St. Charles HEALTH SYSTEM	**St. Charles Health System** Adult Ambulatory Infusion Order IV Iron with Indication Guidance	Patient Name: Date of Birth: *Patient Identification*

ALL ORDERS MUST BE MARKED IN INK WITH A CHECKMARK (✓) TO BE ACTIVE

Treatment Start Date: _____ Allergies: _____
Weight: _____kg Height: _____ cm

REQUIRED ITEMS for all orders – necessary for insurance approval, scheduling, and patient safety
1. FACE SHEET with complete INSURANCE information and patient CONTACT information
2. Recent VISIT NOTE to support treatment (if not available in Epic)
3. LAB RESULTS for any required prescreening (if not available in Epic)
4. DIAGNOSIS CODE _____
5. Patient NAME and DATE OF BIRTH on EVERY page faxed

IRON INFUSION ELIGIBILITY

1. St. Charles Infusion Center Preferred IV Iron Formulations (may differ by insurance)
    a. SCHS standard is flat dose administration of IV iron rather than a calculated weight-based iron deficit replacement.
    b. Preferred formulations are:
        i. Low molecular weight iron dextran (Infed)
        ii. Ferumoxytol (Feraheme)
    c. Non-Preferred Iron Formulations:
        i. Ferric carboxymaltose (known risk of refractory hypophosphatemia)
        ii. Iron sucrose (requires up to multiple infusion site visits for sufficient replacement; preferred in CKD)
2. Exclusion Criteria for IV Iron:
    a. Active infection
    b. Hemochromatosis
    c. Acute liver disease or injury with alanine or aspartate transaminase >3 times the upper limit of normal, acute hepatitis
    d. Pregnancy (Administration of IV iron is generally avoided prior to the 13th week of gestation)
    e. History of severe hypersensitivity reactions (patients with history of Fishbane reactions or mild or moderate hypersensitivity reactions may receive re-administration of IV iron supplementation if benefits outweigh risks)
3. Pre-Infusion Assessment
    a. Pre-treatment assessment should include measurement of the following labs:
        i. Complete blood count
        ii. Serum ferritin level.
        iii. Serum transferrin saturation (TSAT).
        iv. Serum vitamin B12 and folate levels.
    b. Treatment thresholds will vary by indication or underlying cause of anemia
4. Post-Infusion Assessment

a. 30-minute post infusion observation is recommended but optional for patients
b. Reassessment of the labs should occur 4-8 weeks after completion of treatment, if not at goal, re-treatment with another course of IV iron may be indicated. The expected response is generally 1-2 g/dL increase in hemoglobin.
c. Following labs should be assessed to determine response:
    i. Complete blood count
    ii. Serum ferritin level (in most patients the target ferritin after iron repletion should be at least 50 ng/ml)
    iii. Serum transferrin saturation (TSAT)
    iv. Serum phosphorus

GUIDELINES FOR ORDERING

1. Provider must order and obtain a ferritin prior to patient being scheduled for iron infusion.
    a. Labs drawn date: _____
    b. Copy of ferritin must be attached.
2. Many insurance providers require a ferritin result within 90 days. If ferritin is not within 90 days of signed date, then patient's insurance may deny coverage for this treatment.
3. Oral iron should be discontinued prior to administration of intravenous iron.
4. Premedication is not required prior to infusion of iron. If premedication is needed, such as in patients with multiple drug allergies, history of asthma, or history of reaction to iron products; consider premedication with hydrocortisone.

NURSING ORDERS:

1. TREATMENT PARAMETERS – Hold treatment and notify provider if Ferritin greater than 300 ng/mL.
2. Instruct patients to set follow up appointments with provider for follow up labs.
3. Nursing communication order, every visit: Monitor patient for potential adverse effects (ADEs) during and after infusion: ADEs may include hypersensitivity reactions (dyspnea, itching, hives, tracheal swelling or swelling of lips, eyelids, tongue and nasal mucosa), local injection site reactions (phlebitis, irritation, discoloration). Delayed reactions may occur within 24-48 hours after administration and include arthralgia, myalgia, backache, chills, dizziness, headache, malaise, nausea, vomiting and fever. Delayed reactions usually subside within 3-4 days.
4. Nursing communication orders, every visit: Monitor vital signs at baseline, every 15 minutes for one hour, then hourly during infusion, and at completion of the infusion.
5. Follow facility policies and/or protocols for vascular access maintenance with appropriate flush solution, declotting (alteplase), and/or dressing changes.

