continue on their current regime or an alternative beta blocker licensed for heart failure. (NICE Guidelines 2010).

**Contraindications**

- Severely symptomatic heart failure (NYHA IV) or signs of oedema (pulmonary or peripheral)
- History of asthma or bronchospasm (Clarify accurate diagnosis if made before diagnosis of heart failure)
- Severe hypotension (systolic blood pressure below 90mmHg)

- 
- Severe bradycardia (heart rate < 60 bpm)
  - 2nd or 3rd degree AV block
  - Sick sinus syndrome (including Sino atrial block)
  - Cardiogenic shock
  - Pheochromocytoma
  - Patients refusal
  - Rate limiting calcium channel blockers (verapamil, diltiazem) should be stopped in heart failure patients or discussed in the MDM

## Cautions

### Beta Blockers and other medications:

- Digoxin: Serum digoxin levels may increase. Monitor and adjust digoxin levels as necessary during titration period
- Hypotensive agents: The effects of beta blockers may potentiate the hypotensive effects of other cardiac drugs
- Calcium channel blockers: Rate limiting CCBs (verapamil, diltiazem) are likely to induce heart failure if used with a beta-blocker

### Beta Blockers and other co morbidities:

- Diabetes: Beta blockers may enhance the symptoms of hypoglycaemia. Monitor blood glucose regularly, and adjust hypoglycaemic medication as necessary with discussion in the MDM
- Renal Impairment: Reversible deterioration of renal function during beta blocker therapy can occur in patients with systolic blood pressure below 100 mmHg,
- IHD, or underlying renal insufficiency. Monitor electrolytes regularly during titration (as per protocol)

### Side Effects Include:

- Bradycardia
- Worsening of heart failure
- Hypotension
- Fatigue
- GI disturbances
- Conduction disorders
- Peripheral vasoconstriction
- Bronchospasm
- Sleep disturbances
- Sexual dysfunction

### Patients Selection Criteria

- Patients consents to IHFNS
- Confirmed diagnosis of left ventricular systolic dysfunction on echocardiogram
- Clinically stable.
- No recent adjustment to cardiac medication in the last two weeks(or be an inpatient under supervision)
- All grades of heart failure of ischaemic or non ischaemic aetiology

- Patients who are clinically stable and tolerating maximum standard recommended therapy (Heart rate > 60 bpm, systolic blood pressure > 100 mmHg, titrated ACE Inhibitor +/- diuretic
- Patient has none of the above documented contraindications

DRUG CHOICE AND TITRATION REGIME Drug	Initiation dose	Increments	Target dose
Bisoprolol	1.25mg od	2.5mg od 3.75mg od 5mg od 7.5mg od 10mg od	5-10mg od
Carvedilol	3.125mg bd	6.25mg bd 12.5mg bd 25mg bd	25mg bd (50mg bd if weight >85kg)
Nebivolol	1.25mg od	2.5mg od 5mg od 10mg od	10mg od

NB, Bisoprolol and Carvedilol at the time of writing are the preferred beta blocker of the IHFNS. This will create uniformity. The other beta blocker discussed is there in case any patient is on the drug for historical or personal reasons.

NB Metoprolol is often used whilst patients are in- patients. This will be discussed within the MDM. It will not be initiated by the IHFNS. Generally patients are transferred to long acting Beta Blockers prior to discharge to simplify medication regime.

### Patient Advice

- Explain the known benefits of the therapy, but that it may be some time before they feel the real benefits
- They may feel worse initially
- Advise patient to weigh themselves daily (after waking and voiding but before breakfast and dressing) and an action plan if they do have sudden weight gain
- Advise patient to report any deterioration in symptoms
- Take the tablet with food
- Advise not to drive if they feel faint and dizzy
- Warn patients that wear contact lenses of possible dry eyes
- Encourage patient never to stop beta blockers before seeking advice

### Managing the adverse effects during titration

**Worsening symptoms:** (increased dyspnoea, fatigue, oedema, weight gain)

- Do not further up titrate the beta blockers
- Consider increasing dose of diuretic therapy, take U & Es and review patient in 2 days
- Consider decreasing dose of beta-blocker if increasing dose of diuretic has not been effective
- If marked fatigue consider temporarily reducing beta-blocker or ceasing
- Review patient in one week if no improvement discuss within the MDT/Cardiologist

- If serious deterioration in condition half or stop dose and seek advice from appropriate physician

#### **Bradycardia:** (< 50 bpm)

- If bradycardic with worsening symptoms halve dose or, severe deterioration in symptoms **stop** beta blocker
- Consider role of other rate limiting drugs (Dihydropyridines or calcium channel blockers)
- Consider digoxin level
- If heart rate < 45 bpm record ECG to exclude heart block

#### **Symptomatic hypotension:**(< 90 mmHg associated with dizziness, fainting, confusion)

- Discuss within the MDM
- Check blood chemistry to exclude other causes for symptoms
- Consider stopping any vasodilating drugs (nitrates, calcium channel blockers)
- Consider temporary reduction in ACE Inhibitor
- If unresolved reduce dose or **stop** beta blocker after seeking advice

### **The use of thiazide diuretics in heart failure**

#### **Introduction**

In patients with resistant oedema metolazone or bendroflumethiazide may be added to a loop diuretic to improve diuresis. **Extreme caution** must be used as this can cause a dramatic diuresis and resulting disturbance of fluid and electrolyte balance. This is usually a temporary measure. The use of thiazides usually denotes an NYHA class 3 or 4 patient.

#### **Contraindications**

- Refractory hypokalaemia
- Hyponatraemia
- Hypercalcaemia
- Symptomatic hyperuricaemia (gout)
- Addison's Disease

#### **Cautions**

- Close monitoring of electrolytes is required during treatment
- May exacerbate diabetes and gout
- Renal impairment
- Hepatic impairment
- May exacerbate Systemic Lupus Erythematosus

#### **Side effects**

Side effects include: postural hypotension, hypokalaemia, hypomagnesaemia, hyponatraemia, hypercalcaemia, mild gastro-intestinal disturbances, impotence, hypochloraemic alkalosis, hyperuricaemia, gout.

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## Dose

- 2.5 - 5mg metolazone or bendroflumethiazide once daily for three days or on alternate days for three doses. Dose may be repeated if needed and renal function satisfactory
- If longer term use is required a dose of 2.5 – 5mg metolazone or bendroflumethiazide twice weekly may be used.
- If discussed in the MDM daily use may be considered with caution.

## Patient Selection Criteria

- Patients consents to IHFNS
- Confirmed diagnosis of left ventricular systolic dysfunction on echocardiogram
- Patients with resistant oedema despite treatment with loop diuretic (consider addition of spironolactone)
- None of the above contraindications
- Check baseline blood pressure and U&Es – if creatinine > 200 contact cardiologist for advice
- Frail elderly patients or those living alone may not be suitable for the addition of a thiazide due the risk of hypotension

## Patient Advice

- Explain need for treatment
- Warn patient of likely increase in diuresis and possible side effects of drug
- Encourage the patient to weigh themselves daily as a means of monitoring the effect of the drug

## Managing Adverse Effects during Use

- Renal dysfunction – U&Es should be checked at least weekly on initiation of treatment. Some deterioration in renal function is commonly seen during the addition of a thiazide to loop diuretic. Close monitoring of U&Es is required. Renal function generally returns to baseline after treatment.
- Creatinine > 200mmol/l, seek advice from MDM/cardiologist.
- Signs of sodium and water depletion:
  - Postural dizziness/lightheadedness.
  - Falls or confusion.
  - Blood pressure falls excessively and in a sustained way.
  - Significant and sustained weight loss (e.g. >1kg daily, sustained over >1 week).
- Thiazide should be stopped and further advice sought.

