

A guide to the administration of intravenous iron for people with anaemia of chronic kidney disease (CKD) in a non acute hospital setting.



ANSA

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CKD Forum

Introduction

Chronic Kidney Disease (CKD) is now recognised as a public health and primary care condition as much as a secondary care hospital based disease. CKD is common, harmful and treatable; one of its major complications is anaemia and thankfully that is one of the aspects of the disease where we have excellent evidence based treatments. I am grateful to the multi-professional CKD Forum and the Anaemia Nurse Specialist Association (ANSA) for pooling their considerable expertise and producing clear, concise guidance to assist healthcare professionals, managers and commissioners to establish services for the administration of intravenous iron for people with the anaemia of CKD in primary care and community settings.

It makes no sense for people with advanced kidney disease to have to travel long distances to receive treatments such as intravenous (IV) iron as an outpatient or day case in a hospital setting. The CKD Forum and ANSA are leading the way in developing partnerships with primary care so that services can be delivered safely and effectively closer to patients' homes. In "implanting care closer to home: convenient quality care for patients" we set out our intention and where appropriate specialist services should be transferred to a community setting and administration of IV iron is an ideal example. Kidney disease affects about 1 in 10 people in England; many of these individuals are elderly and most have other associated conditions in particular vascular disease. Historically people with kidney disease were referred to specialist services but it is increasingly clear that primary care has a major part to play in planning the care of people affected by kidney disease and that services can easily be provided in alternative settings such as day hospitals, community hospitals, GP surgeries and of course patients' own homes.

The production of this guidance provides Primary Care Trusts across England an opportunity to take a further step in providing fair, personalised, effective and safe care for our population. Implementation will demonstrate that the NHS is a system of care, with primary and secondary care working in partnership and where quality is the organising principle.



National Clinical Director for Kidney Care

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About this guide

This guide has been designed to assist healthcare professionals to set up services for the administration of intravenous iron for people with anaemia of chronic kidney disease (CKD) in a non acute hospital setting.

This is not applicable for patients receiving haemodialysis.

This guide was developed by members of the Chronic Kidney Disease Forum, a project group of the British Renal Society (BRS) and the Anaemia Nurse Specialist Association (ANSA).

Who should read this guide?

Healthcare professionals who care for adults with chronic kidney disease in a primary or secondary care setting and wish to engage with local providers of renal services to expand and develop the provision of appropriate treatment nearer to patient's homes. Specialist Commissioners/providers of patient services in primary care, renal service providers, local service providers, General practitioners, Community nurses and allied health care professionals.

Implementation

It is recommended that implementation of this guide be a joint collaboration with specialist commissioners, local and renal service providers.

The Dept of Health (2007) document 'Implementing care closer to home: convenient quality care for patients'¹ describes how specialist services can be transferred to a community setting with appropriate training, skills and competencies. Historically the administration of intravenous iron for people with anaemia of CKD has been provided by renal services in a secondary care setting, however by adopting this model, services could be expanded into a community setting.

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1. Service Development

Historically the administration of intravenous iron for people with anaemia of chronic kidney disease (CKD) has been provided by renal services in a secondary care setting. However to manage the increase in number of people being identified with anaemia of CKD, the providers of specialist care need to be creative in the way they develop their services to provide care for patients as close to home as possible. This means developing and expanding services such as intravenous iron administration into a community setting.

The recent Darzi report ² emphasises the need for quality, drawing on four overarching themes for the NHS over the next 10 years: a healthcare system that is fair, personalised, effective and safe. Such a strategy is underpinned by the movement of more complex care out of hospitals into community settings. By developing a more strategic, long-term and community focused approach to commissioning and delivering services, where commissioners and health professionals work together to deliver improved local health outcomes, world class commissioning will enable the NHS to meet the changing needs of the population and deliver a service which is clinically driven, patient centred and responsive to local needs.

The administration of intravenous iron is the type of service which can be transferred into a community setting providing the appropriate education, training, competencies and funding is in place.

All those involved in the development of such a service need to ensure staff are suitably qualified, with demonstrable competences, training and experience, to deliver safe, high quality care.

