

Standard Operating Procedures for the Ambulatory Heart Failure Units



The purpose of these SOPs is to define and formalise some of the tasks that Ambulatory Heart Failure Unit staff have to perform in relation to patients treated within the units.

A diagnosis of heart failure is robust if it is made using clinical findings which include signs and symptoms compatible with heart failure **and** objective evidence of cardiac dysfunction.

Referral sources:-

- Cardiology clinics - patients may be referred in order to avoid admission to hospital, for heart rate control or rapid titration of medication.
- Acute Portals - to avoid admission to hospital. Patients must be discussed or reviewed by a member of Heart Failure Team before accepting for the unit. Other causes of breathlessness must be ruled out.
- Wards- to reduce length of stay in hospital. Refer patient to Cardiology team
- General practitioners via Choose and Book - to avoid admission to hospital. Patients must be triaged by a senior Heart Failure Nurse.
- Community Heart Failure Nurses- to avoid admission to hospital. Patients to be discussed with a member of Heart Failure Team.
- Other medical practitioners- Patients to be discussed with a member of Heart Failure Team.

Inclusion and exclusion Criteria

Exclusion criteria and consider admission – discuss with team if in doubt

Heart failure with:

- New or worsening angina / ACS
- New or worsening murmur or previously asymptomatic moderate/severe valve disease
- Cardiogenic shock
- Requirement for additional supplemental oxygen
- Pulmonary oedema
- Syncope
- Ventricular tachycardia
- Pt has co-morbidity that warrants hospitalisation in its own right
- Unexplained albumen <25mg/l
- Unexplained anaemia Hb<80g/l
- Unexplained O2 sats<92%

Inclusion Criteria – discuss with team if in doubt

- Robust diagnosis of heart failure now or previously
(Clinical features + **objective evidence of cardiac dysfunction**)
- Heart failure primary and most likely cause for clinical presentation
- Confirmed cardiac dysfunction sufficient to lead to the heart failure syndrome
- Clinically stable to receive care on an out-patient basis
- Able to manage activities of daily living on an out-patient basis
- Patient has agreed to treatment
- Patient / carer able to access and understand info leaflet and self-management guides

Standard Operating Procedure for Assessment and Treatment of Patients Requiring Fluid Management

On first visit to the clinic the following must be carried out:-

Patient details and initial nurse led diagnosis and management including:

- Demographics, NOK, contact details and falls risk must be documented.
- Wrist band must be attached to patient. (for medication administration and patient identification if going for further tests such as CXR).
- Heart failure specialist nurse review (clerking of patient). To include, physical assessment, medication review (to include allergies/sensitivities and OTC medication), education regarding their condition, self-management instructions to patient and carer and management plan. (Templates on Iportal)
- Establish NYHA class.
- Consider treatment with intravenous /subcutaneous diuretics (see Appendix 1) and commencement of heart failure medication if applicable.
- If intravenous diuretics are prescribed then cannulation will need to be carried out. Follow hospital guidelines on cannulation.
- If possible leave cannula insitu and provide patient and carer with cannula care instructions. (see appendix 2)

Observations

- All patients will have routine observations daily. ECG and more specialist observations at the start and / or end of their spell within the unit.
- Routine observations will be heart rate, blood pressure, oxygen saturations, temperature and daily weight.

Blood tests and CXR

- Routine tests to include: FBC, U+E, NT proBNP, LFTs. TFTs phosphate, iron, Tsat, transferrin (if not performed in past year). Dilated cardiomyopathy blood tests are as above and additionally bone profile and CK. CRP and ESR if inflammation or infection suspected, haematinics and myeloma screen if unexplained anaemia.
- All patients with a low albumin or renal impairment will need a urine dipstick.
- Patients with new or worsening unexplained breathlessness will also have a CXR if they have not had one within the last week.
- The nurse reviewing the patient is responsible for ensuring abnormal investigations have been discussed with a senior clinician and actioned.

