PERITONEAL DIALYSIS (PD) PATIENTS – IRON MANAGEMENT

Cross References (including NSW Health/ SESLHD policy directives)	NSW Health PD2013_043 *Medication Handling in NSW Public Health Facilities* SGH CLIN166 *Ambulatory Care Unit – Referrals and Process: Administration of Medications And Treatments* SGH CLIN177 *Iron Ferric Carboxymaltose (Ferinject®) - Prescribing and Administration in Ambulatory Care Unit (ACU)* SGH CLIN279 *Iron Polymaltose (Ferrosig®)- Prescribing And Administration* SGH WPI 142 *Commencement and Management of Peritoneal Dialysis Patients At Home - Appendix B Routine Bloods for Peritoneal Dialysis*
1. What it is	A clinical business rule to describe a nurse facilitated and medical driven process to maintain optimal iron stores in PD patients
2. Risk Rating	Medium
3. Employees it Applies to	Registered Nurses (RN) trained in peritoneal dialysis Medical Officers (MO) trained in peritoneal dialysis

4. Process

Iron deficiency is one of the common causes of anaemia in PD patients. Routine monitoring of iron studies and iron supplementations are necessary measures in the prevention of iron-deficiency anaemia.

Definitions

Anaemia	patients with Hb <100 g/L
Iron deficient	patients with Ferritin <300 ug/L and/or TSAT <20%
Iron replete	patients with optimal iron store of Ferritin 300-800 ug/L and TSAT 20-50%

4.1 RECOMMENDED DOSAGE FOR IRON SUPPLEMENTATION

- 500 – 1000 mg iron administered intravenously in a single infusion

Or

- 250 mg iron administered intravenously every week for 4 doses

4.2 IRON AND HAEMOGLOBIN (Hb) TARGETS FOR PD PATIENTS

Ferritin	300 – 800 ug/L
TSAT	20 – 50%
Haemoglobin	100 – 120g/L

4.3 PROCEDURE

1. PD patients are to have iron studies every 3 months as per SGH WPI 142 Commencement and Management of Peritoneal Dialysis Patients At Home - Appendix B Routine Bloods for Peritoneal Dialysis. Pathology request form can be provided by the medical officers (MO) in renal clinic or by the PD nurses;

2. PD nurse will review Hb and iron studies results;
3. PD nurse will notify and forward a copy to MO of all results outside the iron and Hb target range;
4. PD nurse will flag to MO all patients with Hb <100 g/L with iron deficiency (Ferritin <300 ug/L and/or TSAT <20%). These patients are to be recommended for IV iron infusion.

   Note: Patients who will be NOT recommended to have iron infusion include:

   - Patients who had IV iron infusion within the past 6 months;
   - Patients who had prior adverse reaction/allergy to IV iron formulations i.e. iron polymaltose (Ferrosig, Ferrum H) or ferric carboxymaltose (Ferinject);
   - Patients known to have acute bleeding;
   - Patients with active infection;
   - Patients with iron overload (Ferritin >800 ug/L and TSATS >50%)
   - Iron replete patients
5. 2 weeks after IV iron infusion, patient is to have repeat iron studies and Hb. Pathology request form can be provided by the medical officers (MO) in renal clinic or by the PD nurses;
6. PD nurses to review results of repeat iron studies and Hb, notify and forward a copy to MO if results remain outside the iron and Hb target range.

4.4 IV IRON REFERRAL PROCESS

1. MO will refer patients for IV iron infusions to the Ambulatory Care Unit (ACU) by completing the forms utilising the approved Iron referral form (Ambulatory Care Unit *Iron Infusion Referral*) and prescription as per SGH CLIN166 Ambulatory Care Unit – Referrals and Process: Administration of Medications And Treatments and SGH CLIN279 Iron Polymaltose (Ferrosig®)- Prescribing And Administration or SGH Clin177 Iron Ferric Carboxymaltose (Ferinject®) - Prescribing and Administration in Ambulatory Care Unit (ACU):

