Leeds Community Healthcare NHS Trust

Providing Intravenous / Subcutaneous (IV / SC) Diuretics in the Community Setting for Patients with Heart Failure Clinical Guideline	
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Equality Analysis

Leeds Community Healthcare NHS Trust's vision is to provide the best possible care to every community. In support of the vision, with due regard to the Equality Act 2010 General Duty aims, Equality Analysis has been undertaken on this policy and any outcomes have been considered in the development of this guideline.

Contents

Section		**Page**
1	Introduction	4
2	Aims and Objectives - Client inclusion - Client exclusion	4
3	Definitions	5
4	Responsibilities	6
5	Resources and Equipment	7
6	Action and Rationale	7
7	Mental Capacity Act	13
8	Risk Assessments	14
9	Training Needs	14
10	Monitoring Compliance and Effectiveness	15
11	Ratification and approval process	16
12	Dissemination and implementation	16
13	Review arrangements	16
14	References	17
15	Associated documents	17
Appendices		
1	Referral Form for Community Intravenous / Subcutaneous Diuretics (Heart Failure)	18
2	Pathway for Referral and Patient Journey Through IV Diuretic Service	20
3	Summary of IV / SC Diuretic Procedure	21
4	Visual Infusion Phlebitis Score	22
5	Medicines Management Audit: IV Diuretic Service	23
6	Procedure For Administration Of Intravenous Diuretics To Patients With Heart Failure In The Community	24

1 Introduction

Heart Failure is a multi-system disorder affecting nearly 900,000 patients in the United Kingdom. The mortality and morbidity from heart failure are greater than for most cancers.

While heart failure outcomes have improved over the last few years due to better use of evidence based treatments many patients are still admitted for symptom control.

The predominant symptoms of worsening heart function, breathlessness and worsening oedema are due to congestion. Currently, if increased oral diuretics fail to improve symptoms for patients, when at home, they are often admitted to hospital for intravenous (IV) diuretic treatment.

2 Aim and Objectives

The aim of this guideline is to provide recommendations for practice in relation to the prescribing and administration of intravenous/ subcutaneous diuretics in patients with heart failure in Leeds.

The objective of Intravenous / Subcutaneous (IV/ SC) diuretic treatment is to relieve congestion and associated symptoms. It should also relieve increasing pressures on acute hospital beds and will focus on delivering care closer to home.

Many patients with heart failure are nearing the end of their lives. The provision of community IV/ SC diuretics offers these patients more participation and choice in treatment decisions and regarding their preferred place of care when oral drugs are failing to provide symptomatic relief.

Client Inclusion

Any adult over the age of 18 registered with a Leeds General Practitioner (GP) who requires the administration of IV / SC diuretics in the community setting / community, in-patient setting or prison and consent to the procedure or are treated in their best interest in line with the Mental Capacity Act (MCA) 2005.

- The patient must have a fully functioning phone, that is capable of making and receiving calls at all times which they have the ability to use.
- The patient will have decompensated heart failure associated with any of the following despite adherence to oral diuretics:
    - significant weight gain
    - increased shortness of breath/ orthopnoea/ Paroxysmal Nocturnal Dyspnoea (PND)/ New York Heart Association (NYHA) class III/IV
    - increased peripheral oedema/ ascites
    - clinical signs of fluid overload
- The patient's clinical signs cannot be attributed to any other treatable cause (e.g. uncontrolled Atrial Fibrillation (AF), bradycardia, sepsis, thyroid disease,anaemia)
- The patient must have adequate social arrangements to manage IV / SC therapy
- The patient must have confirmed Left Ventricular Systolic Dysfunction (LVSD)

Client Exclusion

Patients under 18 years

- Children up to the age of nineteen years receiving a service from the Children's Services

- Patients who do not give consent who have capacity to do so
- Patients suffering from haemophilia or other bleeding disorder
- Patients with evidence of acute coronary syndrome or haemodynamically significant arrhythmia – these should be admitted to hospital
- Patients who have symptomatic postural hypotension. This is not an absolute contraindication to community IV / SC diuretic use but these patients should be discussed with a cardiologist prior to treatment.
- If patients Creatinine >300µmol/l, Sodium <125mmol/l, Potassium <3.5mmol/l, these should be discussed with cardiologist as these may not be absolute contraindications to IV/ SC diuretics. Also consider the need for potassium supplements in the event of hypokalaemia.
- Patient has co morbidity that warrants hospitalisation in its own right.

For patients who are being considered for IV / SC diuretics in their own home, they are excluded if:

- An alternative treatment, via any other route, which could be prescribed as a suitable alternative is available
- They do not have a venous access device that is appropriate in relation to the type of drug to be administered and the length of the treatment plan.
- There are any environmental issues which make treatment in the community setting unsafe or impractical.
- They do not have a fully functioning phone that is not capable of making and receiving calls at all times
- A risk assessment should be carried out for patients who have a history of substance misuse to determine suitability for IV therapy. This should consider their current history/reason IV therapy is required.
- They have a previous history of anaphylaxis to loop diuretics
- They are cognitively impaired / confused and do not have access to a formal/informal carer
- They are homeless

3 Definitions

Heart failure is a complex clinical syndrome of symptoms and signs usually due to impairment of the pumping ability of the heart, which cannot adequately support physiological circulation. It is caused by structural or functional abnormalities of the heart.