Consultant Review

- All patients should be under a cardiologist. If already under a cardiologist then the patient's management will be discussed with that cardiologist or in their absence a AHFU based cardiologist.
- All patients not known to cardiologists will be discussed with an AHFU cardiologist.
- Patients presenting with the heart failure syndrome and no red flag symptoms (i.e. any of the exclusion criteria for the Unit) will be discussed with / reviewed by an AHFU cardiologist:

- Within 48 hrs if the patient is receiving medical optimisation for the heart failure syndrome
- Within 24 hrs – if the patient is to be discharged from the unit with a non-heart failure diagnosis

Subsequent patient visits to Ambulatory Heart Failure Unit:

- Patients must be weighed in order to ensure that treatment is being effective. Aiming for > 0.5kg in 24 hours weight loss.
- Blood tests for U&E.
- Follow guidelines for hypokalaemia if necessary
- Observations including blood pressure, heart rate and oxygen levels.
- Heart failure specialist nurse review. To ensure that treatment is being effective and to consider rapid titration of heart failure medication in line with NICE guidelines (2018) and European Society of Cardiology guidelines (2016)
- **If patients are not responding as expected / deteriorating / develop symptoms warranting admission or have new and unexplained blood test findings then a further discussion/review by Consultant must be considered.**

In the event of a cardiac arrest the crash team must be called on 2222 giving location as the Ambulatory Heart Failure Unit. Ensure the main door is unlocked to allow access for the crash team. Commence immediate life support and inform Consultant.

References

European Society of Cardiology, 2016. *Guidelines for the diagnosis and treatment of acute and chronic heart failure*. Available at: <http://www.escardio.org/guidelines>

National Institute for Health and Social Care Excellence (2018) *Chronic heart failure in adults: diagnosis and management*. Available at: <http://www.nice.org.uk/guidance/ng106>

Diuretic treatment

Diuretic Prescription

Some practical considerations for intravenous / subcutaneous diuretic administration

I. Route of administration

- This will be decided by the patient and the multidisciplinary team.

Consideration will be given to:

- Patient preference
- Ease of cannulation
- Ease of care of site of administration
- Volume required for a subcutaneous infusion
- Frequency of administration
- Preservation of venous patency in order to obtain blood samples

II. Type of diuretic

Type of subcutaneous / intravenous diuretic will be decided by the independent prescriber and will exclude any diuretics that the patient is allergic to.

III. Initial Dose of Diuretic

This could be the same or higher dose of the maintenance oral dosage.

IV. Options for on-going treatment – Standard

a) Uncomplicated patient responding to intervention

This group of patients will:

- Lose > 0.5kg/ day
- Have a symptomatic improvement
- Maintain U+ES (K⁺>3.5<5.5mmol/l, Na>125 mmol/l, creatinine <150% of baseline or < 300µmol/l) refer to UHNM guidelines for AKI
- Have no complications at the infusion site

Treatment will continue until treatment goals are achieved, the intervention is felt to be unsuccessful, patient wishes to stop the intervention. This assessment can be made by the patient and reviewing clinicians (nurses and doctors).

The patient will be converted to an equivalent dose of oral diuretic once the intervention is completed, unless it has been decided to stop diuretics entirely.

b)Complicated patients

I. Failure to lose >0.5kg/day

- If patient fails to lose > 0.5 Kg / day then increase dose of diuretic by the equivalent of 40mg of furosemide (to a maximum of 240mg of furosemide or its equivalent) or add thiazide as a stat dose to an unchanged dose of subcutaneous / intravenous diuretic.
- If patient fails to lose >0.5 kg after 48 hrs of intervention then as above, but implementing the option that was not used in the previous 24 hrs. Inform supervising cardiologist.
- If patient fails to lose >0.5kg after 72 hrs then contact cardiologist.
- Treatment for patients who are unable to be weighed must be based upon physical assessment and reported symptoms

II. Failure to improve symptomatically

If the patient fails to improve symptomatically despite adequate diuresis then alternate causes of symptoms other than heart failure will need to be reconsidered.

III. Failure to maintain U+Es

- If $K^+ < 3.5$ mmol/l augment potassium with potassium sparing diuretics and a short course of oral potassium supplements and dietary advice. If K^+ continues to fall despite this intervention then discuss with cardiologist.
- If $K^+ > 5.5$ and < 6.0 mmol/l (without other evidence of worsening renal function) first recheck serum K^+ . If still within this range consider reducing / stopping ACEI / ARB / Aldosterone receptor antagonist or other nephrotoxic medications. If K^+ increases despite this then consult cardiologist
- If $K^+ > 6.0$ mmol/l Patient will need an ECG and discussion with cardiologist or admission.
- If Na between 127 – 125 mmol/l with no evidence of symptomatic hyponatraemia then consider stopping aldosterone receptor antagonist / ACEI or other medications known to reduce sodium (other than diuretics). If Na continues to drop despite this then discuss with cardiologist.
- If Na < 125 mmol/l OR patient has symptoms of hyponatraemia then discuss with cardiologist / seek admission

- If creatinine increases to >20% of initial creatinine value or increases to >300µmol/l then reduce / stop nephrotoxic medications. If creatinine continues to increase then discuss with cardiologist or renal specialist.