   a) Complete an external prescription for Ferinject 500-1000 mg

   Or

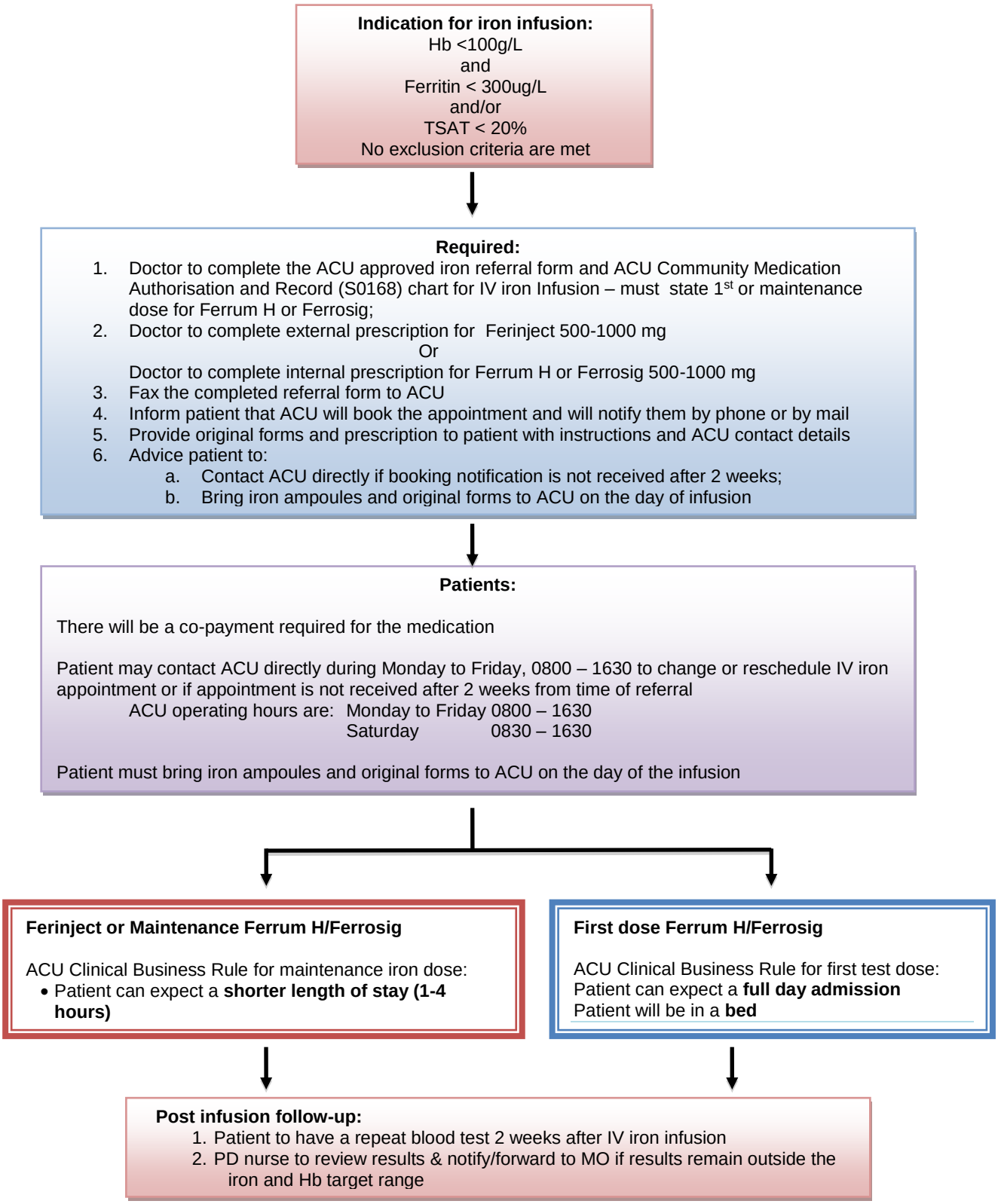
   Complete an internal prescription for Ferrum H or Ferrosig 500-1000 mg

   b) Complete the approved iron referral form and Community Medication Authorisation and Record (S0168) as per SGH CLIN166 Ambulatory Care Unit – Referrals and Process: Administration of Medications And Treatments:

      i. Note if IV iron order is “first” or “maintenance” dose
2. Fax the completed referral form to ACU (X31923 or 9113 1923);
3. Inform the patient that ACU will book the appointment and will notify them by phone or by mail;
4. Provide patient all the original forms and prescription and ACU contact details. Advice the patient to contact ACU (Monday to Friday, 0800-1630, ph 9113 2333) directly if booking notification is not received after 2 weeks or to change/reschedule IV iron appointment;

   - ACU hours of operation : Monday to Friday 0800 – 1630
     Saturday 0830 – 1630
5. Instruct patient to bring iron ampoules and original forms to ACU on the day of infusion.