Models of care

Renal service providers in England are already starting to develop community iron services, four units share their experience:

Cornwall

Intravenous iron therapy administered in the community has been an integral aspect of care for our renal patients. Community given intravenous iron was first introduced in 2002 due to the rural geography of Cornwall. With some patients having to travel for up to one hour to receive a dose of intravenous iron an alternative to secondary care administration had to be found. To date there are now eight community hospitals throughout Cornwall administering intravenous iron. Community matrons and 'Acute Care at Home' nurses also administer iron in the patients' home. The cost of the drug is financed by secondary care. However, consumables and health care professionals time is funded by primary care. Initial In house training is provided by the Anaemia Nurse Specialist and all treatments are prescribed by secondary care. All first dose iron treatments are given in secondary care with subsequent doses being given in the community. In 2008 135 patients were referred to be given intravenous iron at their nearest community hospital and 14 patients were given iron in their own home via the Acute Care at Home team.

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Merseyside

Intravenous iron has been given in the community in Liverpool since 2005 which is in support of the national agendas for more localised care. In 2007 the service was expanded to cover two further areas, St Helens and Warrington. The iron is given by the intravenous therapy at home teams either in a local clinic or in the patient's own homes after assessment by the teams. Home therapy is not currently available in Warrington and limited in the other two areas due to staffing levels. First dose of intravenous iron is given in secondary care.

A community intravenous iron therapy policy was been developed and agreed by primary and secondary care for local use in 2005 and has been adapted to cover all areas. A care pathway has also been developed and commences in secondary care when the patient is given their first dose and stays with the patient at home ensuring continuity of care.

Full initial training is given to the home teams by the anaemia team within the Royal Liverpool Hospital. The anaemia team consists of one full time and one part time nurse. Subsequent training of new members of staff is undertaken by the home teams. If there is any need for further training or problems occur with training the at home teams, full training is still offered through secondary care. The cost of the intravenous iron is financed by secondary care; all disposables and primary healthcare personnel funding are provided by primary care. All treatments are prescribed by secondary care. To date there have not been any adverse reactions to intravenous iron

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Patient receiving treatment at home



Patient receiving treatment in the community hospital



The community team

Nottingham

Patients within Nottingham's catchment area have their IV iron administered within acute hospital setting, renal satellite unit clinics or, in the case of the conservative management patients, in their homes. Iron has been administered at home since 2004 with the first and second doses given in the hospital and any subsequent doses given in the home. Iron is administered by a renal nurse who carries an epipen. However, within the 5 years of home administration approximately 200 doses have been given with no adverse reactions.

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Kent

Within the catchment area of Kent Regional Renal services patients can receive intravenous iron in a day surgery unit or care of the elderly day hospital in an acute hospital setting, in renal satellite unit clinics, in a day hospital run by one of the PCT's or in their own homes. Renal services arrange the appointments and prescribe the iron. In the primary care setting the iron, disposables and nurses are funded by the PCT. An advanced skill protocol has been introduced to train the nurses to administer intravenous iron, with education, training and support provided by the Acute Trust renal anaemia nurses.

The renal anaemia nurses administer the iron in the satellite unit clinic; registered nurses administer iron in the acute hospital day surgery, day hospital and PCT day hospital. The Renal Consultant nurse gives intravenous iron to patients in their own home, in particular those who are receiving supportive care and have chosen not to have dialysis. Patients do not have to come to a secondary care centre for the initial dose; first doses are administered at home.

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*Please note the photographs used in this guide do not show the preferred sites for the administration of intravenous iron. Where possible the dorsum of the hand is the preferred site.

2. Overview of Anaemia of Chronic Kidney Disease (CKD)

The introduction of estimated glomerular filtration rate (eGFR) as a measurement of kidney function introduced in the UK in 2006 has led to an increase in the number of referrals into renal services. Recent estimates suggest 8.5% of the population have stage 3 to 5 CKD³, with over 90% of these in the Stage 3 category (eGFR 30-60 ml/min/1.73m²). The prevalence of CKD increases with age and it is more common in females than in males. CKD is divided into stages depending on the eGFR. Table 1 shows the stages and frequency of eGFR testing as recommended by NICE guidance for CKD 2008⁴

Table 1

Stage	eGFR ml/min/1.73m ²	Description	Testing frequency
1	≥ 90	Normal or ↑GFR with other evidence of kidney damage	12 monthly
2	60-89	Slight ↓ GFR with other evidence of kidney damage	12 monthly
3A 3B	45-59 30-44	Moderate ↓GFR with or without evidence of kidney damage	6 monthly
4	15-29	Severe ↓GFR with or without evidence of kidney damage	3 monthly
5	<15	Established renal failure	6 weekly

On average 30% of people with advanced kidney disease are referred late to renal services from both primary and secondary care³ causing increased mortality and morbidity. Those identified with stages 4 and 5 CKD are prone to complications such as renal anaemia and will inevitably require treatment for this at some stage.