The symptoms most commonly encountered in heart failure are breathlessness (exertional breathlessness, orthopnoea and paroxysmal nocturnal dyspnoea) fatigue and ankle swelling. These are usually due to pulmonary and systemic congestion. Decompensated heart failure occurs when the patient's symptoms deteriorate, and this is usually due to excessive fluid retention. This volume overload can be managed by intravenous diuretics which relieve symptoms of congestion when oral diuretics fail to improve symptoms.

Subcutaneous diuretics have also been shown to be efficacious in patients with advanced heart failure so are also included in this guideline.

Left ventricular systolic dysfunction (LVSD) is the condition where the ability of the left ventricle (main pumping chamber) of the heart to pump is impaired and this often

results in heart failure. Most research studies into heart failure have concentrated on patients with LVSD and there is a lack of evidence surrounding therapeutic interventions with patients who do not have LVSD.

At present, the Leeds Community Heart Failure Service requires that patients have a confirmed diagnosis of LVSD. The community IV diuretic service will run as part of the Leeds Community Heart Failure Service. Patients referred to the IV diuretic service will be assessed by a community Heart Failure Nurse Specialist (HFNS) who has a non medical prescribing qualification. It will be this nurse who assesses the patient and prescribes the IV / SC diuretic if appropriate. The patient pathway within the IV diuretic service is summarised in the flow chart in Appendix 1.

4 Responsibilities

All staff employed by Leeds Community Healthcare NHS Trust must work in concordance with the Leeds Safeguarding Multi-agency Policies and Procedures and local guidelines in relation to any safeguarding concerns they have for service users and the public with whom they are in contact.

Role of the Prescribing HFNS (IV diuretic service) is discussed throughout this guideline and includes the following:

- To assess patients referred into the IV diuretic service to identify their suitability for receiving community IV / SC diuretics (see inclusion / exclusion criteria)
- Cannulation, prescribing and administration of IV / SC diuretics
- To assess, monitor and supervise patients receiving IV diuretics in the community.
- To provide education to patients and their carers.
- To ensure availability of required equipment.
- To train, educate and support staff involved in managing patients requiring IV / SC diuretics in the community.
- To co-ordinate discussions with hospital, community and hospice health and social care professionals.
- Collect audit data to monitor the effectiveness of the service
- Communicate all treatment decisions with the patient's GP

Role of the HFNS (Community Cardiac Services)

- Identify patients on their caseloads who may be appropriate to receive IV / SC diuretics and refer onto the Prescribing HFNS (IV diuretic service) for assessment and review
- Following completion of IV diuretic therapy the patient will be referred back to their HFNS. The HFNS should contact the patient within 4 days of completion of IV diuretic therapy and visit within a week.
- Subsequent contacts thereafter will be left to the clinical judgement of the HFNS

Role of the Cardiologist / Cardiology Registrar

- To act as the "Responsible Physician" as per British Heart Foundation guidance
- Be available for review of patient management as required including review of biochemistry results
- To facilitate admission to secondary care if required
- To advise regarding ongoing management as necessary

Role of other Nursing Teams involved in the management of patients receiving IV / SC diuretics

Patients may have their IV / SC diuretics administered by other nurses provided they are suitably qualified / competent to administer IV / SC medicines. These nurses would not be expected to prescribe IV / SC diuretics – this must only be performed by a HFNS with a non-medical prescribing qualification. The role of these nurses is:

- Administration of the diuretic as prescribed following the guidance in the Clinical Guideline for the Administration of Intravenous Therapy to Adults
- To record the patients blood pressure and weight as requested by the prescribing HFNS
- Be aware of when and how to contact the HFNS / cardiologist for advice if required which includes understanding the parameters of weight measurements, blood pressure and blood test results as outlined in this guideline.
- To contact the HFNS / cardiologist if there are any concerns regarding the patient before administrating the IV/ SC diuretic.

5 Resources & Equipment

For a full list of equipment required, please refer to the 'Procedure For Administration of Intravenous Diuretics to Patients With Heart Failure In the Community' competency document.

6 Clinical Guideline for Providing Intravenous / Subcutaneous (IV / SC) Diuretics in the Community Setting for Patients with Heart Failure

Action	→	Rationale
Referral Referral to the IV diuretic service will be accepted from the following services, provided they meet the patient inclusion criteria (see inclusion / exclusion criteria): • Heart Failure Nurse Specialist (HFNS) in the community or acute trust • Acute trust on discharge or following an out patient appointment • General Practitioner (GP) • Other community services (for example, community matrons, practice nurses, district nurses, Intermediate Care Team etc). Referrals can be made by completion of a referral form (Appendix 1) or following discussion with a HFNS.	→	So patients are appropriately referred and receive timely treatment.
Assessment Once the patient has been identified as	→	IV diuretics would need to be prescribed