4.5 IRON MANAGEMENT FLOWCHART FOR PD PATIENTS



5. Keywords	Peritoneal Dialysis, Iron infusion, Iron management, Ferinject, IV Iron, Ferrosig, Ferrum H
6. Functional Group	Renal, Peritoneal Dialysis
7. External References	MacGinley, R., Walker, R., and Irving, M. (2012). Use Of Iron in Chronic Kidney Disease Patients. *CARI: Caring For Australasians With Renal Impairment.* Available from: http://www.cari.org.au/Dialysis/dialysis%20biochemical%20hematological/KHA_CARI_Guideline_Fe_in_CKD_16_July_2013.pdf Kliger, A. S., Foley, R. N., Goldfarb, D. S., Goldstein, S. L., Johansen, K., Singh, A., & Szczech, L. (2013). KDOQI US commentary on the 2012 KDIGO Clinical Practice Guideline for Anemia in CKD. *American Journal of Kidney Disease,* 62(5), 849-859. doi:10.1053/j.ajkd.2013.06.008 MacGinley, R., Walker, R., & Irving, M. (2013). KHA-CARI Guideline: Use of iron in chronic kidney disease patients. *Nephrology,* 18(12), 747-749. doi:10.1111/nep.12139 McMahon LP and Macginley R. (2012). KHA-CARI guideline: Biochemical and Haematological Targets: Haemoglobin concentrations in patients using erythropoietin-stimulating agents. *Nephrology*; 17(1): 17-9. Mikhail, A., Brown, C., Williams, J. A., Mathrani, V., Shrivastava, R., Evans, J., … Bhandari, S. (2017). Renal association clinical practice guideline on Anaemia of Chronic Kidney Disease. *BMC nephrology*, *18*(1), 345. doi:10.1186/s12882-017-0688-1 Ferric Carboxymaltose (Ferinject) for Iron-Deficiency Anaemia. (2014) Available from: http://www.nps.org.au/__data/assets/pdf_file/0010/256780/Ferric-carboxymaltose.pdf Keating, G. (2014). Ferric Carboxymaltose: A Review of Its Use in Iron Deficiency. *Drugs;* 1-27. doi: 10.1007/s40265-014-0332-3 Larson, D. S., & Coyne, D. W. (2014). Update On Intravenous Iron Choices. *Current Opinion in Nephrology and Hypertension*; 23(2), 186-191 110.1097/1001.mnh.0000441154.0000440072.0000441152e
8. Consumer Advisory Group (CAG) approval of patient information brochure (or related material)	Not applicable
9. Implementation and Evaluation Plan Including education, training, clinical notes audit, knowledge evaluation audit etc	Inservices Learning Packages Publication on SGSHHS ClBR intranet page
10. Knowledge Evaluation	Q1: When is iron infusion/supplementation required? A: Iron infusion/supplementation is recommended for PD patients with Hb <100 g/L and iron deficiency (Ferritin <300 ug/L and/or TSAT <20%).

	Q2: What are the exclusion criteria for iron infusion? A: Iron infusion is not recommended for: • Patients who had IV iron infusion within the past 6 months; • Patients who had prior adverse reaction/allergy to IV iron formulations i.e. iron polymaltose (Ferrosig, Ferrum H) or ferric carboxymaltose (Ferinject); • Patients known to have acute bleeding; • Patients with active infection; • Patients with iron overload (Ferritin >800 ug/L and TSATS >50%) • Iron replete patients Q3: What is the monitoring required after the patient receives iron Infusion? A: 2 weeks after IV iron infusion, patient is to have a repeat blood test for iron studies and Hb. PD nurses will review the results and notify/forward to MO if results remain outside the iron and Hb target range
11. Who is Responsible	Medical Director Renal Service. Nursing Unit Manager, Dialysis Unit

Approval for PERITONEAL DIALYSIS (PD) PATIENTS – IRON MANAGEMENT	
Specialty/Department Committee	Committee title: Peritoneal Dialysis Committee Chairperson name/position: Franziska Pettit, Staff Specialist Date: 15.08.19
Nurse Manager	Name/position: Christine Day, Nurse Manager Medicine Date: 22.08.19
Medical Head of Department	Name /position: George Mangos, Department Head Renal Services Date: 15.08.19
Safe Use of Medicines Committee (SGH)	Chairperson's Name: A/Prof Winston Liauw Date: 24.10.19
Executive Sponsor	Name/position: Christine Day, Nurse Manager Medicine Date: 22.08.19
Contributors to ClBR development e.g. CNC, Medical Officers (names and position title/specialty)	Kerrie Thomas, CNC Ambulatory Care

Revision and Approval History

Date	Revision number	Author (Position)	Revision due
Sep 2016	0	Anna Claire Cuesta (PD CNC)	Sep 2019
Oct 2019	1	Anna Claire Cuesta (PD CNC)	Oct 2022

General Manager's Ratification
Name: Leisa Rathborne Date: 25.10.19