## Use of spironolactone in heart failure

### Introduction

Patients with heart failure due to left ventricular systolic dysfunction who remain moderately to severely symptomatic (NYHA class III – IV) despite optimal therapy and those with moderate-severe or severe LVSD regardless of NYHA class should be prescribed spironolactone 12.5-50mg. As per SDHCT Guidelines Ref: 0584 Version 4

The RALES mortality trial (Pitt et al 1999) showed that low dose spironolactone together with ACE inhibitor and diuretic therapy markedly and progressively improved survival of patients with severe heart failure, irrespective of aetiology (NICE 2010)

## Contraindications

- Hyperkalaemia
- Hyponatraemia
- Pregnancy and breast feeding
- Addison's disease

## Cautions

- Hepatic impairment
- Renal impairment (avoid if moderate to severe)
- Porphyria

## Side Effects

Main side effects:

- Diarrhoea/Gastro-intestinal disturbances
- Gynaecomastia
- Hyperkalaemia

Others include impotence, lethargy, headache, confusion, rashes, (discontinue), hyponatraemia, hepatotoxicity. Blood disorders (see BNF 2012).

\* Patients with symptomatic intolerance of Spironolactone should be considered for treatment with Eplerenone. Note: Biochemical intolerance is unlikely to alter.

## Patient Selection Criteria

- Patients consents to IHFNS
- Confirmed diagnosis of left ventricular systolic dysfunction on echocardiogram
- Patients with heart failure who have moderate to severe LVSD
- Patients with NYHA Class III – IV heart failure – any aetiology
- Patient has none of the above contraindications
- Check baseline U&E's – if creatinine > 200 +/- urea 11.2mmol +/- potassium >4.5mmol – contact physician for advice

If the patient does not fit into any of the above criteria, please discuss with appropriate physician or in the MDM

## Patient advice

- Explain the known benefits of treating patients with heart failure with spironolactone
- Warn of the possible side effects – particularly gynaecomastia and signs of sodium and water depletion.
- Inform of the need for, timing and rationale of close blood chemistry monitoring during initiation, titration and ongoing monitoring.
- Encourage the patient not to discontinue spironolactone

## Managing adverse effects during initiation

- **Diarrhoea** – If diarrhoea occurs as a side effect of spironolactone the drug should be stopped immediately.

- **Gynaecomastia** – (10% in the RALES study) spironolactone may need to be discontinued. Consider Eplerenone.
- Signs of sodium and water depletion:  
Postural dizziness/light-headedness.  
Blood pressure falls excessively and in a sustained way.  
Significant and sustained weight loss (e.g. >1kg daily, sustained over >1 week).  
Diarrhoea and vomiting, patient has not been drinking fluids or has been in a hot climate, perspiring excessively.

Any of the above may require a reduction in the dose or discontinuation of spironolactone

- **Renal Dysfunction:** If initiated by a team member of the IHFNS ensure U&E's pre initiation is as per patient selection criteria (above). Also ensure follow up bloods will not be an issue Discontinue treatment and seek advice if – creatinine increases to >200 (or >30% from baseline).  
Urea increases to > 18mmol/L (or 30% from baseline).
- **Hyperkalaemia: any movement of the potassium in an upward direction will require close observation and a low threshold for cessation.**

**Discontinue** treatment and seek advice if – potassium increases to **>5.5mmol/L**

### The use of eplerenone in heart failure

#### Introduction

Eplerenone is a selective aldosterone antagonist shown to improve survival in stable patients with left ventricular systolic dysfunction (LVSD) and clinical evidence of heart failure after an acute myocardial infarction (AMI). It can be used if the patient has a side effect on spironolactone such as gynaecomastia. It is also licensed for use in those patients with mild heart failure (Zannad et al 2011). Guidance already available; Ref: 0584 Version 4

#### Contraindications

- Hyperkalaemia
- Patient receiving potassium sparing diuretics or potassium supplements

#### Cautions

- Renal impairment (avoid if moderate to severe)
- Close monitoring for hyperkalemia before and during treatment
- Hepatic impairment
- Elderly
- Pregnancy and breastfeeding

#### Side effects:

- Hyperkalaemia-more common in patients with type 2 diabetes, proteinuria or concomitant treatment with ACE Inhibitor or ARB
- Impaired renal function
- Gastrointestinal upset
- Hypotension

## Patient selection

- Patient consents to the IHFNS
- As an alternative to spironolactone in patients who experience gynaecomastia or menstrual irregularities when treated with spironolactone
- Patient has none of the above contraindications
- Check baseline U&E's – if creatinine > 200, +/- urea 11.2mmol, +/- potassium >4.5mmol – contact physician for advice

If the patient does not fit into any of the above criteria, please discuss with appropriate physician.

## Patient advice

- Explain the known benefits of treating patients with heart failure with eplerenone
- Warn of the possible side effects – particularly signs of sodium and water depletion
- Inform of the need for, timing and rationale of close blood chemistry monitoring during initiation, titration and ongoing monitoring.

## Managing adverse effects during initiation

- **Signs of sodium and water depletion:**  
Postural dizziness/ light-headedness.  
Blood pressure falls excessively and in a sustained way.  
Significant and sustained weight loss (e.g. >1kg, sustained over >1 week).  
Diarrhoea and vomiting, patient has not been drinking fluids or has been in a hot climate, perspiring excessively.

Any of the above may require a reduction in the dose or discontinuation of eplerenone

- **Renal Dysfunction:** If initiated by a team member of the IHFNS ensure U&E's pre initiation is as per patient selection criteria (above). Also ensure follow up bloods will not be an issue Discontinue treatment and seek advice if – creatinine increases to >200 (or >30% from baseline).  
Urea increases to > 18mmol/L (or 30% from baseline).
- **Hyperkalaemia: any movement of the potassium in an upward direction will require close observation and a low threshold for cessation.**

**Discontinue** treatment and seek advice if – potassium increases to **>5.5mmol/L**

## The use of digoxin in heart failure

### Introduction

Cardiac glycosides are indicated in atrial fibrillation in order to control ventricular rate and thereby improve ventricular function and any degree of symptomatic heart failure (DIG trial 1997).

In sinus rhythm, digoxin may reduce the risk of hospitalisation for worsening heart failure symptoms, although it has not been tested in addition to optimal therapy (ACEI, beta-blocker, spironolactone). Withdrawal of digoxin in stable heart failure patients may exacerbate symptoms. Therefore it is indicated for symptom control in patients already on optimal treatment to decrease the risk of hospitalisation for heart failure without impact on survival. Its

use whilst not controversial will always remain on a patient by patient basis. It will never be initiated by the IHFNS without discussion in the MDM

### Contraindications

- Bradycardia
- Second and third degree AV block
- Wolff-Parkinson White syndrome
- Hypertrophic obstructive cardiomyopathy
- Hypokalaemia-correct before use
- Ventricular tachycardia or ventricular fibrillation

### Cautions

- Sick sinus syndrome
- Recent infarction
- Thyroid disease
- Reduce dose in the elderly and in renal impairment
- Avoid hypokalaemia, hypercalcaemia, hypomagnesaemia (increased risk of digoxin toxicity)
- Pregnancy
- Drug interactions – see below

### Side effects

Main side effects include (usually associated with excessive dosage): anorexia, nausea, vomiting, diarrhoea, abdominal pain, visual disturbances, headache, fatigue, drowsiness, confusion, delirium, hallucinations, depression, arrhythmias, heart block, rash, intestinal ischemia, gynaecomastia, thrombocytopenia.

### Patient selection

- Patients consents to the IHFNS
- Patients in sinus rhythm with worsening or severe (symptomatic) heart failure (NYHA class III –IV) due to left ventricular systolic dysfunction despite ACE inhibitor, diuretic and beta-blocker therapy.
- Patients with atrial fibrillation requiring rate control.
- Patient has none of the documented contraindications.
- Amiodarone, erythromycin and poor renal function commonly increase plasma digoxin levels and require careful blood monitoring.

N.B reduce dose in the elderly and in patients with renal impairment.

If the patient does not fit into the above criteria, consider discussion with appropriate physician or within the MDM.

