**Title:** Determining when intravenous iron treatment is appropriate in hospitalized patients.

**Purpose:** Iron deficiency anemia can be treated with oral iron products or intravenous iron products, but it can be unclear when anemia is severe enough to require intravenous treatment. Previous research has shown both dosage forms of iron are effective at treating anemia. This study aims to determine what factors play into the decision-making process of healthcare professionals when starting a patient on intravenous iron products.

**Methods:** The authors with Institutional Review Board approval completed a retrospective review focused on patients that received at least one dose of intravenous iron sucrose while hospitalized and excluded patients with end-stage renal disease or patients receiving chemotherapy for cancer treatment, which are known indications for intravenous iron use. Patient data from Springfield Memorial Hospital records between May 2017 to May 2022 were evaluated. Potential patients were screened using ICD-10 codes, administration of iron sucrose, and ages between 20 – 90. The primary objective was to determine which factors may influence the administration of intravenous iron. Factors evaluated included iron panels, hemoglobin levels, and drugs or therapies that may decrease oral iron absorption and prompt the need for intravenous therapy. The data collected included demographic data, comorbidities influencing anemia, the reason documented for using intravenous iron therapy, evaluation of drugs and therapy that influence iron levels, and iron panel analysis. Descriptive statistics compared factors such as the existence of concurring drug therapies, patient demographics, and other comorbidities. Physician notes explaining the rational for starting patients on intravenous iron sucrose were collected and analyzed.

**Results:** A total of 79 patient charts were analyzed for this study with 87.3% Caucasian, 12.7% African American, and 1.3% Asian American. There were 47 female patients, and the average age was 64 years old. Two hemoglobin levels were collected before the first dose of iron sucrose and before discharge. The median of the first being 8. 1g/dL with a range of 5.7 - 12.2g/dL while the median of the second being 8.8g/dL with a range of 5.6 - 12.5g/dL. Iron panels showed a median iron level of 23.5mcg/dL and a 7.2% iron saturation level. Oral iron products were given to 32.9% of patients, 11.4% patients received erythropoietin stimulating agents, 46.8% patients received at least one blood transfusion, and 67.1% received at least one dose of an acid suppressing agent. Of all the patients (n= 79), 6.3% received a second iron panel while 16.5% never received an iron panel. The most common intravenous iron treatment was iron sucrose 250mg, with 34% of patients receiving either 1 or 2 doses. Comorbid conditions showed 38% of patients having coronary artery disease and 21.5% with atrial fibrillation. Documentation on rational behind intravenous iron therapy was collected with no documented reason being the most common at 21.5%

**Conclusion:** There is a wide range of indications identified for patients requiring intravenous iron therapy. Recognizing causes of oral iron failure, coexisting treatment plans, and further analysis of iron panel, hemoglobin, and etiologies is needed to better understand when intravenous iron may be indicated.