# INTRAVENOUS IRON TREATMENT CONSIDERATIONS IN PATIENTS WITH NON-DIALYSIS DEPENDENT CHRONIC KIDNEY DISEASE

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## BACKGROUND

- Chronic Kidney disease (CKD) affects 37 million people in the US[1]
- Anemia is a common complication of CKD, with iron deficiency anemia (IDA) resulting from functional or absolute iron deficiency[2]
- In individuals with non-dialysis dependent (NDD)-CKD and IDA who do not respond to or tolerate oral iron, the 2012 Kidney Disease Improving Global Outcomes (KDIGO) guideline suggests using intravenous iron (IVI) for iron repletion[2]
- 1,000 mg of IVI is generally recommended for treatment of IDA[3]
- Depending on the iron preparation, full repletion necessitates 1 to 10 infusions
- Some institutional or insurance coverage policies restrict the use of certain IVI products based on drug cost alone, ignoring other aspects that can impact treatment

## OBJECTIVE

**To understand the incidence of incomplete treatment with IVI in NDD-CKD patients**

## METHODS

**This study was a longitudinal, retrospective analysis of Medicare administrative claims data from Komodo's Healthcare Map**

- This study included patients diagnosed with NDD-CKD and IDA prior to the date of first IVI infusion (index date) and treated with an IVI product during the index range (01/01/2020 - 09/30/2022)
- With use of claims data, discordance (a surrogate marker for nonadherence) was defined as having received less than 1,000 mg of iron over 6 weeks
- Patients with end stage renal disease (ESRD) or receiving hemodialysis were excluded
- IVI products evaluated were iron dextran, iron sucrose, sodium ferric gluconate, ferric carboxymaltose, ferric derisomaltose, and ferumoxytol

## RESULTS

**n=6,120** patients were included in this study

| | |
|---|---|
| The average age was | **75.4** years old |
| Average Charlson Comorbidity index was | **5.9** |

**Figure 2:** Patient Demographics

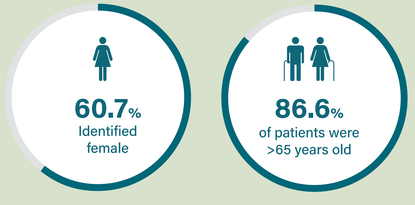



**Figure 1:** Study Design

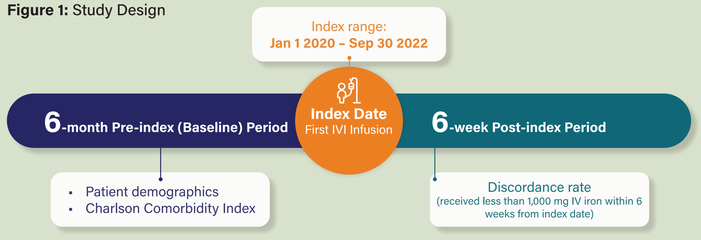
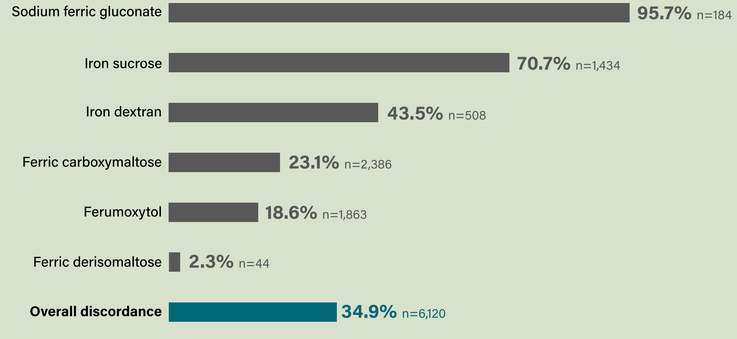



**Table 1:** Patient breakdown by CKD-staging

| Stages* | N (%) |
|---|---|
| **Stage 1** | 51 (0.82%) |
| **Stage 2** | 315 (5.07%) |
| **Stage 3** | 3,446 (55.5%) |
| **Stage 4** | 1,325 (21.3%) |
| **Stage 5** | 83 (1.34%) |

* CKD staging based on last available ICD-10 code

**Figure 3:** Discordance Rate (overall and by IVI product)




## LIMITATIONS

A 6-week timeframe was used for the definition of discordance, which covers the course of treatment per label for all products except for sodium ferric gluconate, which may take up to 8 weeks

Most patients require 1,000 mg of iron for repletion[4]; however, recommended doses for individual patient need varies

It is possible that some products were not administered according to FDA-approved labeling, rather this analysis represents real-world use of IV iron products

This analysis includes only data from Medicare insured patients from Komodo's Healthcare Map, which may not be generalizable to a wider patient population

This analysis did not include patients who have ESRD or those undergoing hemodialysis, as these conditions require unique therapeutic considerations due to the severity of the disease

## DISCUSSION

- Discordance was more frequent for IVI products requiring multiple infusions
- Additionally, IVI products requiring only two infusions still resulted in over 1 out of 6 patients being discordant
- Incomplete treatment with IVI hinders guideline-directed anemia management for patients with IDA and NDD-CKD

**This data should provide impetus for institutions and insurances to use a holistic approach and include rates of inadequate treatment and product preference in their IVI coverage policies**

### ABBREVIATIONS

**CKD:** Chronic kidney disease
**ESRD:** End-stage renal disease
**FDA:** US Food and Drug Administration
**IDA:** Iron deficiency anemia
**IV:** Intravenous
**IVI:** Intravenous iron
**KDIGO:** Kidney Disease Improving Global Outcomes
**NDD-CKD:** Non-dialysis dependent CKD
**US:** United States

### SPONSORSHIP

This study was funded by Pharmacosmos Therapeutics Inc.

### REFERENCES

1. Centers for Disease Control and Prevention. Chronic Kidney Disease in the United States, 2021. Centers for Disease Control and Prevention, US Department of Health and Human Services; 2021.
2. Kidney Disease: Improving Global Outcomes (KDIGO) Anemia Work Group. KDIGO clinical practice guideline for anemia in chronic kidney disease. Kidney Int Suppl. 2012;2(4):279-335. Available at: https://kdigo.org/wp-content/uploads/2016/10/KDIGO-2012-Anemia-Guideline-English.pdf. Accessed March 19, 2024.
3. Auerbach M, DeLoughery TG. Treatment of iron deficiency anemia in adults. UpToDate. Accessed April 3, 2024. https://www.uptodate.com/contents/treatment-of-iron-deficiency-anemia-in-adults
4. LaValleee C, Bansal I, Kamdar S, et al. Relationship between initial parenteral iron therapy dosing and treatment effectiveness: a real-world retrospective analysis. J Blood Med. 2022 Mar 8:13:133-142