The World Health Organisation defines anaemia as Haemoglobin (Hb) level <11g/dl in pregnant women and children aged 6 months to 5yrs, <12g/dl in non pregnant women and <13g/dl in men⁵. Management of anaemia should be considered in CKD when the Hb level is ≤ 11g/dl. An eGFR <60ml/min/1.73m² should trigger investigation into whether or not anaemia is due to CKD. When the eGFR is ≥ 60ml/min/1.73m² the anaemia is more likely to be related to other causes⁶.

The prevalence of anaemia of CKD has been estimated in a population study⁷ of stage 3-5 CKD as 4.9%. People with stage 3 CKD and diabetes have a 22% incidence of anaemia which is much greater than the incidence of 7.9% in those without diabetes⁸. Anaemia occurs early in those with diabetes and is associated with both iron deficiency and low erythropoietin levels.

Signs and symptoms of Anaemia of CKD

Anaemia of CKD may occur insidiously and can be overlooked as many of the signs and symptoms are similar to those of chronic disease e.g. fatigue, weakness, headache, reduced exercise tolerance, reduced cognitive function. It is therefore important to screen for anaemia particularly in those with stages 3B, 4 and 5 CKD. Effective treatment however gives marked improvement of symptoms.

Causes of anaemia of chronic kidney disease

- Reduced erythropoietin production
- Haemolysis
- Iron deficiency

(Vitamin B12 and red cell folate deficiency can also be contributory factors)

Causes of anaemia other than CKD

- Chronic blood loss
- Hypothyroidism
- Chronic infection or inflammation
- Aluminium toxicity
- Bone marrow infiltration
- Pure red cell aplasia
- Malignancy

Screening for Anaemia of CKD

If not already measured haemoglobin should be checked in people with stage 3B, 4 and 5 CKD to identify anaemia defined as Hb <11g/dl⁶

Baseline investigations should be performed when Hb <12g/dl (men) <11g/dl (women) which should include:

- Haemoglobin
- Red cell folate concentration
- Serum B12
- Serum ferritin
- Serum % transferrin saturation
- % Hypochromic red cells (if available)
- Tests for haemolysis
- Reticulocyte count
- C-reactive protein (CRP)
- Assessment of occult blood loss
- Nutritional status

Haemoglobin levels should be measured every 3-6 months in patients with stable CKD⁶.

3. Treatment of iron deficiency

Iron has an essential role in supporting erythropoiesis with 65% of the iron stored in the body used to form haemoglobin. The body requires 150mg of iron to raise the haemoglobin by 1g/dl. As red cell production increases iron stores are depleted. Iron stores need to be adequate otherwise red blood cell survival is reduced.

3 a. Measurement of Iron Status

The following tests are used to measure iron deficiency

- Serum Ferritin
- % Transferrin Saturation (%T sat)
- Hypochromic red cells

Iron deficiency should be considered in people with stage 3 and 4 CKD if the ferritin level is less than $100\mu\text{g/L}$ ⁶

Monitoring Iron Stores

All patients who are receiving erythropoiesis stimulating agents (ESAs) require iron supplementation to support the demands made on the iron stores. Regular monitoring of iron stores is essential during treatment. In CKD patients with a stable haemoglobin level not being treated with ESAs, iron stores should be measured every 3-6 months⁶. Patients who are being treated with ESAs should have their iron status checked every 4 weeks during the correction phase (three months) and thereafter every 3 months⁶. Patients who are receiving regular intravenous iron therapy should have their iron status checked every 3 months and the intravenous therapy discontinued for at least a week prior to performing the tests⁶. The responsibility of monitoring iron stores should be agreed by specialist services and primary care providers.

Managing Iron deficiency

The correction of iron deficiency anaemia is essential prior to commencing treatment of erythropoiesis stimulating agents (ESA). Iron supplements should be given concurrently when initiating ESA therapy as adequate iron stores are necessary to allow an optimal response to ESA therapy¹. ESA therapy should not be initiated in the presence of iron deficiency without also managing the iron deficiency. Treatment with intravenous iron may, by itself, correct anaemia amongst some patients with ACKD⁹.

