Local Guideline

Health
Hunter New England
Local Health District

Preoperative Use of Erythropoiesis Stimulating Agents for Patients who Refuse Blood Product Transfusion

Sites where Local Guideline applies	John Hunter Hospital
This Local Guideline applies to:	
1. Adults	Yes
2. Children up to 16 years	No
3. Neonates – less than 29 days	No
Target audience	Perioperative doctors and nurses, haematologists, surgeons
Description	This document provides guidance on patient selection for, and prescription and monitoring of erythropoiesis stimulating agents before major surgery.

Go to Guideline

Keywords	Aranesp®, darbepoetin alfa, erythropoiesis stimulating agents
Document registration number	
Replaces existing document?	No

Related Legislation, Australian Standard, NSW Ministry of Health Policy Directive or Guideline, National Safety and Quality Health Service Standard (NSQHSS) and/or other, HNE Health Document, Professional Guideline, Code of Practice or Ethics:

- See Reference Section on page 4

Local Guideline note	This document reflects what is currently regarded as safe and appropriate practice. This guideline does not replace the need for the application of clinical judgment in respect to each individual patient. If staff believe that the guideline should not apply in a particular clinical situation they must seek advice from their unit manager/delegate and document the variance in the patient's health record. If this document needs to be utilised outside of the John Hunter Hospital please liaise with the local Perioperative and Haematology Services to ensure the appropriateness of the information contained within the Guideline and Procedure.
Position responsible for the Local Guideline and authorised by	Perioperative Executive Committee
Contact person	Dr Paul Healey (Director Perioperative Service, John Hunter Hospital)
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Date authorised	xxx
This document contains advice on therapeutics	Yes (If Yes) Approval gained from Local Quality Use of Medicines Committee on (insert date)
Issue date	
Review date	Up to 3 years

Note: Over time links in this document may cease working. Where this occurs please source the document in the PPG Directory at: http://ppg.hne.health.nsw.gov.au/

PURPOSE AND RISKS

Long term use of ESAs to target near-normal Hb in malignancy and CKD patients is associated with increased risks of thromboembolism and possibly mortality. However, use in the short term, preoperative setting:

- Improves Hb concentration when used at higher doses[1]
- Reduces the number of transfused patients[1]
- Is associated with a low risk of perioperative adverse events.[1,2]