### Patient advice

- Explain the known benefits of digoxin therapy.
- Warn of possible side effects.
- Explain the need for blood test monitoring during and after the titration phase.
- Encourage the patient not to discontinue medication without seeking medical advice

## Managing the adverse effects

The majority of adverse effects will occur as a result of digoxin toxicity – this can arise with any dose of digoxin but is more common when the therapeutic concentration is exceeded. Watch for the following symptoms and withhold, at least temporarily if any of these occur. An urgent serum digoxin concentration should be measured and advice from appropriate physician sought.

- Anorexia
- Nausea and vomiting
- Xanthopsia (yellow tint to vision)
- Bradycardia
- Ventricular arrhythmias
- Fatigue

In elderly patients the symptoms and signs may be less specific but may include:

- Confusion (new onset or increasing)
- Deteriorating mobility and falls

**Digoxin levels** – The therapeutic window of digoxin is narrow. Following a retrospective analysis of the DIG Trial (1997) into the use of digoxin in heart failure patients by Rathmore et al (2003) the current trend is towards lower doses of digoxin and lower blood levels for symptomatic treatment of heart failure patients. The exact therapeutic range is not known but is suggested as being as low as 0.6-1.2nmol/L.

**Raised Plasma digoxin levels** – Commonly increase because of deteriorating renal function and drug interactions.

- **Amiodarone** – will cause a gradual increase in digoxin levels.  
(Half dose of digoxin and check serum concentration 48-72 hours later)  
Once a stable dose of amiodarone has been decided, check digoxin concentration 1-2 weeks later.
- **Erythromycin** – will cause a rapid increase in digoxin levels and an alternative should be found.
- **Poor renal function** (including diarrhoea/vomiting and any other cause) - Monitor blood chemistry closely. (In renal failure the daily dose should be reduced accordingly)
- **Digoxin induced arrhythmias** – common in hypokalaemic patients. Monitor blood chemistry closely. Check ECG.
- **Changes to drug therapy** – particularly important when changes to diuretic and ACE therapy are made – monitor blood chemistry closely.

## Ivabradine

### Introduction

Ivabradine is a selective sinus node inhibitor. It has received NICE TA 267 and is used in chronic heart failure as described in the SHIFT Study (2010). It should be given to patients with LVSD who are on conventional treatment; ACE Inhibitors, ARB's. Patients in the SHIFT Study were given ivabradine in addition to beta blockers. In practice this will be the case and it will be offered to patient where beta blockers are not tolerated.

### Contraindications

- Acute myocardial infarction
- Atrial Fibrillation or history of PAF
- Any previous rhythm disturbance must be discussed

- Heart Rate below 75 bpm
- CVE in recent history
- Acute heart failure
- Unstable angina

### Cautions

- Hypotension
- Arrhythmias as above
- Unstable heart failure (should be stable for 4-6 weeks)

### Side effects

Atrial fibrillation. dizziness, visual disturbances. It may cause a significant bradycardia or other rhythm disturbances, therefore, should only be initiated where ECG's are available.

### Patient selection

- Patients consents to the IHFNS
- Patient has none of the documented contraindications.
- Patients in sinus rhythm HR above 75BPM
- NYHA class I-III due to left ventricular systolic dysfunction despite ACE inhibitor, beta-blocker and MRA therapy.
- Patients with a contraindication to beta blockers must be suggested approved by a cardiologist (if the HFN is the prescriber it will be their responsibility to check all of the above if they prescribe)

Drug;	Initiating Dose	Incremental doses
Ivabradine	2.5mg o.d	1-2 week spacing between increments 2.5mg bd 5mg bd 7.5mg bd

**NB** ECG monitoring will afford a more successful up-titration and is recommended

### The use of Sacubitril/Valsartan in patients with chronic heart failure

#### Introduction

The National Institute of Health and Excellence in has recently approved sacubitril/valsartan for patients with heart failure with reduced ejection fraction and New York Heart Association III-IV ([nice.org.uk/guidance/ta388](http://nice.org.uk/guidance/ta388) April 2016). Its recommendation is based on a recent trial that showed improvements in mortality and morbidity (PARADIGM HF 2014). Currently the local formulary supports its use under the speciality of cardiology. The heart failure nurses come under this department and therefore can prescribe sacubitril/valsartan.

#### Contraindications

- Patients with a history of angioedema related to previous ACE or ARB therapy
- Not to be used with concomitant use of ACE or ARB
- Not to be used with concomitant use of aliskerin
- Not to be used in pregnancy

- Not to be used in Renal failure patients
- Not to be used in Patients with hyperkalaemia

### Cautions

- Hypotension patients with a blood pressure below 100mmHg
- Renal impairment EGFR should be above 30 mls per min
- Hyperkalaemia

### Side effects

- Dizzy spells due to hypotension
- Possible rash
- Possible angioedema

### Patient Selection Criteria

- Patient consents to the IHFNS
- Over 18 years old
- Have an ejection fraction of 35% or below
- Blood pressure above 100mmhg
- eGFR above 30 mls per min
- Currently on a stable dose of ACE or ARB
- Stops ACE I for 48 hours before commencement
- Monitor urea and electrolytes at every incremental appointment
- Initiate and increment with 4 weekly appointment
- Practitioners may switch equivalent dose changes with ACE I or ARB, that is for example Ramipril 5mg o.d = sacubitril/valsartan 49/51mg o.d

### Managing Side effects

- Measure blood pressure and urea and electrolytes at monthly intervals
- If alteration in U&E's retreat to previous dose or if initiation dose consider cessation
- Cease if any angioedema noted
- Cease or retreat to previous dose if blood pressure drops below 95mmhg
- Cease if U&E monitoring creates a hyperkalaemia

Drug	Initiation dose	Incremental dose	Target dose
sacubitril/valsartan	24/26mg	24/26mg 49/51mg 97/103mg	97/103mg

As independent prescribers Heart Failure Nurses may deviate from prescribing guidelines within this document provided they have carefully assessed the reasons for doing so and can provide a rationale for their decisions, as long as adequate monitoring processes are in place.

Dose increments in drug titration may be altered in patients who are not symptomatic, have adequate blood pressure and good renal function. Patients should always be advised to contact their HFSN for advice about medication changes, or if they are concerned about side effects.

## Non pharmacological and lifestyle advice for heart failure

### Daily Weight Monitoring

- Aim to achieve patient's dry weight. (That is weight without oedema).
- Patients should be advised of the need to weigh themselves daily, first thing in the morning, after voiding and what to do if they gain or lose 1kg or more in 3 days or less.
- Encourage patients to chart their weight if appropriate.
- Some patients may benefit from a fluid restriction (1.5 - 2 litres). This should be initiated after discussion with medical staff. In general fluid intake for heart failure patients should not exceed 2 litres daily. This will be discussed with the patient in full detail.

### Dietary Advice

- A cardio protective diet should be advised. Patients should be encouraged to eat 5 portions of fruit and vegetables per day and oily fish 2 - 3 times per week. Specialist dietician advice will be sought for patients with a BMI <15 or BMI>30, or those with specialist dietary needs e.g. renal patients
- Patients should be encouraged to reduce their salt intake. Advice should be given not to add salt at the table. They may add a little during cooking. They should avoid salty processed foods and snacks.
- Advise patients not to use salt replacements (which are high in potassium). Encourage the use of herbs and spices instead.

### Medications

Medications which may exacerbate Heart Failure by salt/ water retention include

- Non Steroidal Anti-Inflammatory Drugs
- Prednisolone
- Gaviscon
- Dispersible Co-codamol
- Calcium antagonists can exacerbate heart failure. Patients who present with heart failure on Calcium antagonists for rate control should have this treatment reviewed.

### Alcohol

Alcohol is a cardiac depressant.

- For those patients in which alcohol induced cardiomyopathy exists, alcohol is contra-indicated.
- Patients will be advised that excessive intake of alcohol may exacerbate their symptoms.
- Advise patients on recommended limits (14 units per week – women, 21 units per week – men, at least 2 alcohol free days per week)

- Patients will be advised to avoid binge drinking.