3 b. Diagnosis and management

Diagram 1 is an algorithm adapted from NICE clinical guideline 39 for the diagnosis and management of iron deficiency anaemia in CKD

Diagnosis

Is anaemia due to CKD?

- Consider other causes if eGFR ≥ 60 ml/min/1.73m²
- Consider treating anaemia when:
 - Hb < 11 g/dl in stages 3b, 4 & 5

Determine iron status:

- Iron deficiency anaemia:
- diagnosed when serum ferritin < 100 μ g/l in stage 5 CKD
 - considered when serum ferritin < 100 μ g/l in stage 3 & 4 CKD

Functional iron deficiency defined by:

Serum ferritin > 100 μ g/l and either %HRC $> 6\%$ (if test available), or TSAT $< 20\%$

Treatment

Optimise iron status:

As per local protocol

Iron correction should maintain:

- Serum ferritin > 200 ?g/l
- TSAT $> 20\%$ (unless ferritin > 800 μ g/l) %HRC $< 6\%$ (unless ferritin > 800 ?g/l)

*This may require the use of intravenous iron

Monitoring

Maintain iron levels:

Serum ferritin > 100 μ g/l in

- and either
- TSAT $> 20\%$ (unless ferritin > 800 μ g/l), or
 - %HRC $< 6\%$ (unless ferritin > 800 μ g/l) in those with stages 3b, 4 & 5 CKD

This may require the use of intravenous iron

Monitor:

- iron status no earlier than 1 week after receiving i.v. iron and at intervals of 4 weeks to 3 months routinely.

The responsibility of monitoring iron stores should be agreed by specialist renal services and primary care providers.

Oral iron

Oral iron can be poorly absorbed and the absorption can be inhibited by other drugs such as calcium based phosphate binders and aluminium and by taking it with food and tea. Vitamin C however assists absorption and taking iron supplements with a glass of orange juice may help. However with many renal patients having to cope with dietary changes and restrictions, this may not always be possible¹⁰.

The side effects of oral iron such as constipation, diarrhoea and flatulence can often prevent it being taken regularly. However, oral iron is used in practice mainly for non- dialysis and peritoneal dialysis patients where the practicalities of administering intravenous iron are limiting.

3 c Intravenous Iron Preparations

Intravenous iron is currently available in three preparations for use in CKD^{11,12}.

- Cosmofer ®
- Venofer ®
- Ferinject ®

Table 2 gives a comprehensive description of each drug and it's indications for use.

Table 2

Preparation	Dose	Cautions	Contra-indications	Side effects	Advantages
Iron Sucrose Venofer® A complex of ferric hydroxide with sucrose containing 2% (20 mg/ml) of iron.	Slow intravenous injection (Over 5-10 minutes) <i>or</i> by intravenous infusion, calculated according to body-weight and iron deficit, (consult product literature). It is not recommended in children	Oral iron therapy should not be given until 5 days after last injection; facilities for cardiopulmonary resuscitation must be at hand; pregnancy	History of allergic disorders including asthma, eczema and anaphylaxis; liver disease; infection	nausea, vomiting, taste disturbances, headache, hypotension; less frequently paraesthesia, abdominal disorders, myalgia, fever, flushing, urticaria, peripheral oedema; rarely anaphylactoid reactions; injection site reactions including phlebitis have been reported	Venofer® can be safely given to patients across all modalities either as an infusion, or undiluted as a bolus dose via a butterfly needle. Most commonly used intravenous iron supplementation in renal medicine.
Iron Dextran Cosmofer® A complex of ferric hydroxide with dextrans containing 5% (50 mg/ml) of iron.	Slow intravenous infusion (Up to 4hrs) calculated according to body weight and iron deficit (not recommended in children under 14yrs)	Risk of anaphylaxis with as Dextran antibodies exist but unknown until Iron Dextran is given. Anaphylaxis occurs within seconds therefore this drug must be given in an environment where there are full resuscitation facilities available. Not suitable to be given at home. Increased risk of allergic reaction in immune or inflammatory conditions; hepatic impairment; renal impairment; oral iron not to be given until 5 days after last injection; pregnancy	History of allergic disorders including asthma and eczema; infection; active rheumatoid arthritis	nausea, dyspepsia, diarrhoea, chest pains, hypotension, dyspnoea, arthralgia, myalgia, pruritis, urticaria, rash, fever, shivering, flushing, headache; rarely anaphylactic reactions; injection site reactions including phlebitis reported.	Single dose infusion reduces visits to clinic/surgery Cannot be given as a bolus dose