Action	→	Rationale
meeting the selection criteria for the service they will receive a home visit by the community HFNS (IV diuretic service) prior to commencing IV diuretics:		by a HFNS who has an appropriate non-medical prescribing qualification. This person would also clinically assess the patient to ensure they meet the inclusion criteria set out in this guideline and that IV / SC diuretics are required.
Treatment goals IV diuretic administration should be directed towards achieving a defined goal such as: **1.** Lose 0.5 – 2 kg/ day **2.** Attainment of a target / goal weight **3.** Have a symptomatic improvement **4.** Maintain renal function if appropriate (K+>3.5<5.5mmols, Na>125mmols/l, creatinine <300µmol/l or increases by no more than 50%) **5.** Have no complications at the infusion site A summary of the patient journey in the IV diuretic service is set out in Appendix 2.	→	Identify goals prior to starting treatment. This will enable the practitioner and patient to assess the effectiveness of the intervention and identify when it is no longer needed. **1 & 2** - weight loss is an indicator of fluid loss **3** – improvement in breathlessness and oedema also indicates loss of fluid and success of treatment **4** - There is a risk of renal impairment with IV diuretics so it may be appropriate to monitor this **5** – the infusion site is a potential entry port for bacteria and so increases risk of infections.
Treatment procedure for IV diuretics (The procedure is summarised in a flow chart -see Appendix 3)		
Discontinue existing prescribed oral loop diuretics.	→	The diuretic will be given in parenteral form rather than oral.
Continue other heart failure medications (ACE I or ARB and Beta Blocker) at baseline dose unless adjustment is indicated clinically.	→	To maintain clinical stability of patients condition and ensure that patient continues to receive optimum dose of medication as advised by NICE (2010).
Furosemide should be the IV diuretic of choice unless the patient is known to be allergic to it. This can be obtained from the HFNS office base for the initial dose. Thereafter it will be prescribed on a named patient basis and can be obtained from / dispensed by selected pharmacies.	→	There is no evidence to suggest that alternative diuretics are any more effective when given in parenteral form. Using only one diuretic will ensure easier access to the medication. This method of obtaining the medication will minimise waste of unused medication.
The HFNS would cannulate / insert a suitable IV access device using an	→	A suitable access device will allow the delivery of IV diuretics. Blood may only

Action	→	Rationale
aseptic technique (and consider taking U&E sample if clinically indicated). **Refer to the Clinical Guideline for the Administration of Intravenous Therapy to Adults for care of the cannula.**		be sampled from the cannula immediately after insertion before it has been flushed. At any other time samples may be contaminated and / or give a false reading.
Day 1: • Starting dose of Furosemide should be less than or equivalent to the patients current oral dose and will be decided following assessment by the HFNS.	→	The dose prescribed needs to ensure that the risk of complications related to high dose IV diuretics is minimised. The patient may not have been adequately absorbing the oral diuretics in the lead up to this treatment so a lower dose may be appropriate.
This will be given either as a once daily bolus regimen (at a rate of 4mg/min using appropriate syringe driver)	→	The licensing agreement of IV Furosemide specifies that it must be delivered at a rate of 4mg/min.
Day 2 onwards: • If there is a weight loss of 0.5-2kg per day continue on the current dose of IV Furosemide.	→	This indicates the patient is responding well to the IV Furosemide.
• If the weight loss is <0.5kg per day then increase Furosemide by 40mg (to a maximum of 240mg per day)	→	The patient is not adequately responding to the IV Furosemide which may be due to the dose being too low
• If the weight loss is >2kg per day then reduce Furosemide by 40mg	→	The patient is losing fluid too quickly and is at increased risk of complications. The Furosemide may be effective at a lower dose with less risk.
If the patient reaches target weight or achieves treatment goals then IV diuretic therapy should be discontinued and the patient converted to an equivalent oral dose.	→	Goal of treatment has been achieved. Converting to an oral dose of diuretics should help to maintain their euvolaemic status.
Treatment procedure for SC diuretics		
Discontinue existing prescribed oral loop diuretics. **Continue** other heart failure medications (ACE I or ARB and Beta Blocker) at baseline dose unless adjustment is indicated clinically		See rational for treatment procedure for IV diuretics.
Furosemide should be the SC diuretic of choice unless the patient is known to be		

Action	→	Rationale
allergic to it and can be obtained as described above. **Day 1:** Starting dose of Furosemide should be less than or equivalent to the patients current oral dose and will be decided following assessment by the HFNS. This will be given as a 24 hour infusion using the McKinley syringe driver. **Day 2 onwards:** • If weight loss of 0.5-2kg per day/ patient shows symptomatic improvement continue on current dose of SC Furosemide If weight loss is <0.5kg per day/ patient shows no signs symptomatic improvement then increase Furosemide by 40mg (to a maximum of 240mg per day) • If weight loss is >2kg per day/ patient shows clinical signs of dehydration then reduce Furosemide by 40mg • If patient reaches target weight/ or achieves treatment goals then SC diuretic therapy should be discontinued and patient converted to an equivalent oral dose.		
Observations required during treatment of IV/ SC diuretics • Before IV diuretic therapy baseline FBC, U&E, LFT, TFT tests should be carried out as appropriate. Further measurement of U&E's will be required as the patient's condition dictates. • Daily recording of blood pressure, pulse, weight, symptoms as appropriate.	→ →	This will assess for any other underlying pathology that may exacerbate symptoms such as anaemia. It is also useful for the clinician to have a baseline which can be compared with future results during treatment. Measuring blood pressure will help to identify hypotension which may be a complication of IV/SC diuretics. Weight and patient symptoms will help to assess the effectiveness of the diuretic dose.