### **Exercise**

- Patients with heart failure can benefit from exercise, which should be of low to moderate intensity, e.g. walking.
- Stable patients should be encouraged to increase their activities as much as possible. Ultimate aim is for 30 minutes aerobic activity 5 times per week but any increase in activity will be beneficial.
- Advice will be given on how to increase activity safely (patients should be comfortably breathless (i.e. able to say their telephone number including code in full)
- Patients with angina will be given advice about management of chest pain and use of GTN spray.
- In patients with symptoms NYHA 3-4 swimming or exercise in water should be discussed with their clinician
- If appropriate patients should be referred to cardiac rehabilitation

### **Smoking**

- Smoking should be discouraged for all patients.
- Basic smoking cessation advice and information will be available for patients who smoke.
- Patients will be assessed regarding their stage of change and readiness to try and stop.
- Referral to the patients smoking cessation service at their own surgery as appropriate.

### **Immunisation**

- Annual influenza vaccine should be encouraged.
- Pneumococcal vaccine is required once only.

### **Travelling**

- High altitudes or hot humid places should be discouraged.
- Patients should be educated about potential complications of flying and how to minimise these (e.g. DVT, dehydration etc)
- General travel advice should be given (e.g. plan journey well to avoid stress, take plenty of medication – carry in hand luggage, potential medication problems related to time difference etc)
- Advice will be given regarding excessive sodium and fluid loss in hot climates.

## Device therapy Cardiac Resynchronisation Therapy (CRT)

### Rationale

In a healthy heart the ventricles pump at the same time and in synchrony with the atria. In some patients with left ventricular systolic dysfunction the left ventricle fails to pump in synchrony with other chambers of the heart, this results in the heart being less efficient as a pump. The aim of CRT (also known as biventricular pacing) is to improve the heart's pumping efficiency by resynchronising the pumping action of the chambers (NICE, 2007).

- They are currently or have previously experienced symptoms classified NYHA 3-4 despite maximum tolerated treatment.
- They are in sinus rhythm, either with a QRS duration of 150ms or longer estimated by ECG or with a QRS duration of 120-149ms estimated by ECG and mechanical dyssynchrony that is confirmed by echocardiography.
- They have a left ventricular ejection fraction (LVEF) of 35% or less.
- They are receiving optimal pharmacological therapy.

### Cardiac Resynchronisation Therapy with a Defibrillator Device (CRT-D)

Patients who fulfil the above criteria and fit into one of the categories below are recommended for the addition of an Implantable Cardioverter Defibrillator (ICD) to their CRT.

QRS interval	NYHA class			IV
	I	II	III	
<120 milliseconds	ICD if there is a high risk of sudden death			ICD and CRT not clinically indicated
120 – 149 milliseconds without LBBB	ICD	ICD	ICD	CRT-P
120-149 milliseconds with LBBB	ICD	CRT-D	CRT-P or CRT-D	CRT-P
≥150 milliseconds with or without LBBB	CRT-D	CRT-D	CRT-P or CRT-D	CRT-P

LBBB, left bundle branch block; NYHA, New York Heart Association

### Internal cardiac defibrillator

Secondary prevention – for patients who present (in the absence of treatable cause) with one of the following:

- Having survived a cardiac arrest due to either ventricular tachycardia (VT) or ventricular fibrillation (VF)
- Spontaneous sustained VT causing syncope or significant haemodynamic compromise
- Sustained VT without syncope or cardiac arrest and who have an associated reduction in ejection fraction (LVEF of less than 35%) (no worse than NYHA 3 functional classification of heart failure)
- Primary prevention – for patients who have: a history of previous (no more than 4 weeks) myocardial infarction and: either – left ventricular dysfunction with LVEF of less

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than 35% (and symptoms no worse than NYHA 3 and non-sustained VT on 24 hour ECG and inducible VT on electrophysiological testing.

**Or** left ventricular dysfunction with LVEF of less than 30% (and symptoms no worse than NYHA class 3) and QRS duration of equal to or more than 120ms. (NICE 2006)

- NB Deactivation guidance are currently under review and will assist the heart failure nurse in making decisions around this subject

## End stage heart failure and palliative care

### Introduction

The aim of treatment during end stage heart failure is symptom control and ultimately a peaceful and dignified death in the place of the patient's choosing. Ongoing heart failure treatment and follow up should continue as long as appropriate. Referral to the specialist palliative care (SPC) services should occur as soon as appropriate. Advice will be sought with SPC involvement in the MDM.

It is important the IHFNS discuss the prognosis and long term nature of heart failure with all its patients.

### Recognising end stage heart failure

Due to the unpredictable disease trajectory of heart failure it can be difficult to recognise when the end stage of the disease has been reached. Signs which may indicate that the end stage of the disease has been reached include:

- Patient symptoms remain in NYHA class 3-4 despite optimised treatments and adherence to non-pharmacological advice.
- Increasing frequency of episodes of decompensation. In spite of maximal medical therapy and in the absence of other causes – E.G. Non-adherence to pharmacological or non-pharmacological therapies, infection.  
With each episode of decompensation the patient's condition does not fully recover back to its previous level.
- Repeated hospital admissions due to heart failure and other reasons
- Deteriorating renal function. Not associated with changes in medication or attributable to other causes.
- Low serum sodium levels. In the absence of other causes – ensure patient is not over-diuresed or drinking excessive fluid.
- Falling blood pressure.
- Cachexia
- General decline in functional capacity

### Managing signs and symptoms of end stage heart failure

The aim of all treatments in end stage heart failure is symptom control and the provision of support and comfort to patient and carers.

#### Breathlessness

- Diuretic dose should be optimized to provide relief. It may be necessary in end stage disease to titrate other medications down to enable diuretics to be increased.
- Morphine sulphate elixir reduces lung congestion via venous dilation and decreases ventricular preload. An initial dose of 5mg every 4 hours as needed should be used this is an off label use and should be considered only if the cause of breathlessness in

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thought to be end stage or irreversible. This is an “off label” use of this preparation and will never be initiated by the IHFNS unless wider discussions have taken place.

- Delivery of diamorphine via a syringe driver should be considered for relief of breathlessness if the patient is deemed end of life and in the appropriate setting.

### **Nausea**

- Consider stopping any non-essential medication
- Anti-emetic choice includes metoclopramide, prochlorperazine, ondansetron.

### **Symptomatic Hypotension**

- It may be necessary to reduce the dose of disease modifying medications if blood pressure falls and the patient is symptomatic. First consideration should be given to drugs which do not provide immediate symptom relief.

### **Renal dysfunction**

- Renal function will deteriorate as heart failure progresses. In end stage disease priority should be given to symptom control. The appropriateness of the frequent checking of bloods should be addressed on an individual tailored basis.

## **Care of the patient with end stage heart failure**

The IHFNS should refer the patient to other appropriate services at the earliest opportunity, whilst continuing to provide specialist advice and support to the patient, carer and other services.

Consideration should be given to psychological and spiritual needs of patients. Patient wishes as regards preferred place of care should be ascertained. Other forms of nursing and medical care must also be explored to offer the patient the right care in the right place at the right time

- District Nursing Service – provide day to day nursing and palliative care of the patient at home.
- Hospice - specialist palliative care and support as day or inpatient.
- Specialist Palliative Care Services - for specialist advice.
- Hospice at home for those patients that are thought to be in the last two weeks of life
- Treatment escalation plans should be discussed and worked into the individual treatment plans.

## **Informing the wider healthcare community**

Due to the specialist nature of the IHFNS and its access to MDM, it will have a more intuitive feel for the difficult task of prognosis in its patients. Therefore, any decisions with regard to a patient’s prognosis and end stage nature of their condition will be discussed with the patient and their carer’s, if it is appropriate. This way needs can be anticipated and planned for. Once this has been established it must be conveyed to the wider healthcare team. This will give general practitioners the opportunity to assess the patient for suitability for the palliative care register. Wider discussions will also ensure the patients details as entered onto the electronic palliative care co-ordination system (EPCCS). These measures may reduce unnecessary hospital admissions and facilitate more direct admissions and utilization of other local services such as the hospice peripheral hospitals.