Preparation	Dose	Cautions	Contra-indications	Side effects	Advantages
<p>Ferric Carboxymaltose</p> <p>Ferinject</p> <p>A complex of iron in a stable ferric state and a carbohydrate polymer containing 50mg/ml of iron.</p>	<p>A maximum single dose of 200mg of Ferinject® (4ml) administered as a rapid IV bolus or up to a maximum single dose of 1000mg (20ml) administered as an intravenous infusion over 15 minutes. The dose required is calculated according to body weight and iron deficit.</p>	<p>Patients with liver dysfunction, acute or chronic infections, asthma, eczema, atopic allergies. Paravenous leakage should be avoided and facilities for cardio-pulmonary resuscitation must be available</p>	<p>Known hypersensitivity to Ferinject®, anaemia not attributed to iron deficiency, iron overload or disturbances in iron utilisation, pregnancy in first trimester</p>	<p>Headache, dizziness, paraesthesia, hypotension, flushing, nausea, abdominal disorders, rash, pruritis, urticaria, myalgia, arthralgia, injection site reactions and rarely general disorders such as pyrexia, fatigue, malaise and peripheral oedema</p>	<p>No test dose required, rapid bolus delivery. As the only IV iron that allows for 1000mg to be given in 15 minutes, it can potentially be more convenient for patients and nursing staff.</p>

*Full prescribing information is available from www.medicines.org.uk

4. Education and Training

To enable services to develop, the necessary education and training should be in place. Renal services may be approached to provide education and training at local level.

4 a. Resources

The Anaemia Nurse Specialist Association (ANSA) in collaboration with Doctors.net.uk has developed the ANSA anaemia academy, a self directed e-learning programme.

The learning outcomes are accredited by the UK Conference of Post-graduate Education in General Practice (UKCEA), the Royal College of Nursing (RCN) and are aligned to the competency framework of the Knowledge and Skills Framework¹³ (KSF) for health care professionals. The first module, launched in April 2007, consists of three case studies typical of people presenting with chronic anaemia in the primary care setting. The second module has been available since April 2009.

To access this e-learning programme register with www.uknursing.net or www.doctors.net.uk/ansaeducation and there is no cost to register.

The ANSA website is also a great resource for members. For more information on how to join go to the ANSA website www.anaemianurse.org

The CKD Forum provides educational resources via the British Renal Society website www.britishrenal.org and in conjunction with OCB media has developed an e-learning CKD module www.ckdonline.org

4 b. Competencies

Nurses providing specialist care in community settings

All nurses are expected to work within their scope of professional practice and be able to demonstrate relevant expertise when moving into new areas. *Modernising Nursing Careers*¹⁴ is a framework identifying the future workforce which will include the role of nurses in planning and delivering specialist care in out-of-hospital settings.

Commissioners may wish to explore commissioning specialist nursing services in community settings that were previously only available in secondary care settings.

Alternatively primary care staff can be trained to develop these specialist skills. A range of competencies has been developed for such nurses and are linked to the Knowledge and skills framework¹³ (KSF) the Royal College of Nursing RCN standards for infusion therapy¹⁵ and Mid Trent Specialist Competency Framework¹⁶ (Appendix I & II).

Practitioners with a special interest (PWSI)

The level of skill or competence required to deliver that service will always exceed the core competencies of the individual's normal professional role, and that higher level of clinical skill and the manner in which PWSIs manage the higher degree of clinical risk will be verified by accreditation. Through accreditation, therefore, the individual will demonstrate that they have the appropriate skills, knowledge, attitudes, behaviours, experience and qualifications to deliver a safe, high-quality service. Individual clinicians will need to demonstrate the particular skills and experience they have acquired in their chosen specialist field, including any specialist qualifications and periods of supervised practice with experienced clinicians