Risk Category*:* Clinical Care & Patient Safety

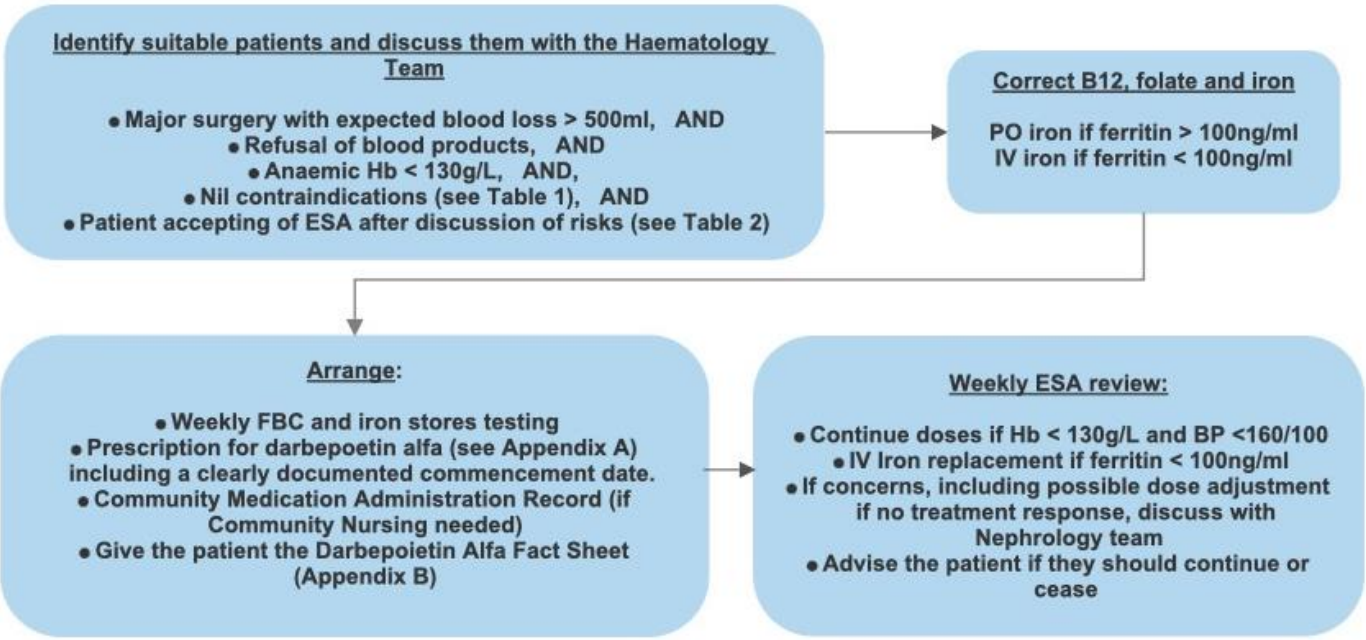
GLOSSARY

Acronym or Term	Definition
BP	Blood pressure
ESA	Erythropoiesis stimulating agent
FBC	Full blood count
Hb	Haemoglobin
IV	Intravenous
PO	Per oral
VTE	Venothromboembolism

GUIDELINE

This Guideline does not replace the need for the application of clinical judgment in respect to each individual patient.

Perioperative Clinic Doctor roles:



Major Surgeries with significant bleeding/transfusion risk

Thoracic, open vascular or EVAR, joint replacement, major urology (nephrectomy, prostatectomy), hysterectomy, gynae-oncology, major head and neck, multi-level spinal, major open general surgery

Nursing roles:

- **The physical script must be taken to the JHH pharmacy by the patient or perioperative staff.** In the latter situation, notify pharmacy of when the patient will collect their doses.
- **Advise the patient that there will be a small co-**payment for the medication with appropriate reductions for concession card holders
- **Check if the patient/family member will be able to self-administer** the dose (preferred) or if community nursing will be required.
- **If Community Nursing required, make the referral** – Newcastle 49242590, Maitland 49312003 and ensure the Community Medication Administration Record is complete
- **Arrange weekly BP recordings** at the patient's GP or pharmacist Ask
- **Fax the pathology form** for patient attendance 2 days prior to their next dose.
- **Advise the patient to store the darbepoetin alfa in their fridge**

Table 1. Contraindications to ESAs (risk factors for thrombotic events)[3,4]:

- Uncontrolled HTN
- Recent (within 1 month) coronary or cerebral ischaemic events
- Severe coronary, peripheral arterial, carotid or cerebrovascular disease
- History of thrombosis
- In those unable to receive chemical VTE prophylaxis postoperatively.[2]
- Use with caution in: HTN, malignancy, chronic liver failure, elevated platelets, epilepsy, pregnancy and lactation.
- If any concerns, discuss with the Nephrology Team.
- If active cancer, discuss with the patient's oncologist regarding appropriateness of ESA use, considering the patient's VTE risk from their cancer and cancer therapies

Table 2. Dosing and Administration

- Subcutaneous injection, safe to self-administer in a home environment.
- Aranesp® 50mcg subcutaneously once per week for a total of four doses (days -21, -14, -7, the last dose is given on the day of surgery)
- Weekly FBC measurements, 2 days before next dose, with cessation of Aranesp® if Hb >130g/L
- Ideally all doses will be dispensed from the JHH pharmacy, to the patient, at the time of a Face-to-Face preoperative clinic appointment. If therapy is ceased, patients can dispose of unused doses with their local pharmacy.