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## Discharge Guidance from the Integrated Heart Failure Nursing Service

### Introduction

Because of the wide scope of the IHFNS there will always be a high volume of patients being referred. To ensure the service has the capacity to manage this high volume it is a necessity that the service has a through-put. That is to say; when appropriate, patients will be discharged from the service with the option of re-engaging with the service at a later date. This short guide will enable healthcare professional to make a judgement on whether to continue seeing the patient or discharge then back to their primary care services.

### Discharge Criteria

- Patient choice. This is where a patient no longer wishes to be part of the IHFNS
- Clinician choice. This is where another clinician feels it more appropriate to continue the care of the patient without the IHFNS
- Patient moves out of geographical area
- Patient resides in a nursing or residential home where all needs are met
- Referral to another service such as intermediate care or a community matron system
- Where the patient has adequate and skilled professionals taking over their care. This would be general practice that runs a heart failure clinic
- The heart failure nurse feels that all aims and objectives are met for that patient, including; drug therapy, fluid balance, education low risk for decompensation or re-admission

This is a guide and not instruction. The decision to discharge should be tailored for every individual to incorporate their needs. This guide will ensure the service does not become overloaded and therefore be able to meet and respond to the needs of new referrals.

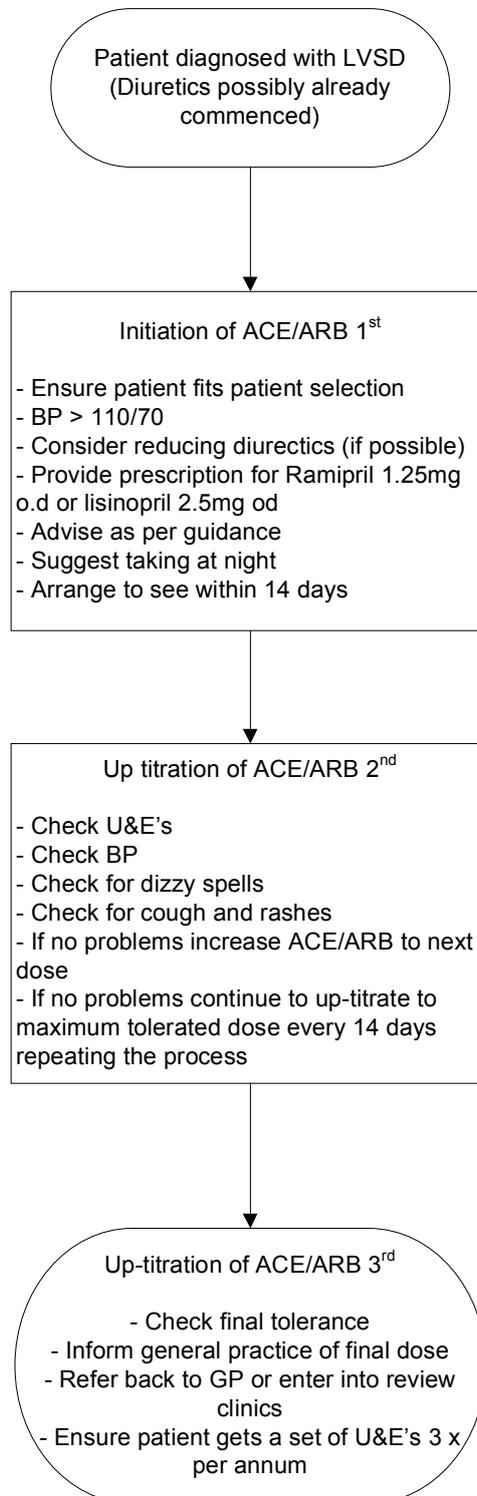
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**IHFNS Version 2 October 2019****Audit/Review****Audit of the IHFNS**

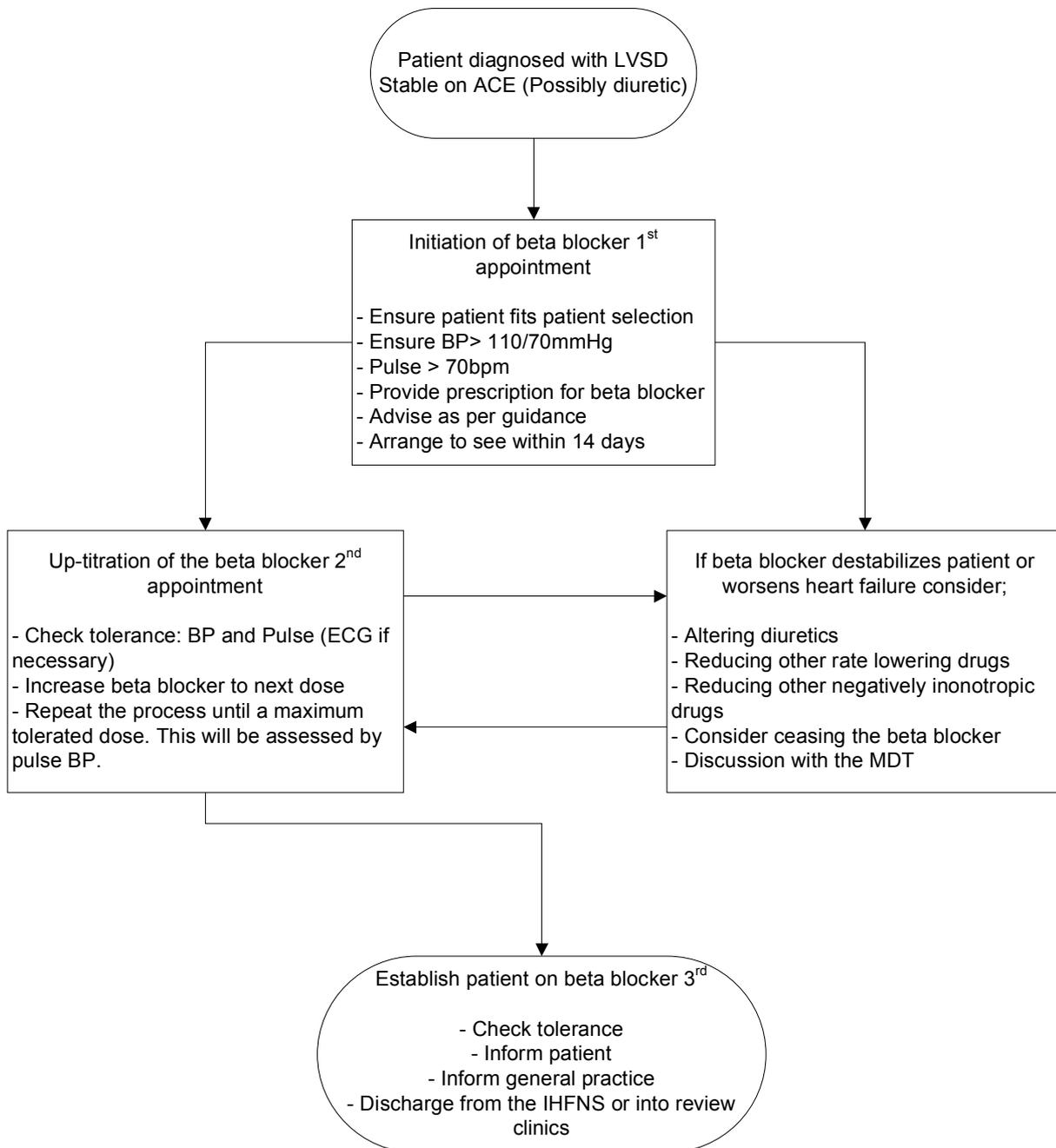
To ensure the outcomes of the service are met all members of the IHFNS will maintain detailed information on all activities of the service. A central database will be held and maintained by the IHFNS. This will be examined and analysed. The results of which will be reported to SDHCT and TCT and Southern Devon. This will ensure continued support and further expansion of the service where “gaps” are highlighted. Information collected will be;