Action	→	Rationale
	→	It may not be appropriate to carry out blood tests/ other observations on patients in the palliative stage of heart failure as the results are unlikely to affect treatment decisions which are purely aimed at symptom control.
• Daily inspection of cannula site and documented in patients notes	→	The cannula site should be inspected daily to assess for signs of infection. See Appendix 4.
• Assessment by the HFNS may also include chest auscultation, JVP measurement, oedema status and NYHA classification.	→	This assessment may be carried out by a clinician who has advanced clinical skills. They can enhance diagnosis and assessment of effectiveness of treatment.
Complex patients **1. Failure to lose weight** • If patient fails to lose >0.5kg by day 3 (and following increase in dose of IV/ SC Furosemide) then consider adding oral Bendroflumethiazide to an unchanged dose of IV/ SC Furosemide. Advice could also be sought from Cardiologist as required.	→	If this is the case, the increased dose of IV/ SC Furosemide is not adequate to provide a clinical improvement. Bendroflumethiazide may help to increase diuresis when given in combination with a loop diuretic. This combination would put the patient at additional risk of complications therefore it would be appropriate to discuss this with the cardiologist.
• Treatment for patients unable to be weighed must be based upon physical assessment and reported symptoms.	→	Patient symptoms / signs are also a guide for clinicians to assess the effectiveness of treatment.
• If patient fails to improve symptomatically despite adequate weight loss then alternative causes of symptoms other than heart failure need to be reconsidered.	→	Other conditions may cause / exacerbate the patient's symptoms.
2. Failure to maintain renal function • If potassium (K) <3.5 augment potassium with potassium sparing diuretics and / or a short course of oral potassium supplements and dietary advice. If K+ continues to fall despite this intervention then discuss with Cardiologist.	→	Low potassium is a side effect of diuretics and leads to an increased risk of arrythmias. Low potassium can be corrected with supplements therefore reducing this risk.

Action	→	Rationale
• If Sodium (Na) between 125-127 mmol/l with no evidence of symptomatic hyponatraemia then consider stopping aldosterone receptor antagonist/ ACE I or other medications known to reduce sodium (other than diuretics). If Na continues to drop despite this then discuss with Cardiologist.	→	Low sodium can be a side effect of diuretics. It can also be chronic problem in patients with heart failure and may not need action unless the patient is symptomatic.
• If Na <125mmol/l OR patient has symptoms of hyponatraemia then discuss with Cardiologist.	→	If the patient is symptomatic of the low sodium then reducing other medication may help.
• If creatinine increases by more than 50% of initial creatinine value or increases to >300µmol/l then seek advise from Cardiologist.	→	IV/SC diuretics may lower the sodium even further to unacceptably low levels Renal impairment is a side effect of diuretics. These guidelines allow for some deterioration to renal function, however if the values go beyond these ranges then advice should be sought
3. Haemodynamic instability If patient develops postural hypotensive symptoms or if systolic blood pressure is <85mmHg then consider reducing or stopping vasodilators/ beta blockers (beta blockers will need to be reduced slowly in patients with underlying IHD). If low systolic blood pressure/ symptomatic hypotension persists despite this intervention then seek advice from Cardiologist.	→	Hypotension can be a side effect of diuretics. It can also be a side effect of other medication which may be reduced whilst the patient is receiving IV/SC diuretic therapy.
4. Infusion site complications All patients with an IV/ SC access device in place must have the IV/ SC site checked at least daily for signs of localised infection. Please see Visual Infusion Phlebitis (VIP) Score (Appendix 4). **Refer to the Clinical Guideline for the Administration of Intravenous Therapy to Adults for care of the cannula.**	→	To assess for signs of inflammation and reduce the risk of infection. The cannula may be re sited if necessary. Any inflamed site should continue to be monitored using the VIP score once the cannula has been removed.
5. Adverse Reaction / anaphylaxis Adrenaline 1:1000 should be available	→	Adrenaline is an effective treatment of

Action	→	Rationale
during delivery of IV/SC diuretics. Patients who have an anaphylactic reaction should be admitted to hospital. Adverse reactions / anaphylaxis should be reported using the DATIX incident reporting system. Suspected adverse reactions to the Furosemide should be reported via the yellow card system**.**		anaphylaxis. The anaphylaxis training module advises that all patients with an anaphylactic reaction should be admitted to hospital
Post IV / SC diuretic treatment by the HFNS Weight and fluid status will need to be closely monitored and oral diuretic dose may need to be further adjusted. Doses of ACE I, ARB and Beta blocker may have been adjusted during the IV diuretic treatment phase and may thus require re-optimisation. If appropriate consider referral to palliative care service if not already done prior to or during treatment. **Advice from Cardiologist should be sought by the clinician administering IV/ SC diuretics at any stage in the Patient's treatment if required.**	→ → →	There is a risk of the patient symptoms deteriorating once they return to oral diuretics. This will enable the patient/ clinician to detect these changes early and initiate appropriate action. Optimising these medications improves the prognosis and symptoms of patient with heart failure. This would be appropriate If the patient has any needs / symptoms relating to their end stage condition which cannot be met by the HFNS.
Record keeping Records must be made at each patient consultation detailing the assessment, plans for treatment, medication (including doses) given and evaluation. A copy of these records should be kept within the patients notes at home. A copy of the patient records should also be sent to the Coronary Care Unit at Leeds General Infirmary so that they are available to the cardiology registrar on call, as they may be contacted to give treatment advice.	→	To facilitate the completion of ongoing care records. To enhance communication between healthcare providers. To be used for local audit purposes.

7 Mental Capacity Act (MCA 2005 Code of Practice)

This Act applies to all persons over the age of 16 who are assessed to lack capacity to consent or withhold consent to treatment or care. Under the MCA there are occasions

when anyone lacking capacity should, or may require an Independent Mental Capacity Advocate, where treatment or residence decisions have a significant impact on an individual's life and rights.

