

# IMPACT OF COVID-19 PANDEMIC ON IV IRON (IVI)

## COST AND UTILIZATION IN COMMERCIALY-INSURED PATIENTS WITH IRON DEFICIENCY ANEMIA (IDA)

Michael Polson, PharmD, MS<sup>1</sup> Bradley Winegar, PharmD<sup>2</sup> Susan Kidd, PharmD<sup>3</sup>  
 1. Pharmacosmos Therapeutics, Inc; Morristown, NJ 2. American Oncology Network; Fort Myers, FL 3. Cone Health; Greensboro, NC

### BACKGROUND

- Over 775 million cases of COVID-19 have been reported worldwide, with over 7 million deaths<sup>1</sup>
- Shortages in national and local blood supply during the pandemic highlighted the importance of the use of intravenous iron (IVI) to treat iron deficiency anemia (IDA)<sup>2</sup>
- IVI is used to treat IDA when oral iron is not effective or not tolerated<sup>3</sup>
- 1,000 mg of IVI is generally recommended for treatment of IDA<sup>4</sup>
- Depending on the iron preparation, full repletion requires 1 to 10 infusions of IVI
- Some payors restrict the use of IVI based on drug cost alone, ignoring the impact of infusion schedules, which may result in incomplete treatment that can contribute to negative patient outcomes and subsequent costs

### OBJECTIVE

Understand the impact of the COVID-19 pandemic on IVI cost and utilization in commercially-insured patients with IDA

#### ABBREVIATIONS

- CCI: Charlson Comorbidity Index
- FDA: Food and Drug Administration
- IDA: Iron deficiency anemia
- IVI: Intravenous iron
- TCoC: Total Cost of Care

#### REFERENCES

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- Blumenstein I, Shanbhag S, Langguth P, Kalra PA, Zoller H, Lim W. Newer formulations of intravenous iron: a review of their chemistry and key safety aspects - hypersensitivity, hypophosphatemia, and cardiovascular safety. Expert Opin Drug Saf. 2021;20(7):757-769.
- Auerbach M, DeLoughery TG. Treatment of iron deficiency anemia in adults. UpToDate. Accessed April 4, 2024. <https://www.uptodate.com/contents/treatment-of-iron-deficiency-anemia-in-adults>
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### METHODS

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

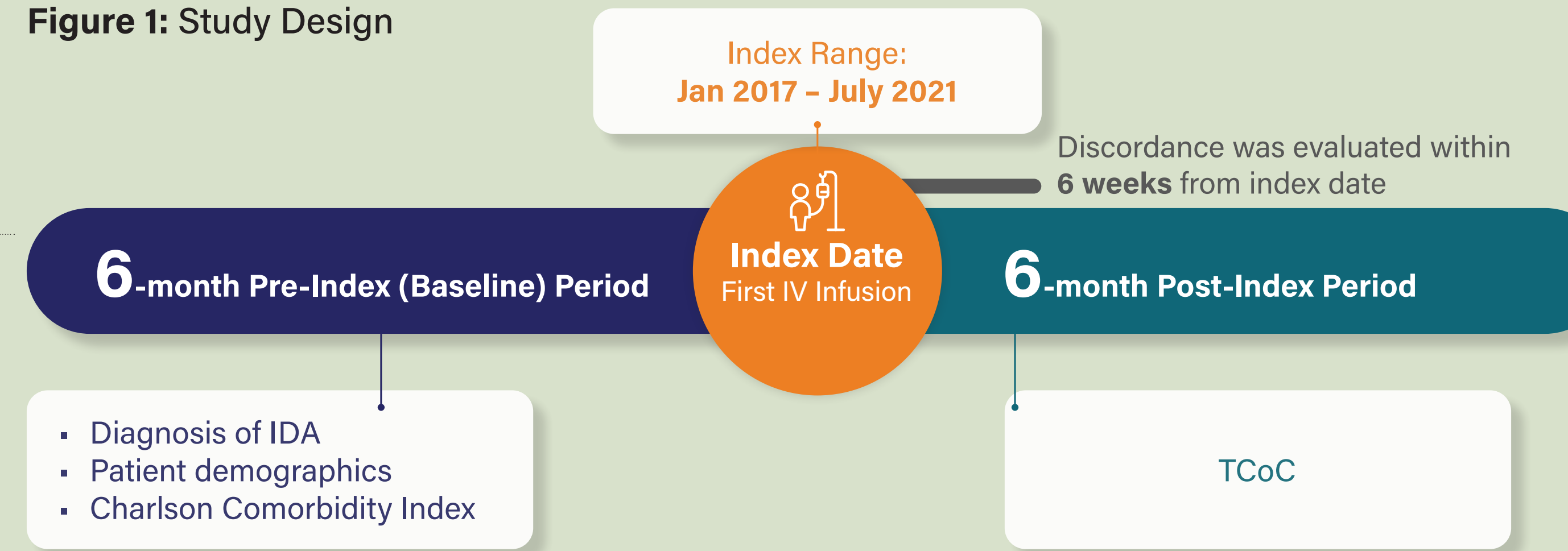
- Adult patients with a diagnosis of IDA within 6 months of index date and IVI treatment claim between January 2017 and July 2021 were included
- Date of first IV iron infusion was the index date. Patients were assigned to the 6-month period in which the index date occurred. The study was stratified by a pre-pandemic period (July 2017-December 2019) and pandemic period (January 2020 - July 2021)
- Continuous enrollment (both medical and pharmacy coverage) for the baseline and follow-up periods was required
- Total cost of care (TCoC) and discordance were evaluated
  - TCoC included inpatient, outpatient, ambulatory Rx and IVI costs incurred over the 6-month follow up period
  - Discordance, a surrogate marker for nonadherence, was defined as having received less than 1,000 mg of iron over 6 weeks
- Patients on hemodialysis, with an IVI claim during baseline period, or patients utilizing hospice services were excluded