- Demographics
- Location of patients (i.e hospital or community)
- What was done by the service to assist the patient
- In patient activity (NICOR)
- What was offered to the patient post discharge
- Final outcomes on discharge

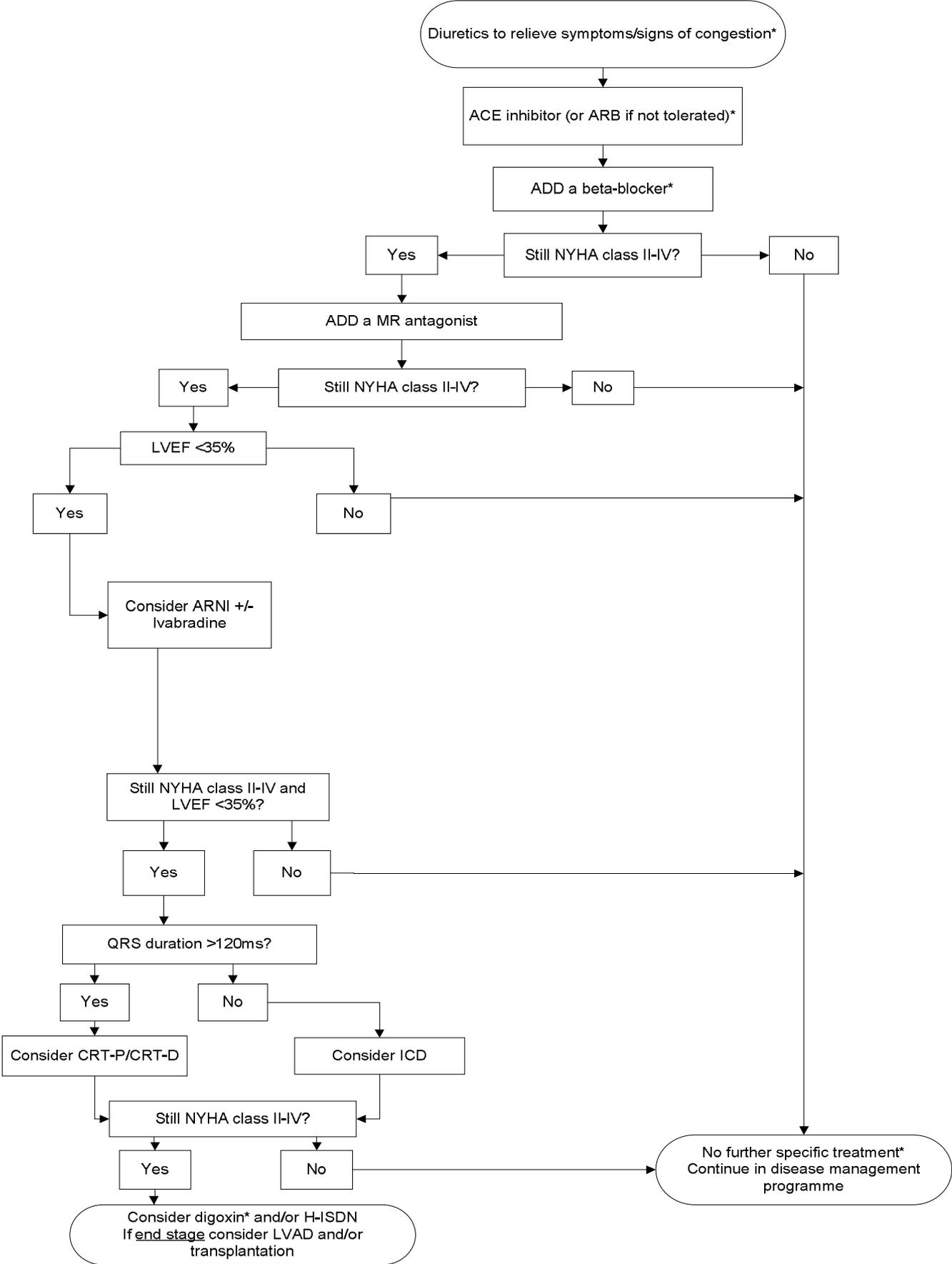
**Initiation and/or up titration of ACE  
Inhibitors  
(Also available on MOM)**



**Initiation/and or up titration of beta blockers**  
**(Also available on MOM)**



**Treatment for HEFREF**



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ACE = angiotensin converting enzyme; ARB = angiotensin receptor blocker; CRT-D = cardiac resynchronization therapy defibrillator; CRT-P = cardiac resynchronization therapy pacemaker; H-ISDN = hydralazine isosorbide dinitrate; HR = heart rate; ICD = implantable Cardioverter-defibrillator; LBBB = left bundle branch block; LVAD = left ventricular assist device; LVEF = left ventricular ejection fraction; MR antagonist = mineralocorticoid receptor antagonist; NYHA = New York Heart Association.

\*Diuretics may be used as needed to relieve the signs and symptoms of congestion (see section 7.5) but they have not been shown to reduce hospitalisation or death.

\*Should be titrated to evidence based dose or maximum tolerated dose below the evidenced base dose.

\*Asymptomatic patients with an LVEF <35% and a history of myocardial infarction should be considered for an ICD.

\*If mineralocorticoid receptor antagonist not tolerated, an ARB may be added to an ACE inhibitor as an alternative.

\*European Medicines Agency has approved ivabradine for use in patients with a heart rate >75 b.p.m. May also be considered in patients with a contraindication to a beta-blocker or beta-blocker intolerance.

\*See section 9.2 for details – indication differs according to heart rhythm, NYHA class, QRS duration, QRS morphology and LVEF.

\*Not indicated in NYHA class IV

\*Digoxin may be used earlier to control the ventricular rate in patients with atrial fibrillation – usually in conjunction with a beta-blocker.

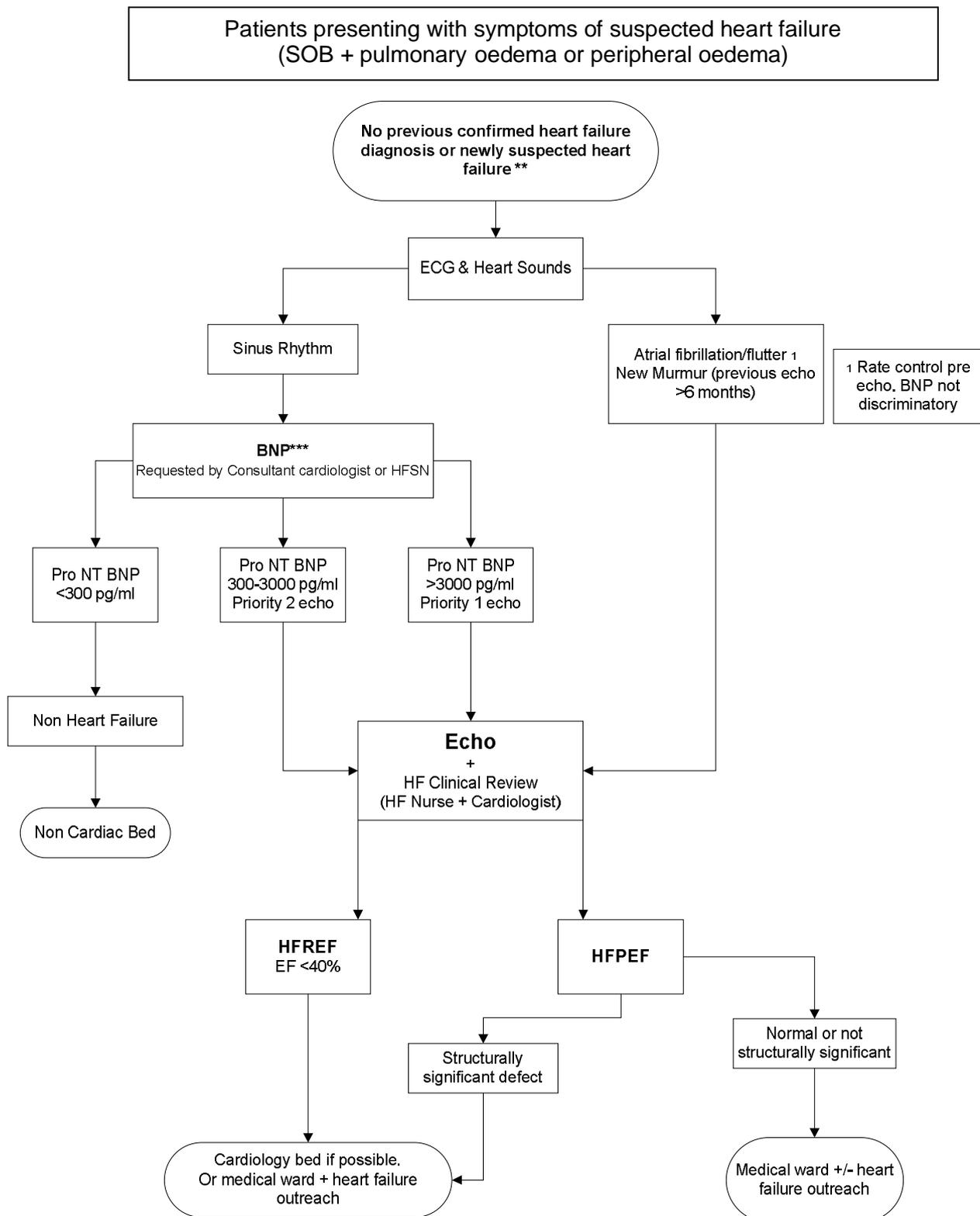
The combination of hydralazine and isosorbide dinitrate may also be considered earlier in patients unable to tolerate an ACE inhibitor or an ARB