IV. Infusion site complications

- If localised infection at site of infusion then patient will need antibiotics for cellulitis and will need review by senior. Follow trust based guidelines for antibiotic choice e.g. (Flucloxacillin + Amoxycillin would be recommended– dose and administration route to be determine based on size of patient, significance of infection and renal function. ?If allergic to penicillin – consider erythromycin or clarithromycin - dose and administration route to be determined on size of patient, significance of infection and renal function)
- If systemic infection from infusion site then discuss with GP/cardiologist to determine whether patient needs admission.
- If pain at subcutaneous infusion site then change site / reduce the concentration (increase the diluent) of the infused diuretic. If pain persists despite both of these actions then consider intravenous route or abandon intervention.

V. Haemodynamic instability

If patient develops postural hypotensive symptoms despite being fluid overloaded then: discuss with seniors re reduce / stop vasodilators / b blockers. B blockers will need to be reduced slowly and stopped in patients with underlying IHD. If Symptoms / signs of postural hypotension persist despite this then re-consider patient's fluid status or consider Consultant review re further management including inotropes, ultrafiltration or palliative care

VI. Failure to achieve treatment goals for other reasons

The responsible nurse would decide whether the reasons for this treatment failure were readily resolvable. If they were not then a decision as to whether the patient required hospice / hospital care, or whether it would be appropriate to initiate end of life care, would be based on the referral plan and / or discussions with the responsible clinician.

SHINE Unit Guideline For The Treatment of Hypokalaemia Using Oral Potassium Supplements (Sando K).

Purpose of Guideline

This guideline describes the management of hypokalaemia in adult outpatients attending the Ambulatory Heart Failure Clinic. It has been compiled to give advice to nursing staff caring for patients within the unit. The interpretation and application of this guideline remains the responsibility of the clinician.

Fluid retention, resulting in peripheral or pulmonary oedema is one of the main features seen in patients with decompensated heart failure. Diuretic therapy provides the mainstay of symptomatic management of heart failure as they relieve symptoms of fluid overload, such as oedema, congestion and dyspnoea. (Khatib 2008).

The majority of patients attending the unit are treated for decompensated heart failure. They receive treatment using loop diuretics (first line therapy), often in combination with thiazide diuretics for patients with refractory oedema. The use of these drugs can cause hypokalaemia.

Normal adult potassium range is 3.5-5.3 mmol/L

Severity of Hypokalaemia	Serum Level (mmol/L)
Mild	3.0-3.5
Moderate	2.5-2.9
Severe	<2.5

Importance of Hypokalaemia.

The major risk of hypokalaemia is dysrhythmia. For patients with heart failure, ischaemia, patients on digoxin and those with left ventricular hypertrophy, any hypokalaemia could have serious consequences.

The kidneys determine potassium haemostasis and excess potassium is excreted in the urine. Blood tests for urea and electrolytes are carried out each time a patient attends the unit. This allows for rapid detection of hypokalaemia.

Signs and Symptoms of Hypokalaemia include:

- Arrhythmia. ECG changes (U waves, T wave flattening, ST segment changes).
 - Digoxin sensitivity.
 - Muscle weakness, cramps, tetany and rhabdomyolysis.
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- Lethargy and confusion.

Treatment of Hypokalaemia

Serum Potassium	Treatment	Comments
3.0-3.5mmol/L	Prescribe oral potassium chloride tablets (72 mmol/day) Sando-K 2 tablets TDS	Provide TTO pack against prescription. Ask patient to bring this pack to the clinic at each appointment. -Monitor serum potassium at each appointment and adjust treatment accordingly.
<3.0	Discuss with cardiologist, may need admission for intravenous potassium replacement potassium.	

Check for other causes of potassium loss, such as diarrhoea

Patients with Heart Failure Syndrome

Ensure that an ACE inhibitor or ARB is optimised providing renal function and Bp allow.
Consider adding Spironolactone or Eplerenone.