IVI products evaluated were grouped as older generation (FDA-approved before 2009) and newer generation

Older Generation	Newer Generation
<ul style="list-style-type: none"> <li>Iron dextran</li> <li>Ferric gluconate</li> <li>Iron sucrose</li> </ul>	<ul style="list-style-type: none"> <li>Ferumoxylol</li> <li>Ferric carboxymaltose</li> <li>Ferric derisomaltose*</li> </ul>

\*Available October 2020

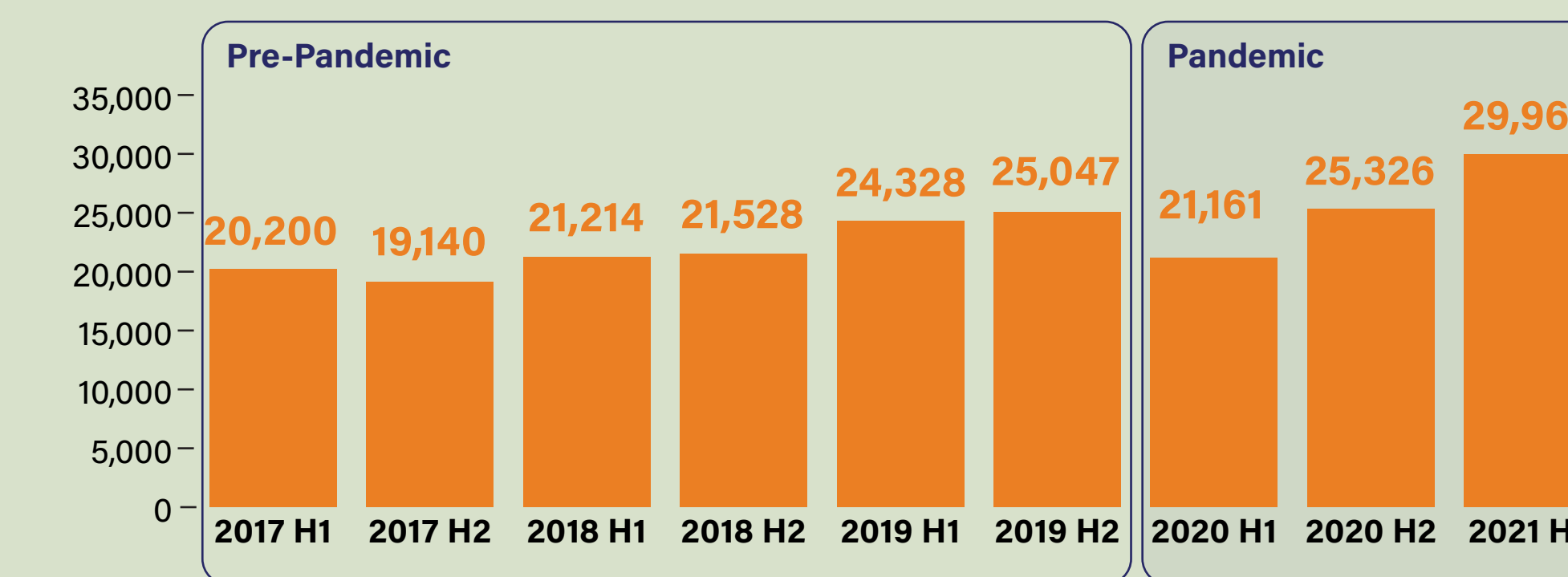
Figure 1: Study Design



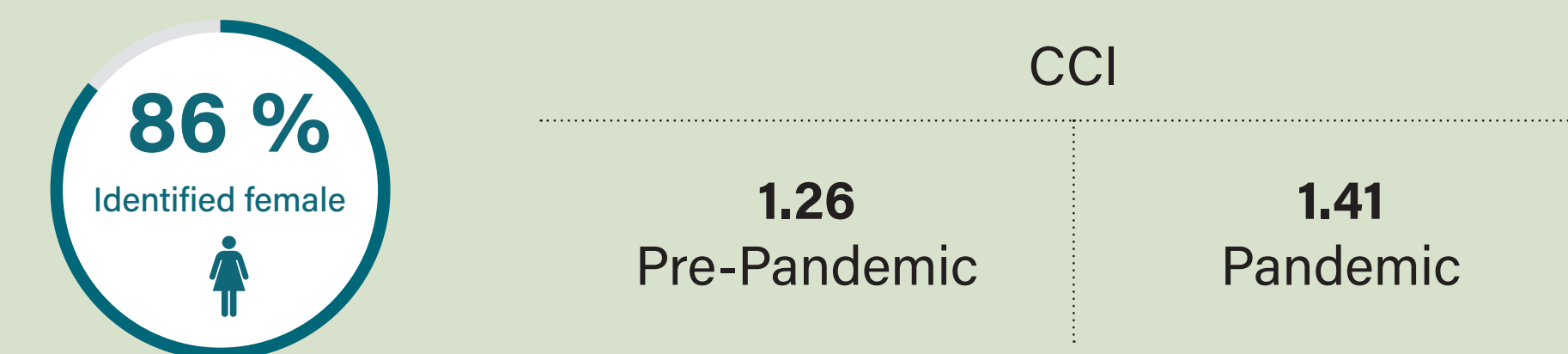
### RESULTS

Approximately 23,000 patients were included in each period (Figure 2).