## **The Use of Brain Natriuretic Peptide (BNP) in the Diagnosis of Systolic Heart Failure Algorithm and Explanation of Use**

BNP is well established as a rule out blood test for those patients who are breathless where heart failure is suspected. If a BNP is normal it is unlikely that the breathlessness is related to systolic heart failure. It can be used to streamline the use of echocardiography, and the urgency of outpatient appointments. Referral letters including BNP will be allocated appropriate clinic slots

The use of BNP in secondary care is currently not widespread and is only available on request via the heart failure nursing team or a cardiologist but to assist its appropriate use an algorithm has been designed

## Secondary Care Heart Failure BNP Requests\*



\* Authorised by Consultant Cardiologist or heart failure specialist nurse. Other Consultants may request via heart failure specialist nurse (bleep 566) as funding for test currently limited to cardiology only.

\*\* Patients with known confirmed decompensated heart failure follow flow chart for bed placement only

\*\*\* In patient heart failure nurse to co-ordinate requests by 12.00hrs Monday – Friday. Telephone Ext:55218 or 55206 to authorise batch requests

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## Document Control Information

*This is a controlled document and should not be altered in any way without the express permission of the author or their representative.*

*Please note this document is only valid from the date approved below, and checks should be made that it is the most up to date version available.*

*If printed, this document is only valid for the day of printing.*

*This guidance has been registered with the Trust. The interpretation and application of guidance will remain the responsibility of the individual clinician. If in doubt contact a senior colleague or expert. Caution is advised when using clinical guidance after the review date, or outside of the Trust.*

<b>Ref No:</b>	2140		
<b>Document title:</b>	Integrated Primary and Secondary Heart Failure Service, Service Model		
<b>Purpose of document:</b>			
<b>Date of issue:</b>	24 January 2020	<b>Next review date:</b>	24 January 2023
<b>Version:</b>	2	<b>Last review date:</b>	
<b>Author:</b>	Heart Failure Specialist Nurse		
<b>Directorate:</b>	Cardiology		
<b>Equality Impact:</b>	The guidance contained in this document is intended to be inclusive for all patients within the clinical group specified, regardless of age, disability, gender, gender identity, sexual orientation, race and ethnicity & religion or belief		
<b>Committee(s) approving the document:</b>	Care and Clinical Policies Group Meeting Chief Nurse Medical Director Clinical Director of Pharmacy Consultant in Cardiology		
<b>Date approved:</b>	15 January 2020		
<b>Links or overlaps with other policies:</b>			

<b>Have you identified any issues on the Rapid (E)quality Impact Assessment. If so please detail on Rapid (E)QIA form.</b>	Yes <input type="checkbox"/>	
	<i>Please select</i> Yes      No	
<b>Does this document have implications regarding the Care Act?</b> <i>If yes please state:</i>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Does this document have training implications?</b> <i>If yes please state:</i>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Does this document have financial implications?</b> <i>If yes please state:</i>	<input type="checkbox"/>	<input type="checkbox"/>

<b>Is this document a direct replacement for another?</b> <i>If yes please state which documents are being replaced:</i>	<input type="checkbox"/>	<input type="checkbox"/>

### Document Amendment History

Date	Version no.	Amendment summary	Ratified by:
10 March 2017	1	New	Care and Clinical Policies Group Chief Nurse Medical Director Clinical Director of Pharmacy
2 February 2018	1	Review date extended from 2 years to 3 years	
29 November 2018	1	Date change	Heart Failure Nurse
24 January 2020	2	Revised	Care and Clinical Policies Group Chief Nurse Medical Director Consultant in Cardiology Clinical Director of Pharmacy

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## The Mental Capacity Act 2005

The Mental Capacity Act provides a statutory framework for people who lack capacity to make decisions for themselves, or who have capacity and want to make preparations for a time when they lack capacity in the future. It sets out who can take decisions, in which situations, and how they should go about this. It covers a wide range of decision making from health and welfare decisions to finance and property decisions

Enshrined in the Mental Capacity Act is the principle that people must be assumed to have capacity unless it is established that they do not. This is an important aspect of law that all health and social care practitioners must implement when proposing to undertake any act in connection with care and treatment that requires consent. In circumstances where there is an element of doubt about a person's ability to make a decision due to 'an impairment of or disturbance in the functioning of the mind or brain' the practitioner must implement the Mental Capacity Act.

The legal framework provided by the Mental Capacity Act 2005 is supported by a Code of Practice, which provides guidance and information about how the Act works in practice. The Code of Practice has statutory force which means that health and social care practitioners have a legal duty to have regard to it when working with or caring for adults who may lack capacity to make decisions for themselves.

**“The Act is intended to assist and support people who may lack capacity and to discourage anyone who is involved in caring for someone who lacks capacity from being overly restrictive or controlling. It aims to balance an individual's right to make decisions for themselves with their right to be protected from harm if they lack the capacity to make decisions to protect themselves”. (3)**

All Trust workers can access the Code of Practice, Mental Capacity Act 2005 Policy, Mental Capacity Act 2005 Practice Guidance, information booklets and all assessment, checklists and Independent Mental Capacity Advocate referral forms on iCare

[http://icare/Operations/mental\\_capacity\\_act/Pages/default.aspx](http://icare/Operations/mental_capacity_act/Pages/default.aspx)

## Infection Control

All staff will have access to Infection Control Policies and comply with the standards within them in the work place. All staff will attend Infection Control Training annually as part of their mandatory training programme.