For further information ask ELSIE.

8 Risk Assessments

Clinical risks have been discussed throughout the guideline.
Staff visiting patients at home must adhere to the Lone Worker Policy.
The risks of the patient not receiving community IV / SC diuretics if clinically indicated include hospital admission or further deterioration in symptoms.

9 Training Needs

IV / SC diuretics should only be prescribed by qualified nurses with current Nursing and Midwifery Council (NMC) registration and who have a Non-Medical Prescribing qualification recorded by the NMC and Leeds Community Healthcare NHS Trust.

Anaphylaxis training must be undertaken. This is available on the e-learning platform. All staff must ensure that they are up to date with their statutory and mandatory training (as per the statutory and mandatory training policy).

Staff must be satisfied that their skills and knowledge are up to date when reviewing the learning outcomes of any training attended. Cannulation and administration of IV therapy training must have been completed. Staff must have face to face training and competency frameworks signed off by a competent practitioner prior to administering IV therapy independently (this framework must be kept as evidence of learning). It is the responsibility of each practitioner to access the required training. It is the responsibility of managers to ensure that practitioners can access and attend training as detailed above.

Refer to the Statutory and Mandatory Training Policy Training Needs Analysis. Up to date information is available on the Intranet for course details.

10 Monitoring Compliance and Effectiveness

Minimum requirement to be monitored / audited	Process for monitoring / audit	Lead for the monitoring/audit process	Frequency of monitoring / auditing	Lead for reviewing results	Lead for developing / reviewing action plan	Lead for monitoring action plan
All staff who are involved in the delivery of this service have read this guideline	Email a copy of this guideline to all staff and ask them to clarify when it has been read.	Caroline Senior	Every 3 years after review of the guideline/ to each new member of staff to the service	Caroline Senior	Caroline Senior	Caroline Senior
Staff will document their actions according to these guidelines	Cardiac team documentation audit which has been adapted to include questions relevant to the IV diuretic service (see Appendix 5)	Caroline Senior	Yearly	Caroline Senior	Caroline Senior	Caroline Senior
Assessment of staffs competency in this role	Completed competency document, signed off by a competent practitioner (see Appendix 6)	Caroline Senior	Ongoing. Each member of staff who is new to this role will complete the competency document.	Caroline Senior	Caroline Senior	Caroline Senior

11 Ratification and approval process

There has been significant consultation regarding the content of the original guideline including:
Leeds Community Heart Failure Service, Specialist Pharmacist and Cardiology consultants / registrars.
The IV diuretic service has a steering group that includes the cardiac service manager, heart failure nurses, Consultant Cardiologist with a specialist interest in heart failure, and cardiology registrar, specialist pharmacist, medicines management, ambulance service, Patient and Public Involvement (PPI), General Practitioner with a Special Interest in Cardiology (GPSI), Commissioners, palliative care, BHF and governance. All members of this group have been consulted and contributed to this guideline.

The guideline is quality assured by the Quality and Professional Development Department.

12 Dissemination and Implementation

Following approval, this guideline will be disseminated via the Quality and Professional Development (QPD) to senior managers for distribution to staff. The guideline will be available on the Leeds Intranet site.

13 Review arrangements

Review by Community Cardiac Team in 3 years or sooner if changes are required.

14 References

British National Formulary 61 March 2011

RCN 2010 Standards for Infusion Therapy

NMC 2008 Standards for Medicines Management

NMC 2010 Record keeping. Standards for Nurses and Midwives
Chronic Heart Failure: Management of Chronic Heart Failure in Adults in Primary and Secondary Care 2010 (NICE Clinical Guideline 108)

Zacharias, H., Raw, J., Nunn, A., Parsons, S., and Johnson, M. (2011) Is There a Role for Subcutaneous Furosemide in the Community and Hospice Management of End Stage Heart Failure?

Electronic Medicines Compendium, Summary of Product Characteristics for Furosemide for injection (June 2011)

British Heart Foundation, Providing Community (Home) Based Intravenous Diuretics for Patients with Chronic Heart Failure (July 2011)

National Institute for Clinical Excellence (NICE), Chronic Heart Failure, Management of chronic heart failure in adults in primary and secondary care, August 2010

15 Associated documents

Clinical Guideline for the Administration of Intravenous Therapy to Adults (PL213)

Clinical Guidance for the Safe use of the McKinley T34 Syringe Driver in Adult Services (GL050)

‘Procedure for Administration of Intravenous Diuretics to Patients with Heart Failure in the Community’ WASP competency document (with the Cardiac Service)

Clinical Guidelines for the Discharge From Hospital of Heart Failure Patients on Intravenous/ Subcutaneous (IV/SC) Diuretics – [LTLH] Guidelines number 2759

Appendix 1

Leeds Community Healthcare NHS Trust

Referral Form for Community Intravenous / Subcutaneous Diuretics (Heart Failure)

Name Address Tel No: DOB NHS Number	GP Name Practice Phone no. Fax no.
Referred by Name Position Contact Details	

Client Inclusion

*** The patient must have confirmed Left Ventricular Systolic Dysfunction (LVSD)**
Decompensated heart failure associated with any of the following despite adherence to oral diuretics:

- significant weight gain
- increased shortness of breath/ orthopnoea/ Paroxysmal Nocturnal Dyspnoea (PND)/ New York Heart Association (NYHA) class III/IV
- increased peripheral oedema/ ascites
- clinical signs of fluid overload
- the patient's clinical signs cannot be attributed to any other treatable cause (e.g. uncontrolled Atrial Fibrillation (AF), bradycardia, sepsis, thyroid disease, anaemia)

The patient must have adequate social arrangements to manage IV / SC therapy

Client Exclusion

- Patients who do not give consent who have capacity to do so
- Patients suffering from haemophilia or other bleeding disorder
- Patients with evidence of acute coronary syndrome or haemodynamically significant arrhythmia – these should be admitted to hospital
- Patients who have symptomatic postural hypotension. This is not an absolute contraindication to community IV / SC diuretic use but these patients will be discussed with a cardiologist prior to treatment.
- If patients Creatinine >300µmol/l, Sodium <125mmol/l, Potassium <3.5mmol/l, these will be discussed with cardiologist.
- Patient has co morbidity that warrants hospitalisation in its own right.

Patent Name	DOB
NHS No:	

Patient fulfils ALL inclusion criteria for service Yes† No†
*If no then please discuss with HFNS (0113 8434200) prior to sending referral

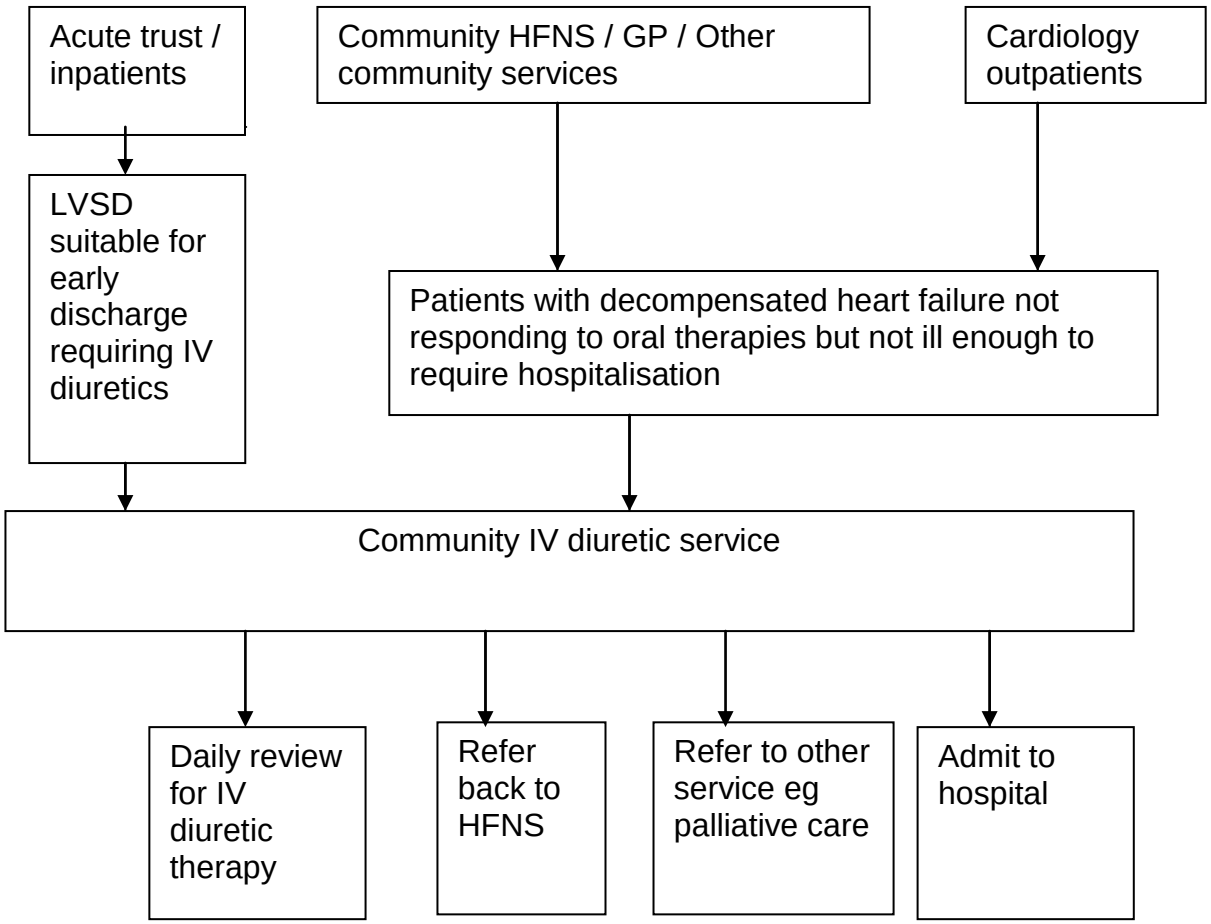
Echo Report	
Date of Echo	Echo Report Results (please attach report if possible)

Patient History (please attach patient summary if possible)
Current Medication (including any recent changes)
Allergies
Reason for Referral