Table 3. Adverse effects[3,4]:

Common, mild adverse effects	Rare, serious adverse effects
Flu-like symptoms	Serious allergic or hypersensitivity reactions
Hypertension	Pure red cell aplasia
Mild pain at injection site	Stroke
Myalgia, arthralgia	Myocardial infarction
Nausea, vomiting, diarrhoea	Thrombosis
	Severe skin reactions
	Seizures

Distance patients

- Ideally all doses will be dispensed from JHH pharmacy, to the patient, at the time of a Face-to-Face preoperative clinic appointment.
- Where this is not possible (e.g. telehealth-only preoperative appointments or a Face-to-Face appointment scheduled too soon before surgery) dispensation by some hospitals within our cluster *may* be possible. Discuss with the Dispensary Manager, Paula Doherty on 55921
- The same FBC and BP checks, and approvals of weekly dose, will still need to be coordinated by the JHH Perioperative Service.

IMPLEMENTATION, MONITORING COMPLIANCE AND AUDIT

This guideline has been developed with input from the Perioperative, Haematology, Nephrology and Pharmacy Services. It will be presented to these departments, including nursing staff, via their Continuing Medical Education meetings and made available in an online repository.

It is expected that there will be only a small number of patients who will qualify for this therapy each year. Each patient will be discussed with the 4 services hence providing real-time quality control in the delivery of erythropoiesis stimulating agents. Any issues with the referral process or the delivery of care, will be reviewed by the involved services allowing future iterations of the guideline.

All venothromboembolic events occurring in the perioperative period will be reviewed by the abovementioned teams, as this is a recognised risk associated with therapy.

APPENDICES

Appendix A – Example of prescription for darbapoetin alfa

Appendix B – Darbopoetin alfa patient fact sheet

REFERENCES

1. Kaufner L, et al. Erythropoietin plus iron versus control treatment including placebo or iron for preoperative anaemic adults undergoing non-cardiac surgery. *Cochrane Database Syst Rev.* 2020 Aug; 2020(8): CD012451. doi: 10.1002/14651858.CD012451.pub2

2. Warner M, et al. Perioperative Anaemia: Prevention, Diagnosis and Management Throughout the Spectrum Perioperative Care. *Anesth Analg.* 2020 May;130(5):1364-1380. doi: 10.1213/ANE.0000000000004727
3. Therapeutic Goods Administration Product Information for Aranesp (darbepoetin alfa). Accessed online June 2022. Available from pdf (tga.gov.au)
4. London Regional Transfusion Committee. Care pathways for the management of adult patients refusing blood (including Jehovah's Witnesses). Accessed online June 2022. Available at: rtc-lo_2012_05_jw_policy.pdf

FEEDBACK

Any feedback on this document should be sent to the Contact Officer listed on the front page.

Appendix A – Example of prescription for darbepoetin alfa

Perioperative Service Script

Deliver to Discharge Lounge: ☐ Discharge date: / / Time: am/pm **COLLECT:** ☐

Hospital prescription
JOHN HUNTER HOSPITAL
LOOKOUT ROAD
NEW LAMBTON NSW 2305
PHONE: 0249213635

Provider no. 0012790J

FAMILY NAME	MRN
GIVEN NAME	☐ MALE ☐ FEMALE
D.O.B. ____/____/____	M.O.
ADDRESS	
LOCATION / WARD	
COMPLETE ALL DETAILS OR AFFIX PATIENT LABEL HERE	

Patient's Medicare number

Prescriber to
Print Patient's Name _____

Patient's Weight .....

Pharmaceutical benefits entitlement or DVA number

☐ Safety Net entitlement Card holder ☐ Concessional or dependant, RPBS beneficiary Safety Net concession card holder ☐ PBS ☐ RPBS

Generic drug name and form	Dose, strength, route, frequency	Qty/ days	Rpt	Approval number (compulsory for S100)
1.				
2.				
3.				
4.				
5.				
6.				
7.				

Darbepoetin alfa 50mcg subcut, weekly, 4 doses total
Start date:

Prescriber's Name/Designation: .....

Prescriber number: .....
(compulsory for S100 medications)

Signature: ..... Date: ..... Pager number: .....

I certify that I have received this medication and information on entitlement to free or concessional pharmaceutical benefits is not false or misleading

...../...../..... ....
Date of supply Patient or agent's signature Agent's address

JHHPHARM05 - 060715

Darbepoetin alfa subcutaneous injection FACT SHEET

Issued: date

Information about your medicine
This medicine is also known by its trade name Aranesp®

What is darbepoetin alfa?