NURSING COMPETENCIES FOR ADMINISTRATION OF INTRAVENOUS IRON

<p>Stage One:</p> <p>Assessment of patient</p>	<p>Competency statement:</p> <p>Patient has been assessed and meets criteria to be given intravenous iron.</p> <p>Patient has been referred and meets criteria to be given intravenous iron.</p> <p>Record patient's treatment plan (Template care plan attached.)</p> <p>Patient should be given written information about the treatment and procedure</p>	<p>Minimal required competency level</p> <p>Assessment of patient to receive IV iron treatment – must be level 2</p> <p>Following assessment – level 1</p>	<p>Staff Training</p> <p>Level 1: Follows local guidelines to ensure that blood tests and investigations that are requested relating to IV iron administration are obtained and/or reviewed</p> <p>Evidenced by:</p> <ul style="list-style-type: none"> • demonstrates awareness of the need to communicate relevant information relating to the individuals patient's haematological status • identifies whether a patient needs/is due to receive IV iron • able to identify the need for discussion/further investigations in relation to patient's haematological status 	<p>KSF Dimension:</p> <p>Core Dimensions:-</p> <p>1. Communication – level 3</p> <p>HWB 2 - Level 2</p> <p>HWB 6 - Level 2</p> <p>HWB 7 - Level 2</p>
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Stage Two:	Competency statements:	Minimal required competency level	Staff Training	KSF Dimensions
Environment required for administration of intravenous iron	<p>Possible locations for administering IV iron treatment are identified as:</p> <ul style="list-style-type: none"> • Community Hospitals • Cottage Hospitals • General practice surgeries • Home • Renal Satellite units <ul style="list-style-type: none"> • Intravenous iron can be administered with the recipient in either the seated or prone position. There must be accessibility to be able to lay the recipient in the prone position if this is needed. • If the iron is being given in the home environment the recipients G.P may be informed of the time, date and location of drug administration. <p>The person administering the IV iron must have accessibility to an anaphylaxis kit*</p>	<p>2</p> <p>2</p> <p>3</p> <p>2</p>	<p>Level 2: Identifies appropriate location/s for IV iron administration</p> <p>Evidenced by:</p> <ul style="list-style-type: none"> • provides individualised care to the patient and identifies clinical situations whereby IV iron treatments are proactive and responsive to clinical need • able to identify anaphylaxis symptoms related to IV iron treatment and is independently aware of follow on action/s 	<p>Core Dimensions:- 1 Communication – level 3 3 Health, Safety and Security – level 2-3</p> <p>HWB 1 - Level 2 HWB 4 - Level 2 HWB 7 - Level 2</p>

*Anaphylaxis protocols available from resuscitation council¹⁷ – local policy will apply