Development of Acute Kidney Injury

See trust guidelines

Development of Hypomagnesemia

See trust guidelines

Discharge Procedure from AHFU

The following must be considered when discharging patients from AHFU.

- Ensure the patient and their carers understand discharge instructions such as medication doses to be taken.
- Ensure that the discharge medication sheet is complete and up to date (ensure any changes to medication are documented at the time, as this saves having to 'trawl' through the notes). Gp's **will not** issue prescriptions for changes to medication unless they are informed of the changes in writing.
- Ensure that patients have and understand the RAG sheet.
- Ensure patients and their carers are able to recognise the signs and symptoms of decompensation and when to seek help.
- Ensure that they have contact numbers in case they decompensate.
- Ensure that they are aware of follow up plans if appropriate.
- Refer to cardiac rehabilitation or other supporting teams such as the DMH team if appropriate.
- Ensure that any instructions from the cardiologist are carried out prior to discharge. (such as ordering of repeat echo or 24 hour tape)
- Ensure that discharge letters are dictated in a timely manner using the follow headings:
Diagnosis, Medication and Management Plan

Patients discharged on a daily basis from AHFU but having ongoing treatment must be given **Patients discharged on a daily basis due to ongoing treatment will need to be handed the following slip. Once completely discharged from this admission then a formal letter should be sent to the GP.**

Discharge planning

Ensure AHFU best practice checklist has been completed prior to discharge planning:

Checklists for AHFU

All patients admitted to the heart failure unit will have the following questions addressed:

1. Has the patient presented with the heart failure syndrome?
2. Has cardiac dysfunction been demonstrated objectively?
3. What is the mechanism of cardiac dysfunction?
4. What is the aetiology of the mechanism?
5. Has the patient been seen by a cardiologist and if not would it be appropriate to be seen by one?
6. Has a positive strategy for fluid management been established?
7. Is the patient on optimal heart failure medications?
8. Is the patient suitable for non-pharmacological therapies?
9. What phase of heart failure management is the patient in?
10. What other cardiac co-morbidities require optimisation?
11. What other non-cardiac co-morbidities need investigation and optimisation?
12. Would the patient benefit from palliative care intervention?
13. Is the patient aware of the effect of heart failure on their future symptoms / life expectancy?
14. Is the patient aware of any future investigations / planned treatments / medical follow up?
15. Is the patient aware of higher risk features that suggest they should seek specialist advice sooner?

Red Amber Green Heart Failure Self-management tool

<u>How am I?</u>	<u>What should I do?</u>
<p>Your weight has not increased or your weight has increased by 4lb / 2kg over 3 days but you agree with the statements below :</p> <ol style="list-style-type: none"> 1. You are no more breathless than usual 2. Your ankles are no more swollen than usual 3. Any other conditions you have are no worse than usual 4. You are as active and mobile as you normally are 5. Your main carer's health is unchanged 	<p>Green</p> <p>No need for a sooner review by the heart failure specialist team / GP/ practice nurse. However you should be reviewed at least twice a year.</p> <p><u><i>PTO for further information</i></u></p>
<p>Your weight has increased by 4lb / 2kg over 3 days and / or any one of the statements below is true:</p> <ol style="list-style-type: none"> 1. You are feeling more breathless than usual 2. Your legs are more swollen than before 3. You are breathless at night or need more pillows to sleep on 4. You are unable to be as active as usual /you are a bit more muddled than usual 5. Any of your other conditions are worsening 6. Your main carer is becoming more ill and unable to help look after you as much as before 	<p>Amber</p> <p>Try simple measures to improve your symptoms and / or consider a sooner appointment with the heart failure specialist team/GP/practice nurse.</p> <p><u><i>PTO for further information</i></u></p>
<p>If over 3 days your symptoms continue to worsen, or if you have other symptoms below consider phoning your GP or use the urgent contact numbers in the right hand column:</p> <ol style="list-style-type: none"> 1. You have worsening: breathlessness or leg swelling or are unable to be as active as usual 2. You have worsening or new angina 3. You have blacked out 4. Any of your other medical conditions are continuing to worsen 5. You have diarrhoea or vomiting for more than 24 hours 6. You have symptoms of an infection and / or you feel very unwell 7. Your carer becomes very ill / has been admitted to hospital and is unable to take care of you 8. You become confused about your medications 	<p>Red</p> <p>Use the urgent contact numbers below, or consider phoning 999 if you feel very unwell:</p> <p>Community Heart Failure Team: Monday - Friday 0300 123 0 979 Ext 4183</p> <p>RSUH Heart Failure Clinic: Monday - Friday 01782 672800 or page via switch 01782 715444 (pager number [REDACTED])</p> <p>Out of Hours: 111 <u>OR</u> 0300 123 0 989</p> <p><u><i>PTO for further information</i></u></p>

What do some of the 'how am I' statements mean?