PRE-MEDICATIONS:

☐ Hydrocortisone 100 mg IV, ONCE x1 dose, 30 minutes prior to infusion, every visit

MEDICATIONS:

Iron deficiency anemia

Generally defined as meeting one of the following:

- Low hemoglobin. Values vary depending on the source; typically cited values are <12 g/dL in females and <13 g/dL in males.
- Low Ferritin. Threshold varies by indication (e.g., <50 ng/mL for diagnosis; <30 ng/mL for screening; <100 ng/mL for patients with cancer, restless legs syndrome, or certain inflammatory disorders)
- Transferrin saturation <20 percent

☐ iron dextran 1000mg in 250mL NS over 1 hour ONCE (test dose 25mg over 15 minutes followed by remainder of infusion over 1 hour after 45-minute monitoring period)

☐ ferumoxytol 510mg in 50 mL NS over 15 minutes WEEKLY x2 doses

Chronic Kidney Disease (not on dialysis)

Anemia in this setting is defined as:

- Diagnose anemia in adults and children > 15 years with CKD when the Hb concentration is < 13.0 g/dl in males and < 12.0 g/dl in females.

IV iron replacement in patients with anemia is usually considered under the following scenarios:

- Patients with CKD (not on dialysis) who have a TSAT ≤ 20 % and/or a serum ferritin concentration ≤ 100 ng/mL.
- Some patients may be considered at alternative thresholds with CKD who have a TSAT between 20 and 30 % and ferritin between 100 and 500 ng/mL. Although such patients are likely to have adequate iron stores, they may have insufficient iron availability for erythropoiesis (ie, functional iron deficiency) and many will respond to iron with an increase in Hb concentration or decrease in erythropoiesis-stimulating agent (ESA) dose.

☐ iron sucrose 200mg IV push over 2 minutes every other day x 5 doses

☐ ferumoxytol 510mg in 50 mL NS over 15 minutes WEEKLY x2 doses

Congestive Heart Failure (HFrEF, HFmrEF, HFpEF)

- Intravenous iron supplementation is recommended in symptomatic patients with heart failure with reduced ejection fraction (HFrEF) and heart failure with mildly reduced ejection fraction (HFmrEF), and iron deficiency, to alleviate HF symptoms and improve quality of life.
- Iron deficiency in this setting is usually defined as ferritin level < 100 µg /L or 100 to 300 µg/L, if the transferrin saturation is < 20%.

☐ iron dextran 1000mg in 250mL NS over 1 hour ONCE (test dose 25mg over 5 minutes followed by remainder of infusion over 1 hour after 45-minute monitoring period)

☐ ferumoxytol 510mg in 50 mL NS over 15 minutes WEEKLY x2 doses

Gastrointestinal Diseases

- Diagnostic criteria for iron deficiency depend on the level of inflammation. In patients without clinical, endoscopic, or biochemical evidence of active disease, serum ferritin < 30 µg/L is an appropriate criterion. In the presence of inflammation, a serum ferritin up to 100 µg/L may still be consistent with iron deficiency.
- In the presence of biochemical or clinical evidence of inflammation, the diagnostic criteria for anemia of chronic disease (ACD) are a serum ferritin > 100 µg/L and TSAT < 20%. If the serum ferritin level is between 30 and 100 µg/L, a combination of true iron deficiency and ACD is likely.
- After successful treatment of iron deficiency anemia with intravenous iron, re-treatment with intravenous iron should be initiated as soon as serum ferritin drops below 100 µg/L or hemoglobin below 12 or 13g/dL (according to gender).

☐ iron dextran 1000mg in 250mL NS over 1 hour ONCE (test dose 25mg over 5 minutes followed by remainder of infusion over 1 hour after 45-minute monitoring period)

☐ ferumoxytol 510mg in 50 mL NS over 15 minutes WEEKLY x2 doses

INFUSION MONITORING/REACTION:

1. EPINEPHrine HCl (ADRENALIN) injection, 0.3 mg, intramuscular, AS NEEDED x 1 dose for hypersensitivity or infusion reaction
2. hydrocortisone sodium succinate (SOLU-CORTEF) injection, 100 mg, intravenous, AS NEEDED x 1 dose for hypersensitivity or infusion reaction
3. famotidine (PEPCID) injection, 20 mg, intravenous, AS NEEDED x 1 dose for hypersensitivity or infusion reaction
4. albuterol (PROVENTIL HFA) inhaler, 4 puff, inhalation, EVERY 4 HOURS PRN for wheezing
5. 0.9% NaCl, 500 mL, intravenous, CONTINOUS PRN for hypersensitivity/infusion reaction

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☐ Opting out of standard protocol. Alternative orders are attached, or deviations are documented: _____

Patient will be treated at the following infusion location:

☑ St. Charles Outpatient Infusion Center
2500 NE Neff Road, Bend, OR 97701
Phone: (541) 706-5820 Fax: (541) 706-5825

By signing below, I represent the following:

- I am responsible for the care of the patient identified on this form
- I hold an active, unrestricted license to practice medicine
- I am acting within my scope of practice and authorized by law to order the medication described above for the patient identified on this form

ALL ITEMS BELOW MUST BE COMPLETED TO BE A VALID PRESCRIPTION

Signature: _____ License #: _____ Date: _____

Print Name: _____ Phone: _____ Fax: _____

Plan will expire 1 year after signature date at which time a new order will need to be placed