Figure 2: Patient Breakdown by 6-month Period

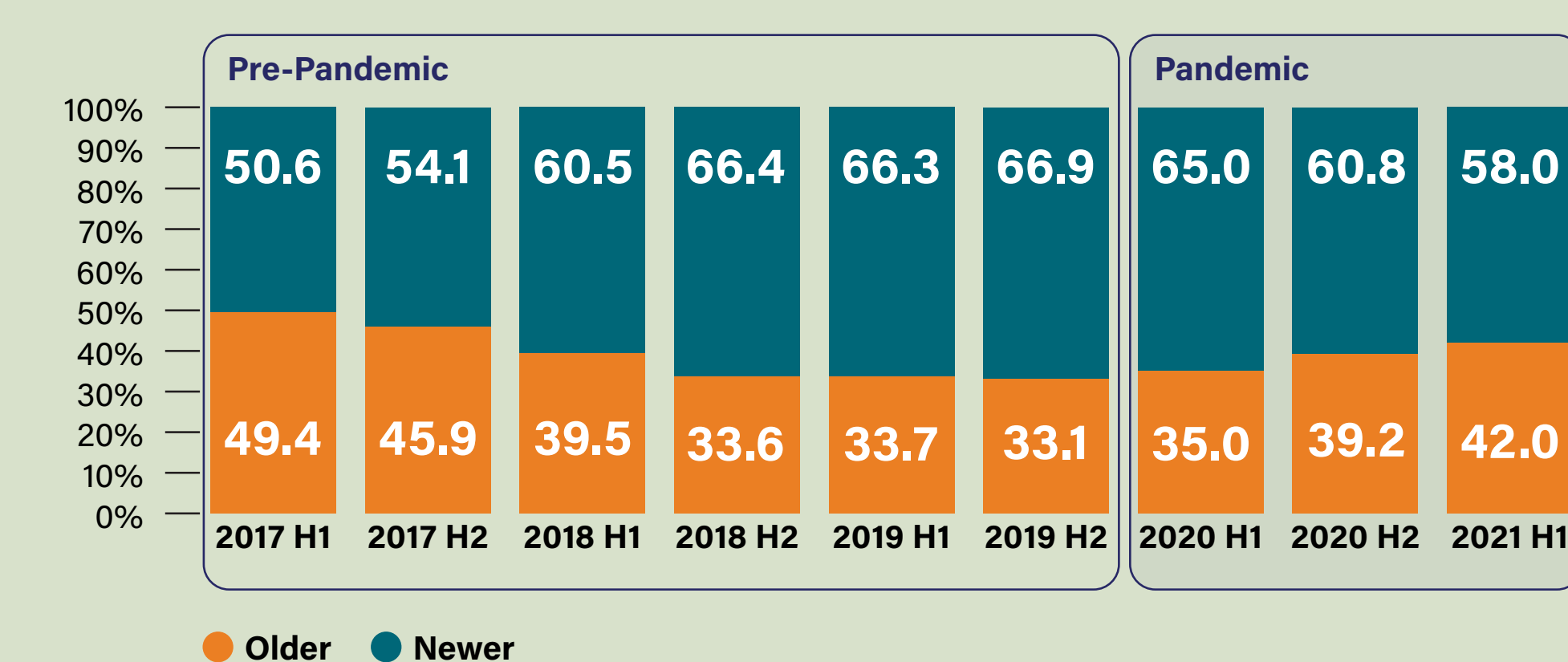


The average age was 45 years old. About 86% of patients identified as female. The average Charlson Comorbidity Index (CCI) trended higher during the pandemic at