<p>Stage Three: Treatment plan</p>	<p>Competency statement: Staff administering intravenous iron must be aware of and conform to requirements detailed in the Staff Training and Education section. The person administering the intravenous iron must meet the following criteria:</p> <ul style="list-style-type: none"> • Be a registered nurse/health care professional • Have recognised cannulation skills and be competent at vascular medical device insertion; (as per local/national procedure) • Competent at administering intravenous drugs; (confirmed by local/national procedure.) <p>The intravenous iron drug must be prescribed by a recognised health care professional within the primary or secondary care setting. The prescriber could be:</p> <ul style="list-style-type: none"> • The patient's G.P • A Non-Medical Independent/Supplementary Prescriber • A doctor within the secondary care setting. 	<p>Minimal required competency level</p> <p>2</p>	<p>Staff Training</p> <p>Level 3: able to competently manage the care required to ensure a safe IV iron treatment episode</p> <p>Evidenced by:</p> <ul style="list-style-type: none"> • independently manages preparation and initiation of treatment episode and is able to provide rationale to support clinical decision making • demonstrates understanding of pharmacological implications and requirements of patients needing IV iron therapy 	<p>KSF Dimensions</p> <p>Core Dimensions:-</p> <p>1 Communication – level 3 3 Health, Safety and Security – level 2-3</p> <p>5 Quality – level 3 6 Equality, Diversity and Rights – level 2-3</p> <p>HWB 1 - Level 3 HWB 3 - Level 2 HWB 5 - Level 2 HWB 6 - Level 2</p>
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<p>Stage Four:</p> <p>Administration of intravenous iron.</p>	<p>Competency statements:</p> <p>The following must be adhered to:</p> <ul style="list-style-type: none"> • Drug preparation as per local/national procedures. • Skin preparation of administration site as per local/national procedure • Where possible avoid cannulation of the cubital fossa and radial sites • Pre and post administration blood pressure and pulse management. • The recipient is to be monitored for up to 30 minutes post treatment. <p>The UK Resuscitation Guidelines⁵ should be followed for the management of an adverse drug reaction or anaphylactic episode. Prior reading of this document is recommended before the administration of the IV iron treatment/s</p> <ul style="list-style-type: none"> • Document and record treatment episode 	<p>Minimal required competency level</p> <p>2</p>	<p>Staff Training</p> <p>Level 4: able to competently administer IV iron with/without supervision</p> <p>Evidenced by:</p> <ul style="list-style-type: none"> • administers IV iron in accordance with local guidelines • identifies and reports changes or problems relating to patient's treatment episodes/blood results and is able to demonstrate awareness of the necessary action required • acts as a specialist resource for patients, carers and members of the multidisciplinary team 	<p>KSF Dimensions</p> <p>Core Dimensions:-</p> <p>3 Health, Safety and Security – level 2-3</p> <p>4 Service Development – level 2</p> <p>5 Quality – Level 3</p> <p>HWB 1 - Level 3</p> <p>HWB 3 - Level 2</p> <p>HWB 5 - level 3</p> <p>HWB 8 - level 3</p>
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<p>Stage Five: Follow up care</p>	<p>Competency statement</p> <ul style="list-style-type: none"> • Blood testing is to occur at timely intervals • Regular blood sample monitoring must include haemoglobin level, iron stores and inflammatory markers • Further doses of iron may be needed if the patient meets the criteria • Responsibility for follow up cares lies with either the administering registered nurse/health care professional or with the individual who has prescribed the treatment 	<p>Minimal required competency level</p> <p>3</p>	<p>Staff Training</p> <p>Level 5: able to independently request/interpret specific data relating to follow on care</p> <p>Evidenced by:</p> <ul style="list-style-type: none"> • Independently requests blood sampling and, when needed, undertakes appropriate therapeutic interventions as required • Utilises knowledge to be proactive in the management of future treatment episodes • Utilises a clinical governance framework that promotes an active role for monitoring clinical outcomes • Acts as a specialist resource and advisor relating to IV iron treatments for clinical staff working in both secondary and primary care • Endeavours to ensure cost effective prescribing of IV iron drugs 	<p>KSF Dimensions</p> <p>Core Dimensions:- 1 Communication – level 3 3 Health, Safety and Security – level 2-3</p> <p>HWB 8 – level 3</p>
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Appendix I

Knowledge and Skills Framework

The following KSF dimensions and levels have been selected for this guidance:

Core Dimensions

- Communication
- Personal and people development
- Health safety and security
- Quality
- Service improvement
- Equality and diversity

Health and Wellbeing

- HWB1 Promotion of health and preventions of adverse effects to health and well being
- HWB2 Assessment and care planning to meet health and wellbeing needs
- HWB3 Protection of health and wellbeing
- HWB4 Enablement to address health and wellbeing needs
- HWB5 Provision of care to meet health and wellbeing needs
- HWB6 Assessment and treatment planning
- HWB 7 Interventions and treatments
- HWB 8 Biomedical investigation and intervention

Appendix II

ROYAL COLLEGE OF NURSING GUIDANCE FOR NURSES

SCALE	COMPETENCY LEVEL	LEVEL OF ACHIEVEMENT
1	<p>NOVICE</p> <p>Requires support and direction from those with greater experience to increase personal confidence</p>	<p>Can demonstrate ability to monitor, assess and implement treatment under direct supervision e.g.</p> <ul style="list-style-type: none"> • Mathematical calculations
2	<p>COMPETENT</p> <p>Able to review and undertake planned care/tasks referring to guidelines/protocols as required</p>	<p>Can perform activity without assistance and/or direct supervision e.g.</p> <ul style="list-style-type: none"> • Fluid balance and blood administration • Pharmacology and pharmaceuticals related to reconstitution and administration • Local and systemic complications • Infection Control issues • Use of equipment including infusion equipment • Drug administration • Care and management of vascular access device
3	<p>PROFICIENT</p> <p>Able to identify deviation from expected outcomes/progress and able to modify plans accordingly</p>	<p>Can demonstrate ability to perform activity using own initiative to independently problem solve e.g.</p> <ul style="list-style-type: none"> • Infusion therapy in specialist area (home environment) • Risk Management /health and safety • Legal and professional issues

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