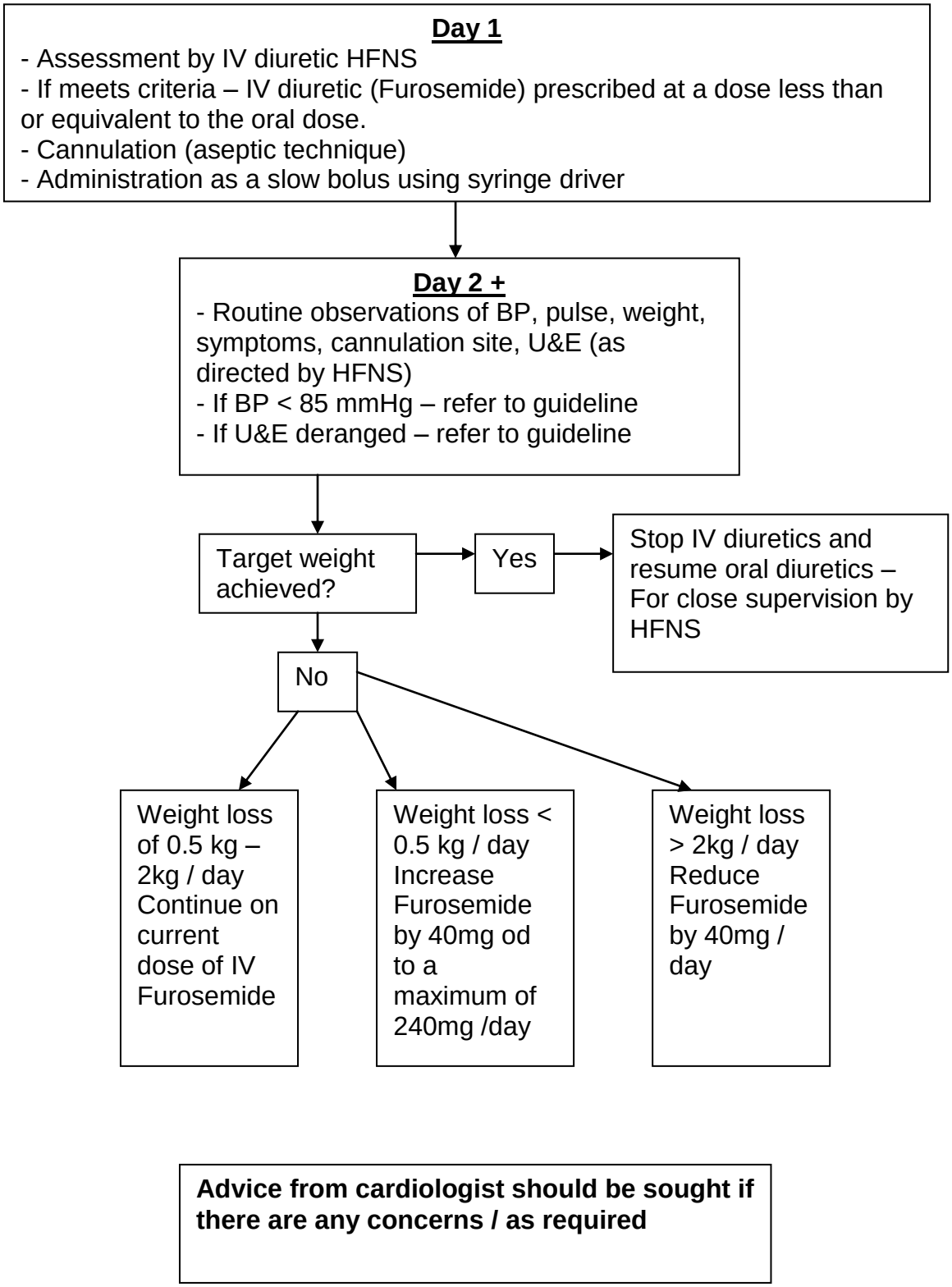
Blood Results	Date:	Date:
Na		
K		
Urea		
Creatinine		
egfr		

Please fax all referrals to 0113 8434201 – to ensure a prompt service then please telephone 0113 8434200 before sending.

Appendix 2 – Pathway for Referral and Patient Journey Through IV Diuretic Service



Appendix 3 – Summary of IV/SC Diuretic Procedure



Appendix 4 – Visual Infusion Phlebitis Score

IV site appears healthy	**0**	**No signs of phlebitis** **OBSERVE CANNULA**
ONE of the following is evident • **Slight pain near IV site** **OR** • **Slight redness near IV site**	**1**	**Possibly first signs of phlebitis** **OBSERVE CANNULA**
TWO of the following are evident • **Pain at IV site** • **Erythema** • **Swelling**	**2**	**Early signs of phlebitis** **RESITE CANNULA**
All of the following signs are evident • **Pain along path of cannula** • **Erythema** • **Induration**	**3**	**Medium stage of phlebitis** **RESITE CANNULA** **CONSIDER TREATMENT**
ALL the following signs are evident and extensive • **Pain along path of cannula** • **Erythema** • **Induration** • **Palpable venous cord**	**4**	**Advanced stage of phlebitis or the start of thrombophlebitis** **RESITE CANNULA** **CONSIDER TREATMENT**
ALL of the following are evident and extensive • **Pain along path of cannula** • **Erythema** • **Induration** • **Palpable venous cord** • **Pyrexia**	**5**	**Advanced stage of thrombophlebitis** **INITIATE TREATMENT** **RESITE CANNULA**