around 1.41 compared to 1.26 before, and then normalized thereafter.



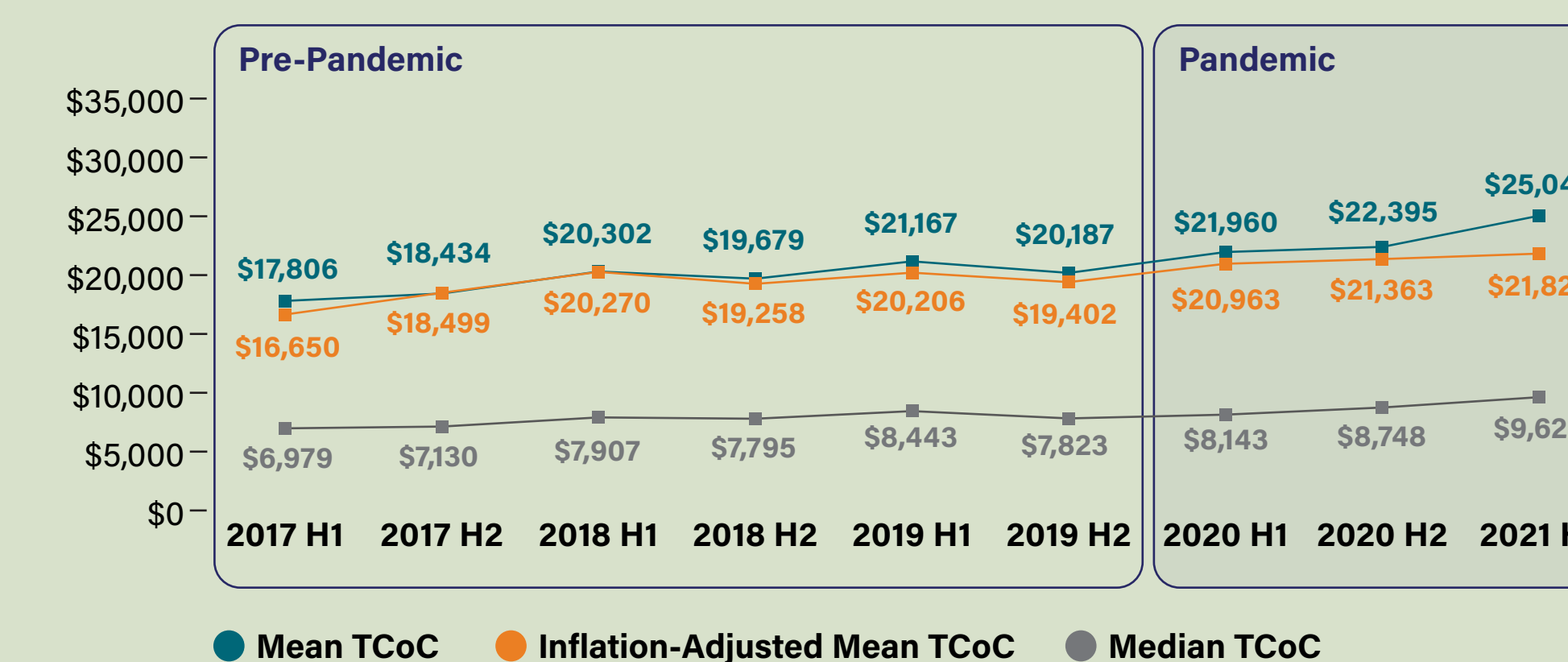
Percent utilization of newer generation IVI increased until the second half of 2019, then decreased due to payer management changes (Figure 3).