Darbepoetin alpha is a man-made protein which helps your body to produce red blood cells. It works in the same way as the natural hormone erythropoietin.

Why you need this medicine

Darbepoetin alfa is used to treat anaemia. Anaemia reduces the ability of your blood to carry oxygen to your body. Anaemia is associated with worse outcomes after surgery. By improving your anaemia before surgery we are aiming to make surgery safer for you.

Before this medicine is given to you

You should not be given this medicine if:

- You are allergic to darbepoetin alfa or other erythropoietin products
- You have had a heart attack or stroke in the last month
- You suffer from epilepsy or convulsions
- You have a blood clotting disorder
- You have high blood pressure which has not been able to be controlled
- You have had pure red cell aplasia (a type of anaemia) caused by using darbepoetin alfa (or a similar drug) in the past
- You are, or intend to be, pregnant or breastfeeding.

Tell your doctor about the medicines you take, both those on prescription or “over the counter”. Also tell the doctor if any medication has changed since your last visit.

How this medicine is given:

This medicine is given as an injection under the skin. It is given at home by you, a carer, a family member or a community nurse. Each syringe contains your correct dose, so the full contents must be injected. Check the expiry date has not passed. Check that the packaging is intact. The skin is cleaned with a disinfectant before the injection and a very fine needle is used.

This medication is given multiple times to maximally improve your anaemia before surgery. The timing and dose of injections is determined by the length of time before your surgery. You may also need iron, B12 or folate to assist with treating your anaemia. You will have a weekly blood test to check your blood counts and iron levels, and weekly blood pressure checks. We will review these results before your next dose.

If you have injected too much, missed a dose or your health status changes (e.g. you become pregnant) contact the JHH Perioperative Service for advice.

We may advise you to stop your treatment if:

- Your blood counts improve rapidly and you are no longer anaemic
- Your blood pressure becomes high or you suffer other side effects from the medication

Possible side effects:
This medicine can cause side effects. Not every patient will have these side effects and many people will have no side effects at all.

Common side effects may include:
- High blood pressure
- Flu-like symptoms
- Mild pain at injection site

Rare side effects may include:
- Serious allergic or hypersensitivity reactions
- Severe skin reactions
- Seizures
- Pure red cell aplasia (an immune reaction meaning your blood counts do not rise, or even start to fall)
- Stroke
- Heart attack
- Blood clots
- Long term use of darbepoetin alfa may increase the risk of death in patients with cancer. Short term use before surgery is thought to be safe.

Symptoms of rare side effects include:
- Sudden numbness or weakness
- Problems with vision of speech
- Chest pain
- Trouble breathing
- Pain or cold feelings in an arm or leg

Go to John Hunter Hospital Emergency Dept or your local Emergency Dept as soon as possible if you get any of these side effects or are worried.

Other important information

Darbepoetin alfa is not licensed for use to improve anaemia *before surgery* although it is commonly used for anaemia in other settings. It has been used by Haematologists and Nephrologists as an anaemia treatment for many years with good results. If you would like more information about unlicensed use of this medicine your Pre-Admission Clinic doctor will discuss this with you.

Prescription and storage

You will be given a prescription from your Pre-Admission Clinic (Anaesthetic) doctor for this medicine. The script will be filled at the John Hunter Hospital pharmacy and there will be no out-of-pocket expenses for you.

This medication is stored in your refrigerator at 2-8°C. Do not store in the freezer. Keep it in the original box to protect it from light until it's time to inject it. Do not shake it. Keep out of reach of children and dispose of used needles as advised by pharmacy. There are no restrictions on your activities after having your darbepoetin alfa injection.

For more information

Ask the nurse or doctor at the Pre-Admission Clinic if you would like more information.
You can contact the Perioperative Department, Monday-Friday 8:00am - 4:00pm on (02) 49223018 or at HNELHD-JHHPeriop@health.nsw.gov.au