Appendix 5

Medicines Management Audit: IV Diuretic service												
1	Have IV diuretics been administered?											
If Yes complete questions 11 – 24												
2	Were these diuretics administered as part of the Care Package											
3	Was there a Specific Care / Treatment Plan written											
4	Was the treatment goal of the IV diuretics clearly stated											
5	Was the treatment communicated to the patients GP											
6	Are any adverse reactions to IV diuretics documented and reported											
Is there a Record of the following on the MAR chart												
7	drug name											
8	dose (e.g. 1g four times a day or 2 tablets four times a day)											
9	strength (e.g. 500mg)											
10	form (e.g. tablet or liquid)											
11	route of administration											
12	site of administration recorded											
13	Were all administered doses signed for											
14	Were omitted doses documented											
15	Do the patients notes clearly state why any doses were omitted											
Are the following recorded in the patients notes (cannula care)												
16	Date of cannula insertion											
17	Date of cannula removed / resited											
18	If cannula left in situ for > 72 hours the reason for this was documented											
19	Visual Infusion Phlebitis (VIP) score documented daily											

Appendix 6 – Procedure for Administration for Intravenous Diuretics to Patients with Heart Failure in the Community

	ACTION	RATIONALE	W	A and S					P
				Score	Score	Score	Score	Score	
1	Explain and discuss the procedure with the patient	To ensure the patient understands the procedure and gives valid consent							
2	Collect necessary equipment: a) Hand gel and hand wash b) Sani-Cloth detergent wipes c) Dressing pack d) 2 x 10ml luer-lok syringes for the flushes and 1 x 20/30ml luerlock syringe depending on dose of Furosemide to be administered. e) 3 blunt fill needles with filter for drawing up flushes and Furosemide f) Sani-Cloth small disinfection wipes g) Plastic apron and gloves h) 2 x 10ml vial Sodium Chloride 0.9% **for injection** i) Appropriate dose of Furosemide solution for injection as per medication chart j) Syringe extension set (giving set) k) Spare battery l) Appropriate sharps bin. m) McKinley T34 syringe	To ensure all equipment is available before commencing the procedure							

	driver n) Tubigrip bandage (green/ blue)								
3	Check correct medication is available for use and in date: Sodium Chloride 0.9% for **IV use.** Furosemide 50mg/5mls or 20mg/2mls solution for injection.	Maintaining patient safety by ensuring patient receives correct medication (5 Rights) • Right patient • Right medication • Right strength • Right route • Right time							
4	Uncover the cannula and Ensure infusion site is clean and dry. Complete the Visual Infusion Phlebitis (VIP) score	To observe for any sign of infection or phlebitis							
4	Decontaminate hands according to LCH Hand Hygiene policy	To reduce risk of cross infection							
5	Clean a surface with Sani-Cloth detergent wipes: Prepare sterile field according to LCH Aseptic Technique policy	To maintain a sterile field and reduce risk of cross infection as per LCH Aseptic Technique Policy							
6	Open sodium chloride and Furosemide ampoules and place on stable surface	To reduce risk of cross infection and allow solution to be drawn up in sterile syringe							
7	Clean hands with alcohol rub and allow to dry. Put on sterile gloves.	Prior to accessing sterile field to reduce risk of cross infection as per LCH Aseptic Technique Policy							
8	Draw up sodium chloride using a sterile syringe and needle.								

Guideline dissemination and implementation plan

Name of author who is leading with disseminating the document: **Caroline Senior**		**Title of Document** **Providing Intravenous/ Subcutaneous (IV / SC) Diuretics in the Community Setting for Patients with Heart Failure Clinical Guideline**	
	Actions	**Dates**	**Comments**
	Induction Sessions required - provide dates:		Not required – current guidance already in place. Staff involved in the delivery of this service will be made aware of the updated version via email.
	Launch Event required - provide dates:		Not required.
	Raising at meetings, provide dates/which meetings:		To be raised on the agenda of the Cardiac Service Citywide meeting in December 2014.
	Specific Instructions for disseminating the document		Actioned as below by the Quality and Professional Development Administrator
	Lead for audit and monitoring		Caroline Senior. See Section 10 – Monitoring compliance and Effectiveness for detail.
	Do you require a link through to Leeds Health Pathways?		Yes – this is already in place

The following will be actioned by the Quality and Professional Development Administrator:

- Email business units and departments requesting dissemination of document to applicable services
- Document uploaded on the LCH intranet
- Document forwarded to Leeds Health Pathways for uploading if applicable
- Superseded documents removed from the Intranet
- Article submitted to the next Community talk

Guideline Consultation Process

Title of Document	**Clinical Guideline for Providing Intravenous / Subcutaneous (IV / SC) Diuretics in the Community Setting for Patients with Heart Failure in Leeds**
Authors	Caroline Senior, Clinical Lead Cardiac Service Paula Smith, Community Cardiac Nurse Specialists
New / Revised Document	Revised
Lists of persons involved in developing the guideline	Kristian Bailey - Specialist Registrar Cardiology LTHT Shelagh Davenport - Clinical Effectiveness Facilitator, Governance and Professional Development LCH Professor Mark Kearney - Consultant Cardiologist with special interest in heart failure LTHT
List of persons involved in the consultation process	Kristian Bailey - Specialist Registrar Cardiology LTHT Shelagh Davenport - Clinical Effectiveness Facilitator, Governance and Professional Development LCH Professor Mark Kearney - Consultant Cardiologist with special interest in heart failure LTHT Gill Whitehead – Cardiac Service Manager LCH Carolyn Nelson - Head of Medicines Management LCH Andrew Whitehead - Specialist Pharmacist LCH/ LTHT Ian Painter – BHF Project Manager Angela Gregson – Palliative Care Service Lead LCH Gill Armstrong – QPD Lead for Clinical Effectiveness