Figure 3: Percent Utilization by IV Iron Generation



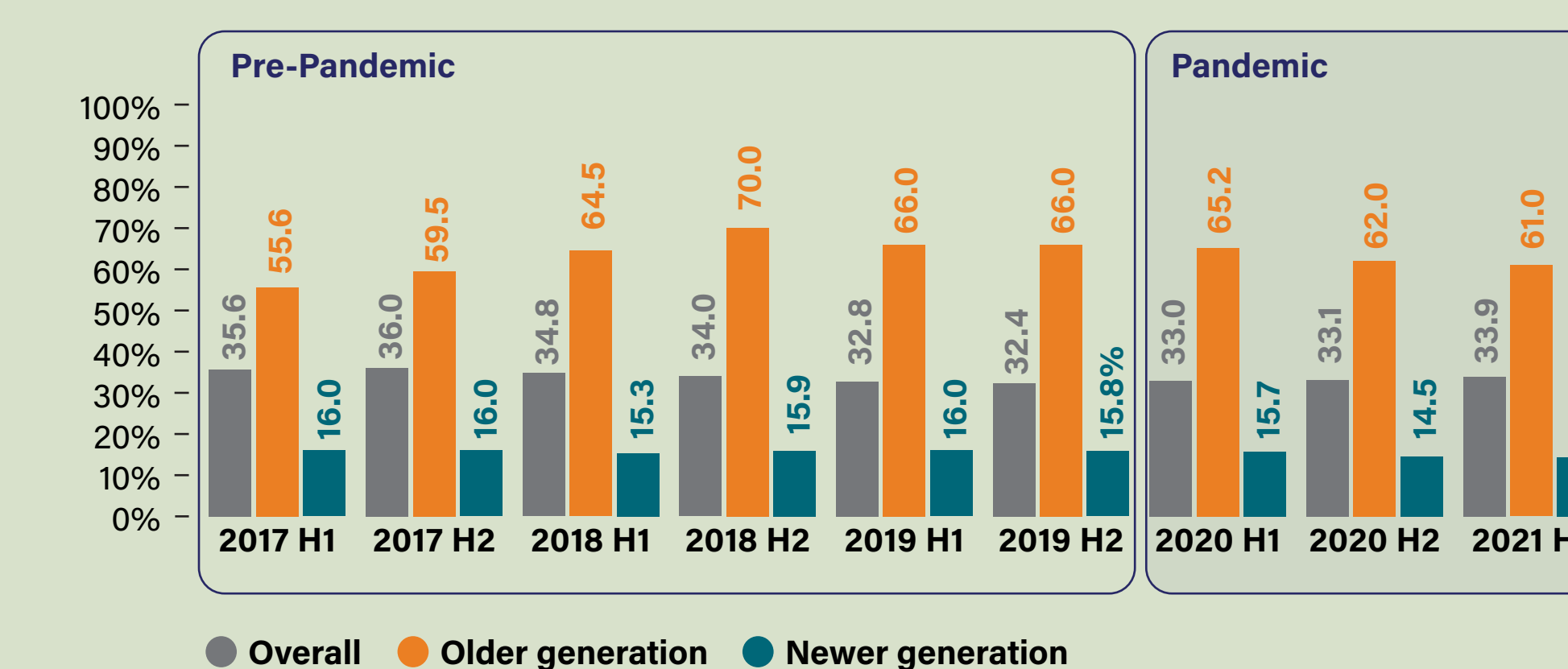
The mean TCoC increases to around \$20,000 during the first half of 2018 and maintained a steady upward trend during the pandemic period. After inflation adjustment, the mean TCoC increased by 31% overall (Figure 4).

Figure 4: Total Cost of Care Over Time



Discordance to IVI treatment declined (proportional to increased utilization of newer IVIs until the second half of 2019 and then increased; mean overall discordance was 34.6% (Figure 5).

Figure 5: Discordance Rate Throughout Study Period



### 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<sup>5</sup>; 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 IVI products

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

This analysis excluded patients undergoing hemodialysis or hospice care

### CONCLUSIONS

- The COVID-19 pandemic generally had a minimal impact on cost and utilization of IVIs, with consistent increases in TCoC across IVIs
- Distinct changes in utilization began in the first half of 2020, reflecting the shift in payor management of IVIs
- Based on the discordance rate observed, 1 in 3 patients receiving IVI infusion may have not received adequate treatment

Implementation of payor restrictions resulted in a proportional decline in concordance, negating any positive impacts of utilizing newer generation products, which generally require fewer infusions