What does 'other conditions' mean?

These are other medical problems that you and your GP are already aware of and that you are already treated for.

'You are unable to be as active as usual / a bit more muddled than usual': This means that if you are not able to do as much as you would normally do or are becoming a bit more confused because of:

- Pain
- Unsteadiness / falls
- Worsening heart failure
- Worsening of another condition you have
- Developing a new problem
- Infection

Then it is important to contact one of the medical or nursing team looking after you.

Symptoms of infection

This can include:

- Temperatures
- Sweats
- New cough
- Change in colour of your usual sputum
- Pain on passing water
- Diarrhoea / vomiting
- Increasing falls or loss of balance

What does 'angina' mean?

This refers to specific sensations / aches / pains in your upper body that your doctor thinks are coming from your heart. If you are not sure or worried about chest pains then please discuss this with your GP soon.

Confused about medication: In terms of specific doses / why you take specific medications or whether you are uncertain you have taken today's medication correctly.

Useful telephone numbers:

GP surgery (please fill in number)

Name of Cardiology Consultant

Consultant's secretary

Community Heart Failure Nurses

AHFU 01785 255371 ext 3215 or 2727(answer machine)

Useful websites:

British Heart Foundation www.bhf.org.uk

ESC Heart Failure Patient Pages www.heartfailurematters.org

Cardiomyopathy Association www.cardiomyopathy.org

Carers Association www.carersfirst.com



Medical Communication minimum dataset for communication to GP

The medical communication represents the minimum heart failure information recommended for a comprehensive heart failure plan.

The current reasons for admission, medications administered, medication changes, medications on discharge and further investigations are minimum datasets to be communicated

Admissions from AHFU

We should aim to try and try and identify patients early that may require admission and ensure they have:

- A senior review
- A written plan for the admitting team
- Investigations such as required bloods, ECG and where possible relevant x rays before the patient is admitted to the ward.

Admit via the heart centre bed co-ordinator and specify whether a monitored or non-monitored bed is needed.

Non-Cardiac Admissions

Ensure AHFU cardiologist has discussed with admitting medical registrar or consultant on the acute medical unit.

Dealing with complications

Cardiac arrest

Standard trust policy.

Sepsis

In suspected arrange full septic screen as appropriate e.g.:

- Wound swab
- Blood culture

- Urine dipstix and MCU/ CSU

For appropriate treatment see trust medical guidelines.

If iv antibiotics required consider OPAT / hospital at home services.

Inappropriate admission

If patient does not have the heart failure syndrome as the main cause for their admission then ensure early senior review and a comprehensive plan for GP re further investigation and treatment options and sign post to most appropriate referral source.

Ensure GP aware of any test results performed or ordered from the shine clinic.

Repeated inappropriate admissions from the same referral source should prompt the team to offer education as to acceptance criteria for shine patients.

Renal and electrolyte dysfunction

See above and trust guidelines

End of Life discussions

These should be documented in the notes and communications shared with GP as appropriate re preferred place of care , preferred place of death, acceptance of palliative care services involvement, ICD deactivation, need for DS1500 etc.

Complaints process

Any person wishing to complain about the service should be directed to the trusts complaints policy and given a PALS leaflet.

AHFU SOP

This should be reviewed yearly and the updated version forwarded to the trust's governance and risk committee.

Cannula Care Sheet

You have attended the Ambulatory Heart Failure Clinic today. As part of your treatment you have had a Cannula inserted to deliver your treatment. To reduce the risk of infection we have sent you home with a Cannula still in place.

In order to prevent the Cannula being displaced it will be secured with a bandage, but in the event that it is displaced please follow these Simple instructions:-

- Press firmly over site with a clean cloth
- Elevate arm
- Apply pressure for 10 minutes. If bleeding continues profusely seek medical attention
- Place displaced Cannula in small bag and dispose in waste bin
- If you are unable to attend clinic for what ever reason the following day, please contact us on 01785886215 so we can make arrangements for a district nurse to visit you at home to remove the cannula.