### Quality Impact Assessment (QIA)

Who may be affected by this document?	Please select			
	Patient / Service Users	<input checked="" type="checkbox"/>	Visitors / Relatives	<input checked="" type="checkbox"/>
General Public	<input checked="" type="checkbox"/>	Voluntary / Community Groups	<input type="checkbox"/>	
Trade Unions	<input type="checkbox"/>	GPs	<input type="checkbox"/>	
NHS Organisations	<input checked="" type="checkbox"/>	Police	<input type="checkbox"/>	
Councils	<input type="checkbox"/>	Carers	<input type="checkbox"/>	
Staff	<input checked="" type="checkbox"/>	Other Statutory Agencies	<input type="checkbox"/>	
Others (please state):				

Does this document require a service redesign, or substantial amendments to an existing process?	No
<i>If you answer yes to this question, please complete a full Quality Impact Assessment.</i>	

Are there concerns that the document could adversely impact on people and aspects of the Trust under one of the nine strands of diversity?	Age	<input type="checkbox"/>	Disability	<input type="checkbox"/>
	Gender re-assignment	<input type="checkbox"/>	Marriage and Civil Partnership	<input type="checkbox"/>
	Pregnancy and maternity	<input type="checkbox"/>	Race, including nationality and ethnicity	<input type="checkbox"/>
	Religion or Belief	<input type="checkbox"/>	Sex	<input type="checkbox"/>
	Sexual orientation	<input type="checkbox"/>		

*If you answer yes to any of these strands, please complete a full Quality Impact Assessment.*

If applicable, what action has been taken to mitigate any concerns?				
Who have you consulted with in the creation of this document?  <i>Note - It may not be sufficient to just speak to other health &amp; social care professionals.</i>	Patients / Service Users	<input type="checkbox"/>	Visitors / Relatives	<input type="checkbox"/>
	General Public	<input type="checkbox"/>	Voluntary / Community Groups	<input type="checkbox"/>
	Trade Unions	<input type="checkbox"/>	GPs	<input type="checkbox"/>
	NHS Organisations	<input checked="" type="checkbox"/>	Police	<input type="checkbox"/>
	Councils	<input type="checkbox"/>	Carers	<input type="checkbox"/>
	Staff	<input checked="" type="checkbox"/>	Other Statutory Agencies	<input type="checkbox"/>
	Details (please state):	Dr L Yung, Dr G Gribbin, Rebecca Hodge, Tim Chester		

## Rapid (E)quality Impact Assessment (EqIA) *(for use when writing policies)*

<b>Policy Title</b> (and number)		<b>Version and Date</b>	
<b>Policy Author</b>			
An (e)quality impact assessment is a process designed to ensure that policies do not discriminate or disadvantage people whilst advancing equality. Consider the nature and extent of the impact, not the number of people affected.			
<b>Who may be affected by this document?</b>			
Patients/ Service Users <input type="checkbox"/>		Staff <input type="checkbox"/>	Other, please state... <input type="checkbox"/>
<b>Could the policy treat people from protected groups less favourably than the general population?</b> <i>PLEASE NOTE: Any 'Yes' answers may trigger a full EIA and must be referred to the equality leads below</i>			
Age	Yes <input type="checkbox"/> No <input type="checkbox"/>	Gender Reassignment	Yes <input type="checkbox"/> No <input type="checkbox"/>
Race	Yes <input type="checkbox"/> No <input type="checkbox"/>	Disability	Yes <input type="checkbox"/> No <input type="checkbox"/>
Gender	Yes <input type="checkbox"/> No <input type="checkbox"/>	Pregnancy/Maternity	Yes <input type="checkbox"/> No <input type="checkbox"/>
Sexual Orientation			Yes <input type="checkbox"/> No <input type="checkbox"/>
Religion/Belief (non)			Yes <input type="checkbox"/> No <input type="checkbox"/>
Marriage/ Civil Partnership			Yes <input type="checkbox"/> No <input type="checkbox"/>
<b>Is it likely that the policy could affect particular 'Inclusion Health' groups less favourably than the general population?</b> (substance misuse; teenage mums; carers <sup>1</sup> ; travellers <sup>2</sup> ; homeless <sup>3</sup> ; convictions; social isolation <sup>4</sup> ; refugees)			Yes <input type="checkbox"/> No <input type="checkbox"/>
<b>Please provide details for each protected group where you have indicated 'Yes'.</b>			
<b>VISION AND VALUES:</b> Policies must aim to remove unintentional barriers and promote inclusion			
Is inclusive language <sup>5</sup> used throughout?			Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
Are the services outlined in the policy fully accessible <sup>6</sup> ?			Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
Does the policy encourage individualised and person-centred care?			Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
Could there be an adverse impact on an individual's independence or autonomy <sup>7</sup> ?			Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
<b>EXTERNAL FACTORS</b>			
<b>Is the policy a result of national legislation which cannot be modified in any way?</b>			Yes <input type="checkbox"/> No <input type="checkbox"/>
<b>What is the reason for writing this policy?</b> (Is it a result in a change of legislation/ national research?)			
<b>Who was consulted when drafting this policy?</b>			
Patients/ Service Users <input type="checkbox"/>		Trade Unions <input type="checkbox"/>	Protected Groups (including Trust Equality Groups) <input type="checkbox"/>
Staff <input type="checkbox"/>		General Public <input type="checkbox"/>	Other, please state... <input type="checkbox"/>
<b>What were the recommendations/suggestions?</b>			
<b>Does this document require a service redesign or substantial amendments to an existing process?</b> <i>PLEASE NOTE: 'Yes' may trigger a full EIA, please refer to the equality leads below</i>			Yes <input type="checkbox"/> No <input type="checkbox"/>
<b>ACTION PLAN:</b> Please list all actions identified to address any impacts			
<b>Action</b>	<b>Person responsible</b>	<b>Completion date</b>	
<b>AUTHORISATION:</b>			
By signing below, I confirm that the named person responsible above is aware of the actions assigned to them			
<b>Name of person completing the form</b>		<b>Signature</b>	
<b>Validated by (line manager)</b>		<b>Signature</b>	

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**Please contact the Equalities team for guidance:**

For South Devon & Torbay CCG, please call 01803 652476 or email [marisa.cockfield@nhs.net](mailto:marisa.cockfield@nhs.net)  
For Torbay and South Devon NHS Trusts, please call 01803 656676 or email [pfd.sdhct@nhs.net](mailto:pfd.sdhct@nhs.net)

**This form should be published with the policy and a signed copy sent to your relevant organisation.**

<sup>1</sup> Consider any additional needs of carers/ parents/ advocates etc, in addition to the service user

<sup>2</sup> Travelers may not be registered with a GP - consider how they may access/ be aware of services available to them

<sup>3</sup> Consider any provisions for those with no fixed abode, particularly relating to impact on discharge

<sup>4</sup> Consider how someone will be aware of (or access) a service if socially or geographically isolated

<sup>5</sup> Language must be relevant and appropriate, for example referring to partners, not husbands or wives

<sup>6</sup> Consider both physical access to services and how information/ communication is available in an accessible format

<sup>7</sup> Example: a telephone-based service may discriminate against people who are d/Deaf. Whilst someone may be able to act on their behalf, this does not promote independence or autonomy

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## Clinical and Non-Clinical Policies – Data Protection

Torbay and South Devon NHS Foundation Trust (TSDFT) has a commitment to ensure that all policies and procedures developed act in accordance with all relevant data protection regulations and guidance. This policy has been designed with the EU General Data Protection Regulation (GDPR) and Data Protection Act 2018 (DPA 18) in mind, and therefore provides the reader with assurance of effective information governance practice.

The UK data protection regime intends to strengthen and unify data protection for all persons; consequently, the rights of individuals have changed. It is assured that these rights have been considered throughout the development of this policy. Furthermore, data protection legislation requires that the Trust is open and transparent with its personal identifiable processing activities and this has a considerable effect on the way TSDFT holds, uses, and shares personal identifiable data.

Does this policy impact on how personal data is used, stored, shared or processed in your department? Yes  No

If yes has been ticked above it is assured that you must complete a data mapping exercise and possibly a Data Protection Impact Assessment (DPIA). You can find more information on our [GDPR](#) page on ICON (intranet)

For more information:

- Contact the Data Access and Disclosure Office on [dataprotection.tsdf@nhs.net](mailto:dataprotection.tsdf@nhs.net),
- See TSDFT's [Data Protection & Access Policy](#),
- Visit our [Data Protection](#) site on the public internet.